



GOVERNMENT OF KERALA

ECONOMIC REVIEW 2020

Kerala State Planning Board

Volume

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State Planning Board, Thiruvananthapuram, Kerala, India
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FOREWORD

Kerala has been, and remains, the most important example in independent India of the power of public action to improve the well-being of the people and to transform social, political, and cultural conditions in a State. Kerala has once again proved the power of public action in producing socially impactful outcomes. The States' handling of the Covid-19 pandemic and associated crisis has been exemplary and widely appreciated. The unique response and resilience demonstrated in dealing with crises, year after year, has made Kerala a model in governance.

In the Approach Paper to the Thirteenth Five-Year Plan published in 2017, the Government had resolved to strengthen its commitment to human development and gender equality, increase investment in productive sectors, promote income-bearing services, particularly in tourism, information technology, and small and medium businesses, and strengthen Local Governments. In 2018, when Kerala had to face the worst floods of the century, livelihoods became the focus of the Plan. In 2020, with the Covid-19 pandemic, expenditure was prioritised for the most essential projects and programmes. The Government of Kerala ensured that no person was deprived of the basic necessities of life during the period of crisis.

The Government of Kerala has had to face a series of difficult events over the period of the Thirteenth Five-Year Plan. There were extreme weather events: cyclone Ockhi in 2017, and extreme rainfall events followed by floods and mudslides in 2018 and 2019. The State also had to face Nipah in 2018. In addition to the natural crises, adverse policy measures by Central Government such as demonetisation and introduction of Goods and Services tax affected the State economy, especially the financial resources at the disposal of the State for undertaking developmental activities.

Kerala's growth rate in 2019-20 is lower than the rate in 2018-19. The lagged effects of 2018 and 2019 floods, recessionary national and international economy, onset of Covid-19 pandemic towards the end of last quarter of 2019-20 are the reasons for the slow growth. In fact, recessionary economic conditions at the national and international level were visible from 2019 onwards. This has been further aggravated by the Covid-19 pandemic. Though some signs of recovery are slowly discernable, State Governments have to face specific difficulties to recovery.

Despite the low growth in 2019-20 and financial constraints, Kerala has made significant advancements in promoting growth of productive forces in the economy. The Government of Kerala has reinforced its thrust to support innovation, strengthen information technology and continued its commitment towards social welfare and protection and gender equality. Infrastructure development has received a push and in the coming years several projects will be completed. The Four Missions have ensured that the basic priorities of a quality life are assured to all.

Decentralised planning, which is now into its 25th year, has helped make development an inclusive and participatory process. Local Governments have become important institutions of realising the power of public action in practice.

As in previous years, the *Economic Review 2020* includes information on policies and programmes of the Government departments. It discusses the performance of various departments and the issues to be addressed in coming years. The major achievements in sectors have been highlighted in the relevant sections.

This year's theme chapter is on the experience of and response to the Covid-19 pandemic. The chapter documents the initiatives taken by the Government to address the pandemic and alleviate the hardships of the people. Kerala's response to Covid-19 has received world-wide acclaim. Kerala has shown the world the power of public action and set an example of a humane response to a crisis. From free supply of food to all to providing shelter to migrant workers in the State, Kerala has set high standards of public service, demonstrating a policy approach that keeps the people at the core of all policy measures. All wings of Government made significant interventions. The specific response measures by departments to address the Covid-19 pandemic have been covered in the relevant sections.

As in previous years, the *Review* is presented in two volumes. Volume I covers the policies, programmes, and achievements of Government departments and Volume II provides the corresponding datasets. *Economic Review 2020* is published in English and Malayalam. A digital version will be uploaded at the State Planning Board website www.spb.kerala.gov.in.

Thiruvananthapuram
December 21, 2020

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KERALA AT A GLANCE

The year 2019 was a year of subdued growth all around – global, national, and State. The world output grew by 2.9 per cent in 2019 as compared to 3.5 per cent in 2018. World economy moved into recession, worse than the one faced during the financial crisis in 2008-09. The national growth rates also plummeted to 4.2 per cent in 2019-20 from 6.1 per cent in 2018-19. Kerala's GSDP growth, which exceeded national rates in 2018-19 and grew at 6.49 per cent declined in 2019-20.

According to the quick estimates, Kerala's Gross State Domestic Product (GSDP) at constant (2011-12) prices is ₹5.68 lakh crore in 2019-20 as against the provisional estimate of ₹5.49 lakh crore in 2018-19. At current prices, the GSDP is estimated at ₹8.54 lakh crore (quick estimate) in 2019-20 as against the provisional estimate of ₹7.90 lakh crore in 2018-19, showing a growth rate of 8.15 per cent.

In terms of Gross State Value Added (GSVA), the quick estimate at constant (2011-12) prices is ₹5.01 lakh crore in 2019-20 as against the provisional estimate of ₹4.89 lakh crore in 2018-19. The growth rate of GSVA is only 2.58 per cent in 2019-20 compared to 6.2 per cent in 2018-19. However, it may be noted that the average rate of growth for the years 2016-17 to 2019-20 (5.4 per cent) was higher than the average rate of growth for the previous four years, 2012-13 to 2015-16 (4.8 per cent).

Kerala's growth rates that were higher than national rates of growth saw a downward trend in 2019-20. The reasons for this decline in growth rate are the consequence of the setbacks that the State economy has faced over the last three years. The State was hit by Cyclone Ockhi in 2017, and by severe floods resulting from extreme rainfall events in 2018 and 2019. The natural disasters ravaged the State economy affecting the lives and livelihoods of many and adversely affecting productive sectors of the economy.

The downward pressure on growth rates has been aggravated with the crisis caused by Covid-19 pandemic and consequent lockdown. World economy is projected to shrink by 3.2 per cent in 2020. The first quarter (April to June 2020) estimates of all India GDP growth show a contraction of 22.8 per cent. The State Planning Board conducted an assessment of losses to Kerala's economy because of Covid-19 pandemic and it was estimated that in the first quarter of 2020-21, the GSVA will shrink by 26 per cent.

Adding to the economic woes of low growth rates are the rising prices. Inflation remained benign during the first half of 2019-20 but exceeded the upper tolerance band around the target during December 2019-February 2020 on the back of rising food price pressures. Inflation as measured by Consumer Price Index numbers hovered around 6 per cent to 7 per cent in 2020. The State Government took proactive measures to provide commodities to consumers at fair prices with the help of co-operative institutions like Supplyco and Consumerfed.

The growth of value added in agriculture and allied sectors in Kerala continued to remain slow or negative for most of the period between 2011-12 and 2018-19. The rates of growth were (-)2.38 per cent and (-)6.62 per cent in 2018-19 and 2019-20 respectively.

As per the land use data of 2019-20, out of a total geographical area of 38.86 lakh hectare (ha), total cultivated area is 25.89 lakh ha (66.64 per cent) and the net area sown is 20.26 lakh ha (52.13 per cent). Land put to non-agricultural use stands at 11.73 per cent and forest area is 27.83 per cent. The cultivable waste and current fallow constituted 2.57 and 1.48 per cent respectively. The total cropped area and area sown more than once increased by 0.73 per cent and 4.92 per cent respectively as compared to 2018-19. Similarly, the cropping intensity has also increased from 126 per cent to 128 per cent.

In 2019-20, the production and productivity of paddy increased by 1.52 per cent and 5.24 per cent respectively compared to 2018-19. In fact, the highest productivity of 3073 kg per ha over the last ten years was recorded in 2019-20. The area under upland rice also increased by 46 per cent. Vegetable production in the State in 2019-20 was 14.9 lakh tonnes recording an increase of 23 per cent as compared to 2018-19. The increase in area and production of vegetables in the State can be attributed to the support provided through the vegetable development programmes implemented by the State Department of Agriculture Development and Farmers Welfare, Vegetable and Fruit Promotion Council, Kerala, State Horticulture Mission, Local Self Government Department and Kudumbashree.

As in all sectors, the Covid-19 pandemic affected agriculture in multiple ways – global trade came to a halt during lockdown, domestic prices of most agricultural crops fell sharply, and there was shortage of human power affecting the functioning of a number of processing units. The Government intervention was quick to ease the bottlenecks. To address issues related to food security, the Government announced the *Subhiksha Keralam* programme with focus on increased food production by enhancing the area under cultivation and adopting innovative technologies.

The role of financial institutions becomes all the more crucial when an economy is in a recession as credit is needed to sustain viability of agents and facilitate economic recovery. As constraints on fiscal space of Governments increase, interventions through financial institutions are part of steps to support the economy. There has been an increase in agriculture credit flow from ₹54,270 crore in 2016-17 to ₹73,034 crore in 2019-20.

The co-operative movement in the State has got a fillip with the formation of Kerala Bank. The Bank operates through a network of 769 branches with head office at Thiruvananthapuram, Corporate Business and Liaison Office at Ernakulam, seven regional Offices, Credit Processing Centres (CPC) at each District headquarters and Branch Offices across the State. Co-operatives have been at the forefront in providing various forms of support to the people in the form of housing, health care, social security pension and financial assistance.

Compared to the last two censuses (showing a trend of declining population), 20th Livestock Census shows one per cent increase in cattle population, 9 per cent increase in goat population, and 25 per cent increase in poultry population. A significant development in this sector is the introduction of Emergency Veterinary Service during night hours at block level. This service is currently provided in 125 blocks of the State, with 20 blocks added in 2019-20. The services will be extended to all blocks in 2021-22.

The total fish production of Kerala in 2019-20 is 6.8 lakh metric tonnes with a contribution of 4.75 lakh metric tonne from marine sector and 2.05 lakh metric tonne from inland sector. But the growth momentum seen in 2018-19 did not continue in 2019-20. In 2018-19, the total fish production was 8.02 lakh metric tonnes. However, efforts are being made to improve the quality of fish seeds and as a consequence in 2019-20 the area utilised for fish farming in ponds has increased from 5325 ha to 5700 ha, number of cage culture units have increased from 80 to 1800, mussel farming units have increased from 2000 to 3500, recirculatory aquaculture system/aquaponics units have increased from 100 to 500, one paddy one fish farming area has increased from 1620 ha to 2500 ha and zero water exchange shrimp farming was carried out in 200 ha area.

The net irrigated area has increased from 4.04 lakh ha in 2018-19 to 4.09 lakh ha 2019-20. A significant milestone with regard to water resources has been the commissioning of Muvattupuzha Valley Irrigation Project in 2020.

Forest Conservation and afforestation campaign in the State has shown results. The forest cover of the State has increased during the second consecutive assessment period also, thereby enabling the State to occupy third position in terms of increase in forest cover, as per India State of Forest Report 2019. As per the report, the total area under forests, including plantations is 21,144 square km which is 54.42 per cent of the geographical area of the State. There has been an increase in forest cover in Kerala by 823 square km, an increase of 2.12 per cent, as compared to previous assessment in 2017.

Conservation and preservation of environment have been central to all developmental efforts in the State. Haritha Keralam Mission has made focused efforts for water conservation and waste management. A novel project was started in 2019 by Haritha Keralam Mission with the objective of creating 1000 green islets (*Pachathuruth*) to preserve local biodiversity. The Mission has already completed 1261 green shoots at various places in the State.

The Government took special efforts in ensuring food security through the extensive network of its public distribution system, particularly in the current pandemic crisis period. In pursuance of the National Food Security Act 2013, the entire ration card data in the State are digitalised and Aadhaar seeding of beneficiaries in the State is nearing completion. Inter State portability of ration card is in force in the State as a part of the implementation of 'One Nation One Ration Card Programme.' The number of ration cardholders in the State increased from 87.1 lakh in 2019-20 to 87.9 lakh in 2020-21 (as on August 2020). The Government incurred ₹200 crore on various card holders as subsidy in 2019-20. In the wake of the Covid-19 pandemic, the Government distributed essential articles as a kit named 'Athijeevana Kit' which included 17 items. The items costing ₹972 per kit was distributed to 87.9 lakh families in the State free of cost. In addition to the above, free ration to the tune of ₹300 crore was distributed to all categories of families. A quantity of 5 kg rice or 4 kg atta per person was distributed to migrant workers free of cost.

There has been a steady increase in the size of Kerala's manufacturing sector, in value terms, especially so over the last four years. The share of manufacturing in Kerala's GSVA increased from 9.8 per cent in 2014-15 to 12.5 per cent in 2019-20. As per quick estimates of Kerala's Gross State Value Added (GSVA), the manufacturing sector of Kerala grew at 1.5 per cent at constant prices (2011-12) in 2019-20. The shares of manufacturing sector to GSVA in Kerala at constant and current prices in 2019-20 were 12.5 per cent and 10.1 per cent respectively.

Kerala Micro Small Medium Enterprises Facilitation Act 2019 and the rules made therein under section 14 of the Act is one of the key initiatives under the Ease of Doing Business Reforms of Industries Department for establishing and operating MSME units. In 2019-20, 13,695 MSMEs started with an investment of ₹1,338.65 crore and created 46081 employment opportunities. One of the significant developments is the launching of Kerala e-market portal to help and facilitate micro, small and medium enterprises, and public sector undertakings to expand their business in the national and international markets.

The pandemic and the consequent lockdown affected MSMEs adversely. MSMEs were plagued by both demand and supply side issues. The number of units started, investment and employment has drastically declined as per the estimates taken for the first eight months of 2020 as compared to the corresponding months of 2019. To mitigate the impact of the pandemic, the Government introduced *Vyavasaya Bhadratha* scheme to revive MSMEs in the State.

A sector which has seen a tremendous change is the coir sector. Exports from Kerala State Coir Corporation and Foam Mattings (India) Limited along with Coirfed has

been increasing continuously since 2015-16. In terms of value of exports, it has increased to ₹1425.86 lakh in 2019-20 from ₹1072.55 lakh in 2016-17. Through the operation of new defibering units, the husk utilisation in the State has risen from 12.5 per cent to 14.8 per cent. In 2019-20, the coir yarn production in co-operative sector has increased to more than 20,000 MT from about 7,800 MT in 2015-16.

Kerala has been successful in creating and encouraging a startup ecosystem in the State. Currently among startups, Kerala is ninth in the country with 1292 active startups. As per the Nasscom report on startups, Gujarat took the Best Performer ranking, while Karnataka and Kerala are top performers. Under the banner of Kerala Startup Mission and several of its sector-specific partner organisations, there are presently more than 2,500 registered start-ups with more than 4 lakh square feet of incubation space, ₹1,500 crore investment, value creation of ₹1,00,000 crore and providing employment to 25,000 persons.

With a view to identify and implement programmes to achieve excellence in science and technology within the State and to provide service to the society at large, the Kerala State Council for Science, Technology and Environment has been implementing various schemes and programmes focusing on science popularisation and promotion, research and development, ecology and environment, technology development and transfer, biotechnology development, school level promotional activities and science programmes for women. The Institute of Advanced Virology, inaugurated in October 2020, is affiliated to the Global Virus Network, which has 45 centres of excellence in over 29 countries.

Tourism sector rebounded strongly in 2019 after the 2018 floods and witnessed 8.52 per cent growth in foreign tourist arrivals and 17.81 per cent growth in domestic tourist arrivals as compared to 2018 figures. The foreign exchange earnings from tourism in the year 2019 was ₹10,271.06 crore and domestic tourist earnings was ₹24,785.62 crore. Total earnings including direct and indirect means in 2019 was ₹45,010.69 crore showing an increase of 24.13 per cent over 2018. One of the sectors that is the hardest hit by the Covid-19 pandemic is the tourism sector. The loss in earnings in tourism is in the range of ₹20,000 crore to ₹25,000 crore over the nine months of 2020. The Government has announced Covid loss assistance scheme to support the stakeholders in the tourism industry for the revival of the tourism sector.

Niti Aayog, Government of India has developed the first-ever Export Preparedness Index (EPI) for Indian states. The Index ranks States and Union territories on critical parameters required for promoting the country's exports. Export Preparedness Index 2020 examines the export ecosystem of Indian States and Union Territories. The Index includes four pillars and eleven sub-pillars. The four pillars are (i) Policy, (ii) Business Ecosystem, (iii) Export Ecosystem and (iv) Export Performance. Kerala is ranked 10th in the overall ranking with a score of 54.11. Kerala is the only State that has performed exceedingly well in export diversification. However, as per the index, export ecosystem is weak in the State.

Education and Health sector in the State has seen a tremendous change in the last four years. School infrastructure has been upgraded. 141 higher secondary schools

have been made 'centres of excellence' using the KIIFB fund of ₹5 crore each. Infrastructural facilities in 395 schools have been upgraded with the allocation of KIIFB fund of ₹3 crore each. KITE has converted 45,000 classrooms as Hi-Tech (standard 8 to 12) in 4,752 Government and Aided schools in the State. The initiative of KITE in ensuring smooth conduct of classes on digital mode during the Covid-19 pandemic has been exemplary.

Kerala's health sector has been a model for other States of India not only in terms of gains in the sector but also in dealing with public health exigencies. The health system rose to the occasion in dealing with the Nipah virus in 2018 and 2019 and the present Covid-19 pandemic. It is well known that the State has made significant gains in health indices such as high life expectancy, infant mortality rate, birth rate, and death rate. In fact, it is the strong public health system in the State that made it possible to deal with the Covid-19 pandemic so effectively. The Aardram Mission has transformed the health infrastructure in the State. A significant step taken by Government in the health insurance sphere is the formation of the State Health Agency in July 2020. From July 1, 2020, the Karunya Arogya Suraksha Padhathi scheme is implemented under assurance mode for the entire ₹5 lakh coverage. KASP converges all the Government sponsored health insurance schemes namely, Rashtriya Swastha Bima Yojana (RSBY), Comprehensive Health Insurance Scheme (CHIS), and Senior Citizen Health Insurance Scheme (SCHIS). The scheme covers 41.41 lakhs families.

Kerala is known for the investment that it makes in its people to improve their wellbeing. In this regard, one of the major interventions has been in the field of pensions. The number of social security pensioners in the State is 49.14 lakh. The old age pension has increased from ₹600 in 2015 to ₹1400 in 2020. The Government is taking special efforts for the elderly, persons with disabilities and the transgenders.

Gender budgeting continues to be a core feature of Kerala's Budget. In 2020-21, an amount of ₹1509.33 Crore (7.3 per cent) has been provided for women specific schemes (Part A) and an amount of ₹2300.54 (11.1 per cent) for composite schemes in Part B has been made available for women. A total amount of ₹3809.87 crore constitutes the Gender Budget for 2020-21 (of which ₹5 crore is earmarked for Transgender persons) which is 18.4 per cent of the total State Plan outlay. The Government's policies are oriented towards gender equality and empowerment. To support women affected by violence, in private and public spaces, within the family, community and at the workplace, One Stop Centres (OSCs) are functioning in the State. Kerala is one of the first states in India to have One Stop Centres in all the districts.

Kerala is known for its labour friendly policies. The support extended to guest workers at the time of pandemic is noteworthy. The Department provided food and shelter to the guest workers. Steps were taken to address their grievances.

As per the Periodic Labour Force Survey Report 2018-19, Labour Force Participation Rate in Kerala has improved as compared to figures reported in the survey results of 2017-18. The Labour Force Participation Rate has increased from 36.6 per cent in

2017-18 to 39.5 in 2018-19. A striking feature of the latest survey is a considerable increase in female workforce participation rate in Kerala from 16.4 per cent in 2017-18 to 20.4 per cent in 2018-19.

The unemployment rate in the State has declined from 11.4 per cent in 2017-18 to 9 per cent in 2018-19 as per the Periodic Labour Force Survey Report (PLFS) 2018-19. The Unemployment rate is much higher among females (17.1 per cent) as compared to males (5 per cent). The unemployment rate was 4.7 per cent among males and 15.6 per cent among females in rural areas, while the rates were 5.2 per cent among males and 18.8 per cent among females in urban areas.

Skill development has been one of the foremost objectives of the Government. Upgradation of Industrial Training Institutes (ITIs) has been a core area of emphasis. Ten ITIs are being upgraded using KIIFB funds. The Government runs technical exchange programme for ITI trainees. Naipunya Karmasena, which was started as a temporary measure after the floods of 2018 has now become a permanent part of the Government.

Efforts are being made to promote sports in the State. Sports Life Fitness Centres have become operational at nine locations in the State. G.V. Raja Senior Secondary Sports School in Thiruvananthapuram has been selected by the Ministry of Youth Affairs and Sports, Government of India for upgradation to Khelo India State Centre of Excellence (KISCE) under the Khelo India Scheme. The KISCE are being established to strengthen India's pursuit for excellence in Olympics.

Non-resident Keralites play an important role in the development of the State. However, the trend of return migration is increasing over the last few years. The number of return emigrants estimated by Kerala Migration Survey 2018 is 12.95 lakh, about 60 per cent of the number of emigrants. This has increased further by the crisis caused by the Covid-19 pandemic. The Government has initiated new programmes to reintegrate NRKs and provide assistance to those who have been adversely affected by the pandemic.

Infrastructure development has been a priority for the State. Substantial progress has been made in the construction of roads. Kollam bypass has been completed and inaugurated. Alappuzha bypass work is expected to be completed soon. Construction of Hill Highway and Coastal Highway is progressing. Kerala Highway Research Institute is being upgraded as Centre of Excellence to focus on areas such as innovation in design and construction practices, road asset management, road safety management, quality assurance and contract management and promoting indigenous research and development. Kerala is poised to become the first State in the country to deploy electric vehicles (EVs) for enforcement activities. The Motor Vehicles Department (MVD) has placed orders for 'plug-in electric vehicles' for 65 Enforcement Squads of the Safe Kerala project for enforcing motor vehicles rules and to ensure road discipline. Kerala Automobiles Limited (KAL) is the only Public Sector Undertaking (PSU) having got the Central Motor Vehicle Rules (CMVR) certification for electric autos. KAL has enhanced its production capacity from 7,200 units to 15,000 units per year.

The Rebuild Kerala Initiative has started gaining ground. Sectors taken up under RKI include roads and bridges, sanitation, water supply, livelihoods, forest, agriculture, fisheries, and animal husbandry. As on October 2020, projects amounting to ₹7,000 crore have been sanctioned. A significant push to infrastructure projects is provided by Kerala Infrastructure Investment Fund Board. The total outlay of projects approved by KIIFB as on March 31, 2020 is ₹54,391 crore. Out of the total 679 projects approved, 675 projects pertain to infrastructure and 4 projects relate to industrial infrastructure. In 2019-20, ₹3,502 crore was disbursed to various projects. The total disbursement till March 31, 2020 is ₹5,014 crore.

Provision of housing to all has been the objective of the Government. With this objective, the Government started the LIFE Mission, a focussed initiative to address the issue of housing in the State. As on December 1, 2020, 2,43,522 houses has been completed under the Mission.

Local Governments have become important and strong institutions of governance in the State. Significant improvements have been made in overall planning and implementation process. To mitigate the impact of frequent natural disaster and climatic variation and to improve the disaster preparedness, for the first time in the country, the Local Governments in Kerala have prepared the Disaster Management Plan during January to March 2020. Local Governments conducted a Decentralisation Round Survey, which is a data collection and dissemination system for supporting the local level planning in Kerala. To ensure greater transparency, accountability, accuracy, punctuality and technical supervision in providing various services to the citizens given by Local Government, Integrated Local Governance Management System (ILGMS) has been deployed across 150 Grama Panchayats in October 2020. Local Governments played a key role in containing as well as tackling Covid-19 pandemic.

Livelihood schemes have been the core feature of the State Plan and embedded in the Plan programmes. In 2019-20, 8.02 crore person days was generated under Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). The urban counterpart in the State, Ayyankali Urban Employment Creation Scheme generated 26 lakh person days of employment in 2019-20. The role played by Kudumbashree in the socio-economic development of the State deserves a special mention. Kudumbashree has become a major provider and supporter of livelihoods in the State, in particular, livelihoods for women. Kudumbashree is spearheading the Resurgent Kerala Loan Scheme providing support to more than 2 lakh people through 30,000 NHGs. Several initiatives have been promoted by Kudumbashree under the Special Livelihood Development Package.

Welfare of Scheduled Caste and Scheduled Tribes has been paramount for the State. The Government has made significant interventions in the sphere of housing, health, education, livelihoods, and infrastructure development. 4,225 landless SC families were assisted under the land to landless scheme in 2019-20. Assistance was provided to students for studying abroad. 4,556 *Padanamuris* were constructed for SC students. Since 2016-17, 4698 tribals were provided 3799.67 acre of land. In addition to the existing 150 community study centres, 100 centres were started for providing tuition

and e-learning facilities among the tribals. Under Millet Village scheme, 1,256 farmers were benefitted by harvesting in 400 ha. In addition to this, 1211 farmers cultivated 1671 acre under the project Nutrition-Sufficiency in Food through Agroecology in Attappady.

The Government's policies in 2019-20 were a continuation of its efforts to promote growth along with social protection. However, all the activities received a big jolt with the Covid-19 pandemic. The Covid-19 pandemic affected economies all over the world, including Kerala. The first case of Covid-19 in India was reported in Kerala on January 30, 2020. The State's health machinery responded to the crisis swiftly and all wings of Government swung into action to ensure that people at large are not deprived of basic necessities of life. Kerala has again shown the world the power of public action in delivery of services. The State's handling of Covid-19 pandemic has received worldwide acclaim. Kerala's unique strengths of a well-established public health care system and decentralised governance have significantly contributed to the effective handling of the pandemic. Kerala was also the first State in India to announce an economic package of ₹20,000 crore. The Government has taken steps to ensure food security, extended support to guest workers, announced revival measures to support livelihoods, and prioritised expenditure so as to channelise scarce resources to the most productive use.

To sum up, the Government has successfully implemented policies and programmes to promote productive forces in the economy, promote gender justice, and ensure wellbeing of the people.

KERALA'S ECONOMIC AND SOCIAL INDICATORS – A QUICK LOOK

Sl. No.	Item	Units	1960-61	1970-71	1980-81	1990-91	2000-01	2010-11	2017-18	2018-19	2019-20
1	Geographical Area	Sq.Km.	38856.7	38864	38863	38863	38863	38863	38863	38863	38863
Administrative Setup											
2	Revenue Divisions	No.						21	21	21	21
3	Districts	No.	9	10	12	14	14	14	14	14	14
4	Taluks	No.	55	56	58	61	63	63	75	75	75
5	Villages	No.		1326	1331	1364	1452	1532	1664	1664	1664
6	Towns	No.	92	88	106	197	159	520	520	520	520
Population as per Census			1951	1961	1971	1981	1991	2001	2011		
7	Total	(in 000s)	13549	16904	21347	25454	29099	31844	33406		
8	Males	(in 000s)		8362	10588	12609	14289	15469	16027		
9	Females	(in 000s)		8542	10760	12885	14810	16373	17379		
10	Rural	(in 000s)		14351	17880	20682	21618	23574	17471		
11	Urban	(in 000s)		2552	3467	4771	7018	8267	15935		
12	Scheduled Castes	(in 000s)		1422	2002*	2549	2887	3124	3040		
13	Scheduled Tribes	(in 000s)		208	193*	261	321	364	485		
14	Density of Population	No. Per Sq.Km.		435	549	655	749	819	860		
15	Literacy Rate	Percentage		55	60	70	90	90	94		
16	Sex Ratio	Females per 1000 males		1022	1016	1032	1036	1058	1084		
17	Urban Population	Percentage		15	16	19	24	26	48		
GSDP - at constant prices			1960-61	1970-71	1980-81	1990-91	2000-01	2009-10	2017-18	2018-19(P)	2019-20(Q)
18	GSDP	₹Crore	462	1255	3823	12195	63715	180812	516189.76	549672.93	568635.52
19	Primary Sector (GSVA)	₹Crore	241	653	1682	4756	14017	15966	47619.23	46004.41	42373.83

20	Secondary Sector (GSVA)	₹Crore	68	163	841	3171	14017	38249	129866.26	138033.99	141805.63
21	Tertiary Sector (GSVA)	₹Crore	153	439	1300	4268	35680	126597	283268.51	305303.78	317781.22
22	Per capita Income	₹	276	594	1508	4207	19951	47360	149650	158564	163216
Agriculture			1960-61	1970-71	1980-81	1990-91	2000-01	2009-10	2017-18	2018-19	2019-20
23	Net Area Sown	'000 Ha.	1923	2171	2180	2247	2206	2079	2040	2033	2026
24	Gross Cropped Area	'000 Ha.	2349	2933	2885	3020	3022	2669	2579	2571	2589
25	Gross Irrigated Area	'000 Ha.			381	385	460.3	458	539.874	515.388	515.688
26	Gross Irrigated Area to Gross Cropped Area	Percentage			13	13	15	18	21	20	20
Gross area under principal crops			1960-61	1970-71	1980-81	1990-91	2000-01	2012-13	2017-18	2018-19	2019-20
27	Paddy (Wetland)	'000 ha.	779	875	802	559	347	197	189	198	191
28	All Pulses	'000 ha.	44	40	34	23		3	1.9	2.5	2.3
29	Sugarcane Harvested Area	'000 ha.	9	8	8	8	3	2	1.05		
30	Rubber	'000 ha.	133	188	238	384	474	545	551	551.2	551.03 (P)
31	Tea	'000 ha.	40	37	36	35	37	30	30	36.47	35.87
32	Coconut	'000 ha.	501	719	651	870	926	798	760.4	760.9	760.77
33	Areca nut	'000 ha.	54	86	61	65		102	94.6	95.7	96.92
34	Groundnut	'000 ha.	16	15	9	13		0.7	0.27		
35	Pepper	'000 ha.	100	12	108	169	202	85	85.1	82.7	83.76
36	Cardamom	'000 ha.	29	47	56	67	41	42	39.1	38.8	39.69
37	Ginger	'000 ha.	12	12	13	14	12	5	4.37	3.27	2.82
Production of Principal Crops			1960-61	1970-71	1980-81	1990-91	2000-01	2012-13	2017-18	2018-19	2019-20
38	Rice	'000 tonnes	1068	1298	1272	1087	751	509	521.3	578.25	587.1
39	All Pulses	'000 tonnes	18	13	22	17		3	2.04	2.3	2.10
40	Sugarcane	'000 tonnes	38	38	48	52	28	17	11.5		
41	Rubber	'000 tonnes	24	88	140	308	560	800	540.7	492.5	533.5 (P)
42	Tea	'000 tonnes	39	43	48	63	69	63	62.23	60.76	59.26
43	Coconut	In million nuts	3220	3981	3008	4232	5536	5799	5230	5299	4814
44	Areca nut	'000 tonnes	8	13	11	13		118	108.5	99.92	92.75
45	Groundnut	'000 tonnes	14	16	8	10	10	9	0.38		
46	Pepper	'000 tonnes	27	25	29	47	61	46	37.9	36.77	34.54
47	Cardamom	'000 tonnes	1	1	3	3		10	18.3	11.53	10.07
48	Ginger	'000 tonnes	11	20	32	46	42	22	18.9	15.12	11.91
Livestock Census			1977	1982	1987	1996	2003	2007	2012	2019	2020
49	Total Livestock	in lakh	53	56	55	56	35	36	38.88	38.36	38.36
50	Total Poultry	in lakh		152	185	308	139	127	238.45	298.18	298.18
Forest			1960-61	1970-71	1980-81	1990-91	2000-01	2011-12	2017-18	2018-19	2019-20
51	Forest Area	'000 ha.	1056	1056	1123	1122	1115	1131	1152	1152	1152

Factories			1971	1981	1991	2001	2011	2012	2018	2019	2020
52	Working Factories	No.	3024	9106	13255	18554	19676	20473	23335	24254	24468
53	Employees	No.	206839	300515	368738	436410	644606	644802	698679	726195	702901
54	Employees per lakh population	No.	969	1181	1267	1370	1930	1930	2091	2174	2104
Electricity			1970-71	1980-81	1990-91	2000-01	2009-10	2011-12	2017-18	2018-19	2019-20
55	Total Generation	Mu	2126	5242	5491	7656	6495	8351	5474.4	7577.02	5722.81
56	Total Consumption	Mu		2869	5282	10319	12878	16182	21159.19	22361.45	22948.82
57	Industrial Consumption	Mu		2025	2697	3784	4002	4926	5648.31	5820.49	5683.3
58	Agricultural Consumption	Mu		125	288	350	225	286	346.0	337.65	348.48
59	Domestic Consumption	Mu		409	1621	4688	5931	7706	10574.8	108464.34	11898.13
Education			1970-71	1980-81	1990-91	2000-01	2009-10	2012-13	2017-18	2018-19	2019-20
60	Primary Schools	No.	9437	9605	9682	9714	9828	9737	9852	9841	9833
61	Enrolment in Primary Schools	'000s	4156	4284	4402	3637	3015	2545	2384	2428	2450
62	High Schools	No.	1199	1971	2451	2596	2814	2890	3119	3120	3118
63	Enrolment in High Schools	'000s		1310	1498	1611	1443	1426	1297	1276	1267
Health			1970-71	1980-81	1990-91	2000-01	2009-10	2011-12	2017-18#	2018-19#	2019-20#
64	Hospitals	No.	553	746	1199	1319	1254	1255	1470	1470	1471***
65	No. of Beds	No.	21777	32447	38726	38242	37021	37388	56596	56596	57713***
Vital statistics (Demographic Status)			1970-71	1980-81	1990-91	2001	2009	2010	2011	2017##	2018##
66	Birth Rate	per 1000 population	32	26	20	16	15	15	15	14.2	13.9
67	Death Rate	per 1000 population	9	6	6	7	7	7	7	6.8	6.9
68	Infant Mortality Rate	per 1000 population	61	37	21	11	12	14	13	10	7
Transport			1970-71	1980-81	1990-91	2000-01	2010-11	2011-12	2017-18	2018-19	2019-20
69	Railway Route Length	Kms.	892	921	988	1148	1257	1257	1257	1257	1257
70	Total Road Length**	Kms.	18037	94145	128403	125835	151652	244373	229349.2**	273113.3	331904.1
71	Motor Vehicles	'000s	86234	195000	648000	2111885	6072019	8048673	12042691	13334984	14184184
Local Governments			1990-91	2000-01	2006-07	2007-08	2008-09	2010-11	2017-18	2018-19	2019-20
72	District Panchayats	No.		14	14	14	14	14	14	14	14
73	Block Panchayats	No.		152	152	152	152	152	152	152	152
74	Grama Panchayats	No.	983	990	999	999	999	978	941	941	941
75	Municipalities	No.	58	53	53	53	53	60	87	87	87
76	Corporations	No.	3	5	5	5	5	5	6	6	6

Modern Medicine and Ayush included: ##SRS May 2019, 2020 *Base year 2011-12 **Excludes LSGD non pucca road
 ***Including RCC (P) Provisional estimate (Q) Quick estimate (ha) Hectare (Mu) Million Unit

DISTRICTS – AN OVERVIEW

Sl.No.	Items	TVM	KLM	PTA	ALP	KTM	IDK	EKM
1	Area (sq Km)	2192	2491	2637	1414	2208	4358	3068
2	Forest Cover (sq. Km) *	1304	1322	1956	80	1104	3151	1366
3	Population 2011 (in Lakh)	33.01	26.35	11.97	21.28	19.75	11.09	32.82
	Rural	15.3	14.48	10.66	9.8	14.09	10.56	10.47
	Male	7.25	6.81	5	4.65	6.93	5.27	5.18
	Female	8.05	7.67	5.66	5.15	7.16	5.29	5.29
	Percentage Decadal Growth (2001-2011)	-28.6	-31.7	-4	-34.2	-14.8	-1.4	-35.7
	Urban	17.72	11.87	1.32	11.48	5.66	0.51	22.34
	Male	8.57	5.66	0.62	5.48	2.76	0.25	11.01
	Female	9.15	6.21	0.7	6	2.9	0.26	11.33
	Percentage Decadal Growth (2001-2011)	62.3	154.8	6.3	84.8	88.6	-9.6	51.3
	Density	1508	1061	452	1504	895	255	1072
	Fishermen Population, in number	164883	123100	2073	167794	24420	691	133387
	SC population as % of Total Population	11.3	12.5	13.7	9.5	7.8	13.1	8.2
	ST population as % of Total Population	0.8	0.4	0.7	0.3	1.1	5.0	0.5
4	Literacy Rate (2011)							
	Male	94.2	95.8	97.7	97.9	97.2	94.8	97.1
	Female	90.9	91.9	96.3	94.8	95.7	89.6	94.3

Sl.No.	Items	TVM	KLM	PTA	ALP	KTM	IDK	EKM
5	Percentage of Dropouts 2019-20							
	Lower Primary	0.16	0.13	0.00	0.00	0.14	0.33	0.33
	Upper Primary	0.08	0.03	0.00	0.00	0.05	0.10	0.10
	High School	0.20	0.03	0.01	0.04	0.13	0.45	0.18
6	GSVA 2019-20 (Quick) (at constant price)							
	GSVA at Basic Prices (₹ in lakh)	5384318	4644758	1413528	3662996	3213111	1548996	6289123
	Share in Percentage							
	Primary	325756	370260	258278	175126	385779	398825	411435
	Secondary	1453167	1294224	359994	1271172	744227	366131	1649455
	Tertiary	3605396	2980274	795256	2216698	2083105	784041	4228233
7	Production of Rice in Kerala (2019-20) in Tonnes (Wetland)	4541	4183	11383	112593.0	50051	1467	10859
8	Net Area Irrigated (2019-20) in ha	7842	5727	6410	35841	18449	50240	23351
9	Number of Commercial Banks (March 2020)	741	404	390	400	518	188	1019
10	CD ratio	69.2	63.2	25.4	46.0	53.4	111.6	85.7
11	No. of Registered SSI/MSME 2019-20	1363	814	501	1179	908	366	1386
12	Length of PWD Roads ** (km)	2557.74	2202.86	1472.33	2031.4	3456.2	2867.36	3085.28
13	No. of Motor Vehicles	1772975	1048816	595801	979188	864689	297815	2055842
14	Tourist Arrivals 2019							
	Foreign (in no.)	310451	12961	2042	116228	58178	75206	522232
	Domestic (in no.)	3038167	481928	207863	677958	597424	1820216	4060134

* open forest included , ** excludes LSGD non pucca roads

DISTRICTS – AN OVERVIEW

Sl.No.	Items	TSR	PLK	MLP	KKD	WYD	KNR	KSD	TOTAL
1	Area (sq Km)	3032	4480	3550	2344	2131	2966	1992	38863
2	Forest Cover (sq. Km)*	1159	2084	1981	1437	1580	1654	966	21144
3	Population 2011 (in Lakh)	31.21	28.1	41.13	30.86	8.17	25.23	13.07	334.04
	Rural	10.24	21.31	22.95	10.14	7.86	8.82	7.99	174.67
	Male	4.88	10.31	10.95	4.85	3.86	4.26	3.88	84.08
	Female	5.36	11.01	12	5.29	4	4.56	4.11	90.6
	Percentage Decadal Growth (2001-2011)	-52	-5.7	-29.8	-43	-4.6	-26.3	-17.7	-25.9
	Urban	20.96	6.77	18.17	20.72	0.31	16.41	5.09	159.33
	Male	9.92	3.28	8.65	9.86	0.15	7.56	2.41	76.18
	Female	11.04	3.49	9.52	10.86	0.16	8.85	2.68	83.15
	Percentage Decadal Growth (2001-2011)	149.7	89.8	410.2	88.2	6.6	35.3	117.8	92.8
	Density	1031	627	1157	1316	384	852	657	860
	Fishermen Population, in number	90306	2534	82044	106613	230	60208	43342	1001625
	SC population as % of Total Population	10.4	14.4	7.5	6.5	4.0	3.3	4.1	9.1
	ST population as % of Total Population	0.3	1.7	0.6	0.5	18.5	1.6	3.7	1.5
4	Literacy Rate (2011)								
	Male	96.98	92.27	95.78	97.57	92.84	97.54	93.93	96.1
	Female	93.85	84.99	91.55	93.16	85.94	93.57	86.13	92.1

Sl.No.	Items	TSR	PLK	MLP	KKD	WYD	KNR	KSD	TOTAL
5	Percentage of Dropouts 2019-20								
	Lower Primary	0.02	0.18	0.05	0.09	0.13	0.05	0.07	1.68
	Upper Primary	0.02	0.09	0.05	0.06	0.25	0.03	0.01	0.87
	Higher Secondary	0.03	0.18	0.09	0.15	1.14	0.09	0.21	2.93
6	GSVA 2019-20 (Quick) (at constant price)								
	GSVA at Basic Prices (₹ in lakh)	5000589	3495343	4964505	4330693	944915	3619255.00	1683937	50196068
	Share in Percentage								
	Primary	275618	377164	343693	242455	150426	275604	246966	4237383
	Secondary	1350288	1013895	1301156	1425231	216662	1219303	515660	14180563
	Tertiary	3374684	2104284	3319655	2663007	577828	2124349	921312	31778122
7	Production of Rice in Kerala (2019-20) in Tonnes	76556	248199.0	28214	2867	19513	11804	4848	587078
8	Net Area Irrigated (2019-20) in ha	62227	86026	29528	4540	12186	12346	54981	409694
9	Number of Commercial Banks (March 2020)	760	470	472	466	133	392	232	6585
10	CD ratio	57.0	64.6	58.1	74.0	135.5	52.8	71.6	64.2
11	No. of Registered SSI/MSME 2019-20	1594	1694	1177	1162	264	1036	251	13695
12	Length of PWD Roads ** (km)	2064.21	2184.7	2680.15	2454.64	1029.31	2265.24	1460.66	31812.1
13	No. of Motor Vehicles	1444479	971689	1292322	1315314	235759	880769	428726	14184184
14	Tourist Arrivals 2019								
	Foreign (in No:s)	15691	2147	25697	22515	12302	6852	7296	1189798
	Domestic (in No.s)	2583557	560906	665335	1305220	1143710	934572	307243	18384233

* open forest included, ** excludes LSGD non pucca roads

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CHAPTER

01

KERALA ECONOMY

1.1 RECENT TRENDS IN MACRO ECONOMIC AGGREGATES: LOOKING AHEAD

The economic structure in Kerala has been built on a foundation laid by decades of public action in pursuit of social justice. As a result, Kerala's economy has come to acquire certain inherent strengths, which have helped the State to withstand the series of shocks it had to suffer over the last few years. These shocks include the unprecedentedly heavy floods that occurred during 2018 and 2019, the attack by the Nipah virus infection in 2018 and 2019, and the outbreak of the Covid-19 pandemic in 2020. In response to these shocks, the State Government introduced a number of measures to enhance social security and improve livelihood opportunities, especially targeting the disadvantaged sections of the population.

Deficiency in aggregate demand is a major hurdle faced by the Indian economy as it struggles now to recover from the shock induced by the Covid-19 pandemic. Given such a context, it is expected that the steps taken by the Government in Kerala to improve people's lives will have the effect of stimulating effective demand and thereby contributing to income growth and economic recovery.

Kerala faces big challenges as the State launches efforts to improve on its human development achievements and attain standards that are comparable to those of the developed countries. With a slowing down in the growth of its working

age population, Kerala will have to identify sectors that will help propel the State into a new stage in economic transformation. A focus on innovation and knowledge-based industries will be the key to future success. The work towards all-around modernisation of Kerala's economy has to begin now. It will involve a massive mobilisation of latent resources in the State and tapping into the enormous talent and goodwill of its people.

Trends in Income Levels and Growth in Kerala

Kerala is a relatively high-income Indian State. According to quick estimates, the annual income per capita in Kerala was ₹1,49,563 in 2019-20. The corresponding national average (for 2019-20) was ₹96,152. In other words, average income per person in Kerala was approximately 1.5 times the Indian average in 2019-20. Kerala, along with Haryana, Gujarat, Karnataka, Maharashtra, and Tamil Nadu, is among the States with the highest incomes per capita in the country.

The quick estimate of Kerala's Gross State Domestic Product (GSDP) at constant (2011-12) prices is ₹5.68 lakh crore in 2019-20 as against the provisional estimate of ₹5.49 lakh crore in 2018-19, thus registering a rate of growth of 3.45 per cent in 2019-20. The corresponding rate of growth in 2018-19 was 6.49 per cent. At

current prices, the GSDP is estimated at ₹8.54 lakh crore (quick estimate) in 2019-20 as against the provisional estimate of ₹7.90 lakh crore in 2018-19, showing a growth rate of 8.15 per cent.

The quick estimate of Gross State Value Added (GSVA) at constant (2011-12) prices is ₹5.01 lakh crore in 2019-20 as against the provisional estimate of ₹4.89 lakh crore in 2018-19. The growth rate of GSVA is only 2.58 per cent in 2019-20 compared to 6.2 per cent in 2018-19. The last quarter of 2019-20 coincided with the onset of the Covid-19 pandemic and the consequent lockdown, which had a profoundly adverse impact on the economy. Details of Kerala's GSDP, GSVA and per capita income in 2018-19 and 2019-20 are given in **Table 1.1.1**.

Trends at the National Level

The growth of Gross Value Added (GVA) at constant (2011-12) prices in India fell from 6.0 per cent in 2018-19 to 3.9 per cent in 2019-20. India's GVA at current prices is estimated at ₹183.43 lakh crore in 2019-20, compared to ₹171.39 lakh crore in 2018-19. The increase in GVA at current prices in 2019-20 is 7.0 per cent compared to 10.5 per cent increase in 2018-19 (Source: Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation (MoSPI)).

Gross National Income (GNI) at 2011-12 prices is estimated at ₹144.05 lakh crore in 2019-20, as against the previous year's estimate of ₹138.29 lakh crore. In terms of growth rates, the gross national income increased by 4.2 per cent in 2019-20, compared to 6.1 per cent in 2018-19. The GDP at constant (2011-12) prices for 2019-20 is estimated at ₹145.65 lakh crore, a 4.2 per cent growth over ₹139.81 lakh crore in 2018-19. India's GDP at current prices in 2019-20 is estimated at ₹203.39 lakh crore, which amounted to a growth of 7.2 per cent over the estimates of GDP for 2018-19 (₹189.71 lakh crore). Details are given in **Table 1.1.2**.

The per capita GDP in real terms (at 2011-12 prices) in 2019-20 is estimated at ₹108620 as against ₹105361 in 2018-19, registering an increase of 3.1 per cent. The per capita GDP at current prices is estimated at ₹151677 in 2019-20 as against ₹142963 for the previous year, showing a growth of 6.1 per cent.

The details of India's GDP, NDP, GNI and NNI at current and constant (2011-12) prices for the years from 2012-13 to 2018-19 are given in **Appendix 1.1.1 1.1.2, 1.1.3 and 1.1.4**. The sector-wise distribution of GVA at constant (2011-12) prices and current prices, and year-on-year growth rates, are given in **Appendix 1.1.5 and 1.1.6**.

The Covid-19 Pandemic and the Stumbling Global Economy

The Covid-19 pandemic has disrupted the growth process and paralysed large parts of the global economy, leading to a recession unseen since the Great Depression. According to the International Monetary Fund (IMF), world GDP is projected to contract by 4.4 per cent in 2020, and the global economy's "long ascent back to pre-pandemic levels of activity is prone to setbacks."¹ As per the projections by United Nations Department of Economic and Social Affairs (UNDESA) 2020, the world economy is projected to shrink by 3.2 per cent in 2020². The projected cumulative output losses of nearly \$8.5 trillion in 2020 and 2021 will wipe out nearly all the output gains of the previous four years. The pandemic has struck at a time when the global economy was already suffering due to a slowdown in demand, notably in fixed investment. There have been concerns on the tensions between the US and China in trade and technology, rising trade barriers, slowing productivity growth, as well as ageing of population in developed parts of the world.

The Covid-19 outbreak has had an enormous social and economic impact across the world. Nationwide lockdowns lasting several weeks have brought life to a standstill, and all the

¹ World Economic Outlook, International Monetary Fund, October 2020

² World Economic Situation and Prospects as of mid-2020, May 13, 2020, Department of Economic and Social Affairs, United Nations

Table 1.1.1 State Domestic Product and Per Capita Income of Kerala, in ₹ lakh

	Income, in ₹ lakh			Growth Rate, in %	
	2017-18	2018-19 (P)	2019-20 (Q)	2018-19 (P)	2019-20 (Q)
Gross State Domestic Product					
a) At Constant (2011-12) prices	51618976	54967293	56863552	6.49	3.45
b) At Current prices	70158826	79030231	85468899	12.64	8.15
Net State Domestic Product					
a) At Constant (2011-12) prices	47318179	50445748	52106993	6.61	3.29
b) At Current prices	63209367	71292314	77309933	12.79	8.44
Gross State Value Added (GSVA) at basic prices					
a) At Constant (2011-12) prices	46075400	48934217	50196068	6.20	2.58
b) At Current prices	63488389	69674968	73630119	9.74	5.68
Per capita GSDP					
a) At Constant (2011-12) Prices	149650	158564	163216	5.96	2.93
b) At Current Prices	203399	227979	245323	12.08	7.61
Per capita NSDP					
a) At Constant (2011-12) Prices	137181	145521	149563	6.08	2.78
b) At Current Prices	183252	205657	221904	12.23	7.90

Source: Department of Economics and Statistics
P: Provisional Estimate, Q: Quick Estimate

resources have been diverted to meeting the never-experienced-before crisis. The possibility of a prolonged economic slump followed by a slow recovery raises fears about growing poverty and inequality in many regions.

Economic and Employment growth Challenges in India

The Indian economy has been showing signs of a slowdown, especially with respect to the growth of employment, much before the outbreak of the Covid-19 pandemic. The most important feature of this slowdown has been a steady decline in the country's investment rates from 2012 onwards. Gross fixed capital formation

in India as a proportion of GDP declined from 34.3 per cent in 2011-12 to 30.8 per cent in 2017-18. This represented a reversal from India's economic growth experience between the middle of the 2000s and 2012, during which a boom in investment provided the stimulus for the economy. In fact, as per the data compiled by the World Bank, investment rates (gross capital formation as a proportion of GDP) in India and China were at similar levels – around 40 per cent – in 2007. But the investment rates in the two countries began to diverge after that with the rates in China surging to around 45 per cent during the first half of the 2010s.

Table 1.1.2 Gross National Income, Gross Domestic Product and per capita income at 2011-12 prices and current prices, all India in ₹ crore

Sl. No	Item	At 2011-12 Prices			At Current Prices		
		2017-18	2018-19	2019-20 (PE)	2017-18	2018-19	2019-20 (PE)
1	GVA at basic prices	1,20,74,413	1,28,03,128 (6.0)	1,33,01,120 (3.9)	1,55,13,122	1,71,39,962 (10.5)	1,83,43,237 (7.0)
2	Gross National Income (GNI)	1,30,29,307	1,38,29,068 (6.1)	1,44,05,339 (4.2)	1,69,13,491	1,87,68,912 (11.0)	2,01,18,353 (7.2)
3	Net National Income (NNI)	1,15,40,556	1,22,19,693 (5.9)	1,27,33,366 (4.2)	1,51,49,545	1,67,89,288 (10.8)	1,79,99,754 (7.2)
4	Gross domestic product (GDP)	1,31,75,160	1,39,81,426 (6.1)	1,45,65,951 (4.2)	1,70,98,304	1,89,71,237 (11.0)	2,03,39,849 (7.2)
5	Net domestic product (NDP)	1,16,86,409	1,23,72,051 (5.9)	1,28,93,977 (4.2)	1,53,34,357	1,69,91,613 (10.8)	1,82,21,249 (7.2)
6	Per capita Gross Domestic Product (₹)	1,00,268	1,05,361 (5.1)	1,08,620 (3.1)	1,30,124	1,42,963 (9.9)	1,51,677 (6.1)
7	Per capita Net domestic product (₹)	88938	93233 (4.8)	96152 (3.1)	116700	128045 (9.7)	135878 (6.1)

Note: The figures in parenthesis shows the percentage change over the previous year
PE-Provisional Estimate

Source: Central Statistics Office, GoI

The demonetisation of high-value currency notes in India in November 2016 was a major blow to the country's economy, especially for production and consumption in the informal and rural sectors. The crisis in the banking sector (with high levels of non-performing assets) and the problems associated with the implementation of the Goods and Services Tax (GST) regime in 2017 worsened India's economic problems. The already subdued growth in the global economy reduced India's opportunities on the export front.

According to the Periodic Labour Force Survey (PLFS) conducted in 2017-18, unemployment rate in India had reached an all-time high of 6.1 per cent. Unemployment rate in the country was only 2.2 per cent, according to

the National Sample Survey Office's (NSSO) employment and unemployment survey held in 2011-12. Today, India faces a stiff challenge in creating decent jobs for its growing young population, particularly so with the declining labour absorption in agriculture. Women have responded to the slow growth of job opportunities by withdrawing from the labour market in large numbers, while young men, aged 15 to 29 years, comprised 68.3 per cent of all the unemployed in the country in 2018.³

Kerala's Economy: Growth amidst the crisis

Kerala's economy staged a revival in growth during the period from 2016 to 2018, thus

³ Thomas, Jayan Jose (2020b), 'Labour Market Changes in India, 2005-18: Missing the Demographic Window of Opportunity', Economic and Political Weekly, August 22, pp. 57-63.

reversing a downward slide in the State's economy between 2013 and 2015. The rates of growth of GSVa (at constant 2011-12 prices) in Kerala were 4.3 per cent, 3.8 per cent and 5.3 per cent for the years 2013-14, 2014-15, and 2015-16 respectively. These rates of growth of value added in Kerala were significantly slower than the corresponding Indian averages. Ending this phase of stagnation, Kerala's economic growth accelerated in 2016-17, with GSVa recording 7.1 per cent growth in that year. The rates of growth of GSVa in Kerala were 5.8 per cent and 6.2 per cent respectively in 2017-18 and 2018-19. It is notable that in 2018-19, the growth rate in Kerala exceeded the corresponding national rate. However, GSVa growth in Kerala slowed down to 2.6 per cent in 2019-20 (**Figure 1.1.1**). But it may be noted that the average GSVa growth for 2016-17 to 2018-19 is higher (5.4 per cent) than the average GSVa growth for the previous four years, 2012-13 to 2015-16 (4.8 per cent).

Kerala's economy has faced a number of setbacks over the last four years. The demonetisation of high value currency notes in November

2016 and the problems associated with the implementation of the GST regime adversely impacted the economy in Kerala as they did in the rest of the country too. More importantly, the State has been hit by a series of natural disasters, including the Cyclone Ockhi in 2017, and severe floods resulting from extreme rainfall events in 2018 and 2019. The economic crisis in the Gulf countries has had adverse impacts on the Kerala economy, with a number of emigrant workers returning to the State and with a slowdown in the inflow of remittances. Finally, the Covid-19 outbreak in 2020 has adversely affected Kerala economy as it has the rest of the world.

Growth across Sectors

The recovery in economic growth that Kerala achieved during the 2016-2018 period was evident in most sectors of the economy. The agricultural sector in Kerala registered positive growth in 2017-18, thus ending a long phase of negative growth rates in this sector from 2013-14 onwards. This improvement could be a result of some of the measures taken by the State Government to revive agriculture,

Box 1.1.1 Estimates of Gross Domestic Product for the first quarter (April to June) of 2020-21

The estimates of India's Gross Domestic Product for the first quarter (April to June) of 2020-21 were released in August 2020. GDP at constant (2011-12) prices in Q1 of 2020-21 is estimated at ₹26.90 lakh crore as against ₹35.35 lakh crore in Q1 of 2019-20, amounting to a contraction of 23.9 per cent. In comparison, GDP had grown at 5.2 per cent in Q1 2019-20. GVA at basic price at constant (2011-12) prices for Q1 of 2020-21 is estimated at ₹25.53 lakh crore, as against ₹33.08 lakh crore in Q1 of 2019-20, representing a contraction of 22.8 per cent.

The quarterly estimates of GVA at basic prices at constant (2011-12) prices indicate that value addition in the construction sector in Q1 2020-21 fell by almost 50 per cent as compared to Q1 2019-20. This was the sector most affected by the lockdown and the subsequent disruptions. In trade, hotels, transport, communication and services related to the broadcasting sector, value addition declined by 47 per cent. Value addition in manufacturing sector declined by 39 per cent. Only agriculture and allied activities (forestry and fishing) registered a positive growth (growth of 3.4 per cent).

As a result of the pandemic and the subsequent lockdown, there have been challenges to using the regular sources of data on income growth. Therefore, alternative sources of information such as GST proceeds and interactions with professional bodies were employed to a greater degree. There are data-related challenges in estimating other indicators such as the Index of Industrial Production and Consumer Price Index.

Source: National Statistics Office (NSO), Ministry of Statistics and Programme Implementation, GoI

including paddy production, in Kerala. Fishing and aquaculture experienced a sharp positive turnaround from 2016-17 onwards. Nevertheless, agricultural growth rates turned negative from 2018-19, owing to the impact of the floods in 2018 and 2019 and the pandemic in 2020. The rates of growth in this sector were (-)2.38 per cent and (-)6.62 per cent in 2018-19 and 2019-20 respectively.

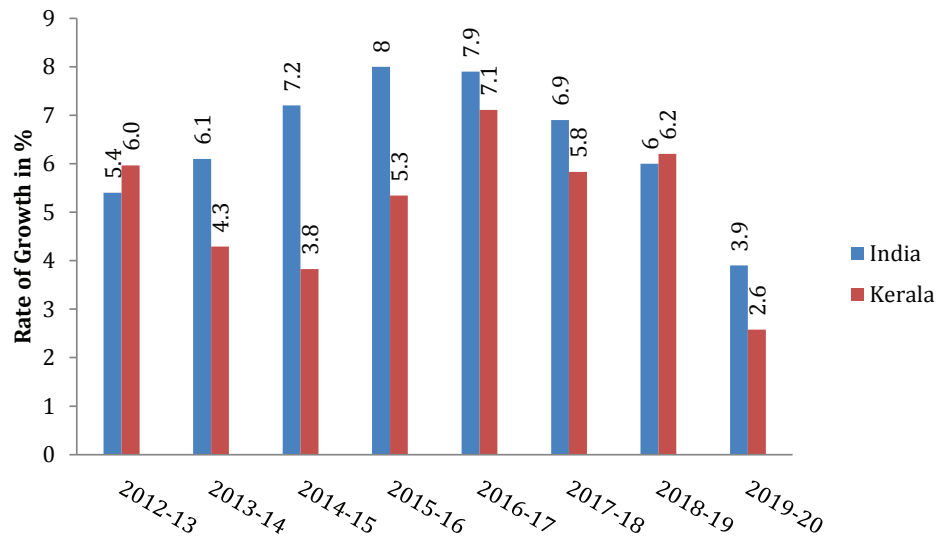
Covid-19 pandemic has affected Kerala's agricultural sector in multiple ways. First, cultivators of commercial crops in the State have lost incomes with the sharp slowdown in global trade in agricultural products. Secondly, the domestic prices of most agricultural crops, livestock products, and fish fell sharply after the lockdown began. Thirdly, the lockdown and the resultant lack of availability of workers, especially migrant workers, has affected the functioning of a number of processing units in agriculture. Finally, the lockdown has resulted in large income losses for agricultural institutions in the public sector.

A turnaround in the performance of the

manufacturing sector has been central to the revival of Kerala's economy from 2016 onwards. The annual rates of value-added growth in manufacturing were 18.2 per cent and 6.1 per cent respectively in 2016-17 and 2017-18, but the growth rates declined to 1.78 per cent and 1.54 per cent respectively in 2018-19 and 2019-20. The share of manufacturing in total GVA of Kerala was only 9.8 per cent in 2014-15 but rose to 12.5 per cent by 2019-20. According to the Annual Survey of Industries, Kerala's share in total value added by India's factory sector improved from 1.2 per cent in 2014-15 to 1.6 per cent in 2016-17. Major highlights of the improved performance of Kerala's manufacturing sector from 2016-17 onwards include a revival in the performance of State PSUs (mainly in the chemicals and electrical machinery sectors), fresh investments in petroleum refining, and a new impetus to the manufacture of electronic components.

The construction sector in Kerala recorded a growth of 7.8 per cent in 2016-17, after two years of near stagnancy (2014-16 period) in this sector.

Figure 1.1.1 Annual Rates of Growth of GVA for Kerala and GVA for India (both at constant 2011-12 prices), in per cent



Source: Department of Economics and Statistics (for Kerala) and National Accounts Statistics (for India)

⁴ Press Note dated August 31, 2020, Estimates of Gross Domestic Product for the First Quarter, April-June of 2020-21, according to National Statistics Office (NSO), Ministry of Statistics and Programme Implementation

The growth of value added in the construction sector in Kerala was 9.98 per cent in 2018-19 but slowed down to 3.7 per cent in 2019-20.

There have been significant transformations in the structure of Kerala's economy during the 2010s. The share of agriculture and allied activities in the State's GSVA was only 8.8 per cent in 2018-19, down from a share 14.4 per cent in 2011-12. The share of agriculture in Kerala's economy is considerably lower than the corresponding national average. On the other hand, the shares in GSVA of construction, trade and hotels, transport and communication, and public and social services are significantly higher in Kerala compared to the corresponding shares at the national level.

A sector that has grown extremely fast in Kerala through the 2010s is finance, real estate and professional services, which include the IT industry. This sector grew at over 9 per cent in most years between 2012-13 and 2018-19. The share of this sector in Kerala's GSVA increased from 16.8 per cent in 2011-12 to 21.6 per cent by 2018-19.

To sum up, Kerala's GSVA grew at relatively faster rates during the period from 2016-17 to 2018-19 despite the many setbacks faced by the State and despite the growing signs of recession in the national economy. The sectors that contributed to this fast growth are fishing and aquaculture, manufacturing, trade, hotels and restaurants, social services mainly education and health, public services, and professional services. However, the Covid-19 pandemic has adversely affected economic activities in the State, and the effects of the pandemic and the consequent lockdown are reflected in the growth estimates for 2019-20.

The details of the sectoral distribution of GSVA in the last three years are given in **Appendix 1.1.7** and **1.1.8**. GSDP with percentage change over the previous year during the last three years is given in **Appendix 1.1.9** and the details of GSVA, NSVA

at constant and current prices during 2011-12 to 2017-18 are given in **Appendix 1.1.10**, **1.1.11**, **1.1.12**, and **1.1.13**.

Prospects for Economic Recovery after the Pandemic

The International Monetary Fund (IMF) projected in October (2020) that India's GDP will contract by 10.3 per cent during the fiscal year 2020-21. This is sharper than the decline projected for the world economy as a whole (4.4 per cent in 2020). It is becoming clear that the recovery in the Indian economy during the post-Covid phase is likely to be weakened on account of the deficiencies in aggregate domestic demand. The results regarding the performance of India's corporate sector (companies that are listed) for the period July-September 2020 point to such a possibility. These results showed that, during the above-referred period, Indian companies recorded an increase in profits despite a decline in their sales. The implication is that the economic recovery in the country during the post-lockdown phase proceeds with a squeeze in wages and other costs. The possibility for an economic recovery stimulated by wage-led demand growth appears remote in such a situation.

Kerala's economy is less likely to be affected by a problem of demand deficiency. The State Government announced a number of measures to enhance social security and improve livelihood opportunities in Kerala, especially after the outbreak of the Covid-19 pandemic. According to one estimate, the income losses suffered by the vulnerable sections of the workforce in Kerala during the two months since the lockdown began on March 25, 2020 was ₹16000 crore or 1.9 per cent of the annual State income (GSDP) of Kerala (The corresponding estimate for India as a whole was 2.2 per cent of the annual national income (GDP)). It is indeed remarkable that the State Government of Kerala had announced an economic relief package amounting to ₹20,000 crore on March 20, 2020 itself, which was large

and early enough to cover the income losses suffered by the poorest sections of the State's workforce in the weeks that followed.⁵

The steps taken to improve social security coverage and livelihood opportunities will produce positive effects on demand conditions and overall economic revival in the State. The growth of credit from scheduled commercial banks provides some indications in that direction. Between 2018 and 2019, the rates of growth of overall credit and credit to industry were remarkably fast in Kerala – 18.7 per cent and 8.6 per cent respectively. These rates of credit growth in Kerala were faster than the corresponding national averages (12.9 per cent and 5.1 per cent respectively).⁶

Per Capita State Income

As per the quick estimates, the per capita GSDP at constant (2011-12) prices in 2019-20 was ₹1,63,216 as against the provisional estimate of ₹1,58,564 in 2018-19, recording a growth rate of 2.93 per cent in 2019-20. At current prices, the per capita GSDP in 2019-20 was ₹2,45,323 registering a growth rate of 7.61 per cent over the previous year's estimate of ₹2,27,979. At constant (2011-12) prices, the quick estimates of per capita NSDP in 2019-20 was ₹1,49,563 as against the provisional estimate of ₹1,45,521 in 2018-19, recording 2.78 per cent growth in 2019-20. **Figure 1.1.2** shows that between 2012-13 and 2019-20, the per capita NSDP at constant prices was higher than the per capita NSDP at all India level.

Box 1.1.2 Estimate of losses to the Kerala economy

In April-May 2020, the State Planning Board conducted a preliminary assessment of losses in different sectors of the economy on account of the Covid-19 pandemic and the subsequent lockdown. The first report prepared by the State Planning Board made an assessment of losses to the State economy during the lockdown period from March 25, 2020, to May 3, 2020. According to the Planning Board estimate, the shortfall in value addition in the State was ₹29,000 crore during March 2020, assuming 10 days of total production loss and decreased economic activity from the middle of March. The loss in the first quarter of 2020-21 was estimated to be ₹80,000 crore on the assumption that the near total disruption in economic activity in April would continue in May and subsequent months and that the production level in 2020-21 would be 5 per cent higher than in 2019-20.

The quick estimates were revised by the State Planning Board in its second loss assessment report, which was published in November 2020. In revising the quick estimates with relatively robust data set, it was considered appropriate to estimate the loss for the quarters of 2020-21 with reference to the estimate for the corresponding quarter of 2019-20. Based on this, the first quarter Gross Value Added (GVA) of 2020-21 is estimated to shrink to around 26 per cent of 2019-20 first quarter GVA. The loss in GVA during the second Quarter of 2020-21 compared to the same quarter of the previous year is estimated to be 18.5 per cent.

The economic crisis associated with the Covid-19 pandemic is unprecedented. Previous disasters were mainly natural disasters, when the economy suffered damage to its productive capacity over a specific time, with measurable consequences in the short and medium term. The production of goods and services during the Covid-19 pandemic came to an abrupt and almost total halt. Further, the halt to production during the Covid-19 pandemic is not locality-specific or scale-specific. Its effects are from top to bottom and across all locations. The situation is dynamic and policy changes and the duration of the pandemic will continue to influence the course of the economy.

Source: 1. Quick Assessment of the Impact of the Covid-19 pandemic and lockdown on Kerala's economy, Kerala State Planning Board, May 2020

2. Assessment of the impact of the Covid-19 pandemic and lockdown on Kerala's economy, April to June, 2020, Kerala State Planning Board, November 2020

⁵ Thomas, Jayan Jose (2020a) 'India's poor may have lost ₹4 lakh crore in the coronavirus lockdown', Scroll, June 4, 2020 (<https://scroll.in/article/963284/indias-poor-may-have-lost-rs-4-lakh-crore-in-the-coronavirus-lockdown>)

⁶ Basic Statistical Returns of Scheduled Commercial Banks in India, RBI

Structure of the Workforce

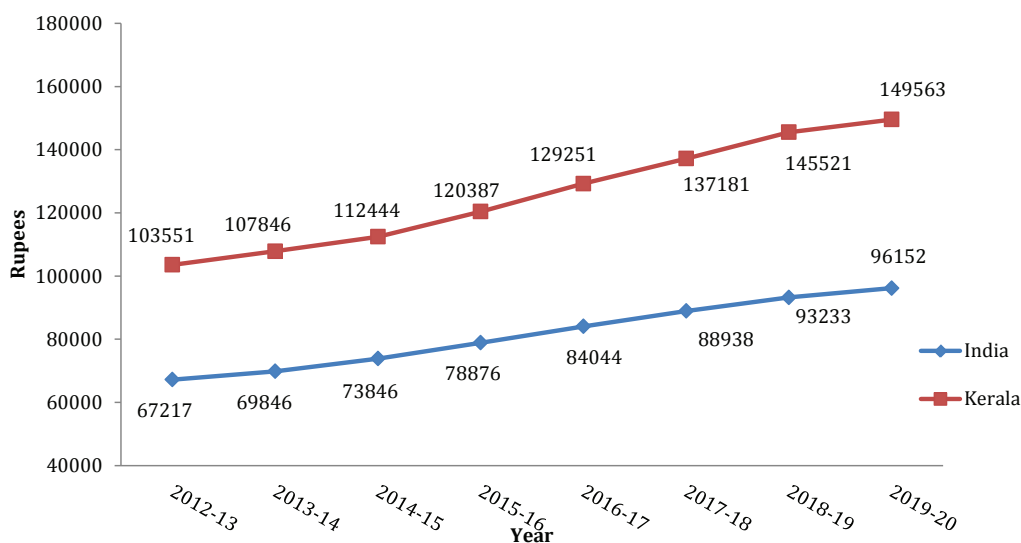
The demographic structure in Kerala has reached a fairly advanced stage, so that the benefits to the State from the so-called demographic dividend are going to be only marginal in the coming years. The decline in fertility rate has been fast in Kerala (much faster compared to the rest of India), and this has quickened the pace of the demographic transition. Between 2001 and 2011, the proportion of the working-age population (in total population) increased only marginally in Kerala, by 0.5 percentage points (from 63.4 per cent to 63.9 per cent), whereas it increased by 3.3 percentage points in the country as whole (from 57.0 per cent to 60.3 per cent). The size of the working-age population is set to increase sharply in many other Indian States, including Uttar Pradesh and Bihar. At the same time, Kerala has a rapidly ageing population. Between 2001 and 2011, the size of the population above 60 years of age increased by 1.1 million in Kerala, which was almost as large as the increase in the

working-age population in the State during the same period.⁷

Based on estimates from the Periodic Labour Force Survey carried out in 2017-18 and the Census of India, the size of Kerala's workforce as on January 1, 2018 was 127 lakh. This comprised 93.7 lakh male workers and 33.4 lakh female workers⁸. Workers as a proportion of population or workforce participation rates were 50.5 per cent and 16.4 per cent respectively for men and women in Kerala. These rates were marginally less than the corresponding national averages.

The low rate of female participation in the labour force in India as reported by the official statistical agencies has been an issue of much concern. Scholars who studied this issue attribute the low rate to a range of social, economic and methodological factors (they include the absence of suitable employment opportunities for women and the difficulty in measuring female work). With respect to labour force participation of

Figure 1.1.2 Per capita NSDP and per capita NDP at constant 2011-12, prices in ₹



Source: Central Statistics Office and Department of Economics and Statistics
NSDP- Net State Domestic Product, NDP- Net Domestic Product

⁷ Jayan Jose Thomas and M. P. Jayesh (2019) 'Labour Market in Kerala: Examining the Role of Industrial and Employment Policies' in K. R. Shyam Sundar (ed.) Globalisation, Labour Market Institutions, Processes and Policies in India, Palgrave Macmillan, pp. 471 - 498

⁸The above-referred estimates were derived from the projected population of Kerala (in 2018) and workforce participation rates in the State. According to Census of India, Kerala's population was 334.06 lakh in 2011, which was 2.8 per cent of India's population (of 121.06 crore) in that year. Our projections of the population of Kerala and India as on 1 January 2018 are 345.2 lakh and 135.7 crore respectively. See Thomas (2020b) for details.

females, Kerala has fared better than the rest of India: in 2017-18, the corresponding rates were 21.3 per cent and 17.5 per cent for Kerala and India respectively. However, at the same time, unemployment rate among women was much higher in Kerala (at 23.2 per cent) than in the country as a whole.

Of the total workforce in Kerala, 21.3 lakh workers (or 16.7 per cent of the total) were engaged in agriculture and allied activities. The proportion of the workforce engaged in agriculture and allied activities is much less (16.7 per cent) in Kerala compared to the national average (41.8 per cent). Given the relatively faster shift of the workforce away from agriculture, the task of generating decent jobs in the non-agricultural sectors has been all the more challenging in Kerala.

The manufacturing and construction sectors employed 15 lakh and 24 lakh workers respectively in the State. The largest source of employment in Kerala is the services sector, which employed 65.6 lakh workers (or 51.6 per cent of the total workforce). Of all women workers in Kerala numbering 33.4 lakh, 19.7 lakh were engaged in the services sector. The number of women workers engaged in the education and health sectors combined was 8.1 lakh in Kerala.

The sector comprising education, health, public administration, finance, real estate, information technology (IT) and professional services is a major source of employment in Kerala. Together, these activities employed 25.9 lakh workers, which include 13.3 lakh women workers, in the State. These are activities which employ workers with relatively high levels of education and skill. Employment in the above-referred activities in Kerala amount to 4.6 per cent of the total employment in these sectors at the national level. Women workers in Kerala employed in these sectors account for 8.3 per cent of all corresponding women workers in India as a whole (**Table 1.1.3**).

District-Wise GSVA

District-wise distribution of GSVA at the basic price at current prices shows that Ernakulam District continues to have the highest income of ₹90,20,991 lakh in 2019-20 as against ₹8547779 lakh in 2018-19, registering a growth rate of 5.5 per cent. At constant (2011-12) prices, this amounts to ₹62,89,123 lakh in 2019-20 compared to ₹61,46,692 lakh in 2018-19. The District-wise GSVA details are given in **Table 1.1.4**.

Table 1.1.3 Estimates of Employment by Sectors, Kerala and India, in lakh, January 2018

	Kerala	Kerala	India	India
	All	Female	All	Female
I. Agriculture, forestry and fishing	21.3	5.2	1971.6	591.8
IIa. Manufacturing	15.0	4.7	602.4	142.1
II. Industry	16.2	4.9	651.6	146.1
III. Construction	24.0	3.6	545.9	54.1
IV a. Trade, repair, transport, hotels and restaurants	34.3	4.0	834.9	75.7
IV b. Public administration, education, health, finance, real estate, IT and professional services	25.9	13.3	558.7	160.8
IV c. Other services and household services	5.5	2.6	149.8	56.0
IV. Services	65.7	19.9	1543.4	292.5
Total (I + II + III + IV)	127.0	33.4	4712.8	1084.5

Source: Estimates based on data from the Periodic Labour Force Survey carried out in 2017-18 and the Census of India, as reported in Thomas (2020b)

Note: Industry comprises manufacturing, mining and quarrying, and electricity, gas and water supply

Note: Industry comprises manufacturing, mining and quarrying, and electricity, gas and water supply

Table 1.1.4 District-wise distribution of Gross State Value Added

Sl. No	District Name	Gross State Value Added at Basic Price (₹ in Lakh)					
		At Current Prices			At Constant Prices		
		2018-19	2019-20	Growth-Rate (%)	2018-19	2019-20	Growth Rate (%)
		(P)	(Q)		(P)	(Q)	
1	Thiruvananthapuram	7509263	7912393	5.4	5263173	5384318	2.3
2	Kollam	6608297	6957191	5.3	4556947	4644758	1.9
3	Pathanamthitta	2002473	2091548	4.4	1398676	1413528	1.1
4	Alappuzha	5039335	5345368	6.1	3413396	3662996	7.3
5	Kottayam	4337373	4594370	5.9	3283445	3213111	-2.1
6	Idukki	2262019	2362530	4.4	1529441	1548996	1.3
7	Ernakulam	8547779	9020991	5.5	6146692	6289123	2.3
8	Thrissur	6888915	7311861	6.1	4848143	5000589	3.1
9	Palakkad	4898000	5183807	5.8	3405965	3495343	2.6
10	Malappuram	6882642	7344154	6.7	4785111	4964505	3.7
11	Kozhikode	6008766	6355170	5.8	4211260	4330693	2.8
12	Wayanad	1388201	1444135	4.0	935533	944915	1.0
13	Kannur	4935042	5214693	5.7	3515132	3619255	3.0
14	Kasaragod	2366864	2491908	5.3	1641303	1683937	2.6
	GSVA	69674968	73630119	5.7	48934217	50196068	2.6

Source: Department of Economics and Statistics,
P: Provisional Q: Quick

Table 1.1.5 District-wise per capita Gross State Value Added at basic price, constant prices, 2011-12

Sl. No.	District	2018-19 (P) ₹	Rank	2019-20 (Q) ₹	Rank	Growth Rate (%)
1	Thiruvananthapuram	156986	5	160270	5	2.1
2	Kollam	170440	2	173391	2	1.7
3	Pathanamthitta	119476	10	121109	10	1.4
4	Alappuzha	159365	4	170868	3	7.2
5	Kottayam	164966	3	161261	4	-2.2
6	Idukki	139799	7	141843	7	1.5
7	Ernakulam	179655	1	182804	1	1.8
8	Thrissur	149811	6	153778	6	2.6
9	Palakkad	114930	12	117112	12	1.9
10	Malappuram	105841	14	108432	14	2.4
11	Kozhikode	129522	9	132273	9	2.1
12	Wayanad	110563	13	111158	13	0.5
13	Kannur	134573	8	137920	8	2.5
14	Kasaragod	118026	11	120100	11	1.8
	State	141161		144078		2.1

Source: Department of Economics and Statistics, GoK
P: Provisional, Q: Quick

District-Wise Per Capita Income (GSVA)

The analysis of District-wise per capita income indicates that Ernakulam District continues to stand first with the per capita income of ₹1,82,804 at constant (2011-12) prices in 2019-20 against ₹1,79,655 in 2018-19. The District-wise per capita income with corresponding rank and growth rate is given in **Table 1.1.5**.

Table 1.1.5 shows that Thiruvananthapuram, Alappuzha, Malappuram, Kannur, Thrissur, and Kozhikode districts had a higher or equal rate of growth of income per capita than the State average in 2019-20. Kollam, Kottayam, Idukki, Palakkad, Pathanamthitta, Ernakulam, Wayanad and Kasaragod districts showed lower per capita income growth compared to the State average. District-wise and sectoral distribution of GSVA from 2016-17 to 2019-20 at current and constant (2011-12) prices are given in **Appendix 1.1.14, 1.1.15, 1.1.16, 1.1.17, 1.1.18 and 1.1.19**.

INFLATION: RECENT TRENDS

Price Trends

As per the Annual Report 2019-20 published by Reserve Bank of India, the conduct of monetary policy in 2019-20 was guided by the objective of achieving the medium-term target for CPI inflation of 4 per cent with a tolerance band

of plus or minus 2 per cent while supporting growth. Inflation remained benign during the first half of 2019-20 but exceeded the upper tolerance band around the target during December 2019 to February 2020 on the back of rising food price pressures.

Inflation rate as measured by Consumer Price Index number (Base 2012=100) is published by the National Statistical Office, Ministry of Statistics and Programme Implementation, on monthly basis.

As per the latest estimates available for the month of October 2020, Inflation based on all India CPI-Combined increased to 7.61 per cent in October, 2020 as compared to 7.27 per cent in September 2020. Inflation in rural areas (7.69 per cent) is marginally higher than urban areas (7.40 per cent) in October 2020.

In Kerala, inflation based on all India CPI-Combined increased to 6.51 per cent in October 2020 as compared to 6.21 per cent in September 2020. Contrary to the national trend, in Kerala, inflation is higher in urban areas (6.76 per cent) than in rural areas (6.45 per cent) in October 2020.

The inflation rate – All India and Kerala for the month of October 2020 is given in **Table 1.1.6**.

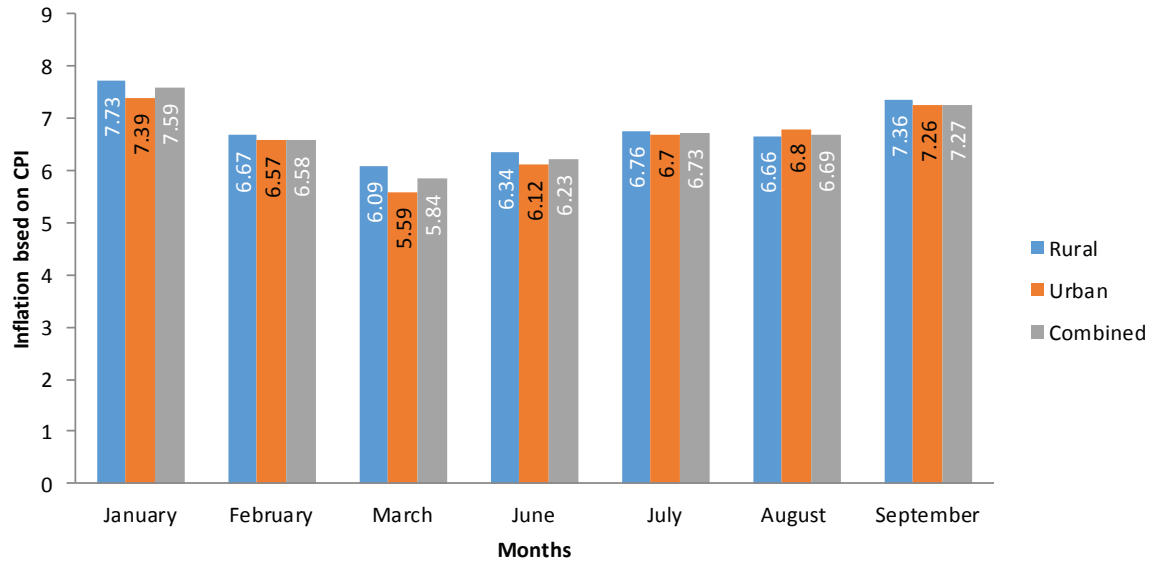
The inflation rates from January to September 2020 in India and Kerala is shown in **Figure 1.1.3 and 1.1.4**.

Table 1.1.6 Inflation Rate, All-India and Kerala, based on Consumer Price Index (General), October 2020, in per cent

Consumer Price Index (General)	October 2020 (Provisional)			September 2020 (Final)		
	Rural	Urban	Combined	Rural	Urban	Combined
India	7.69	7.40	7.61	7.36	7.26	7.27
Kerala	6.45	6.76	6.51	5.89	6.92	6.21

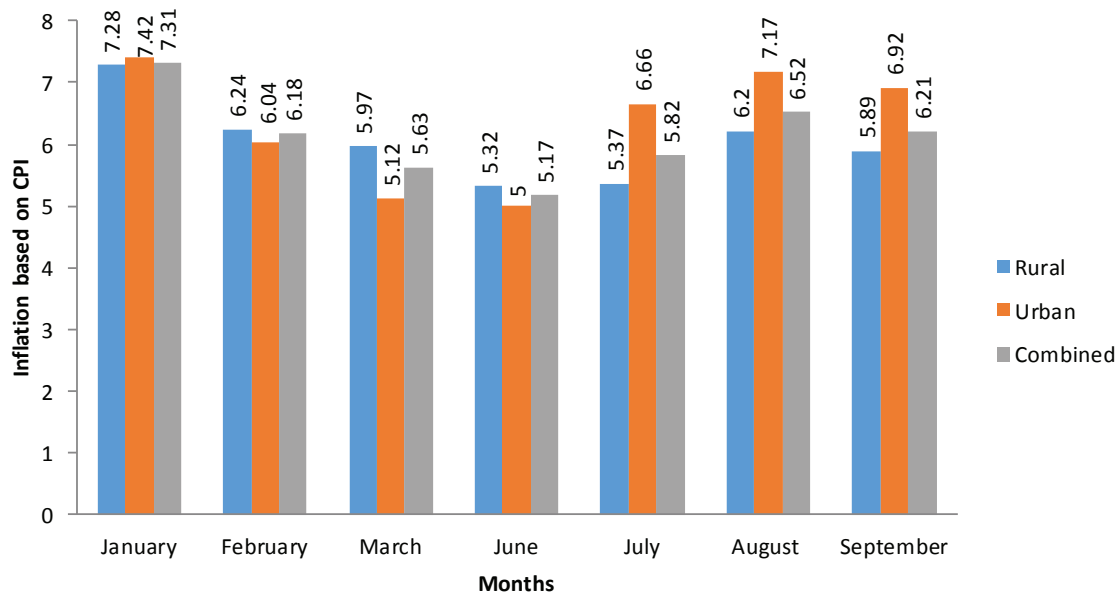
Source: National Statistics Office, Ministry of Statistics and Programme Implementation, GoI

Figure 1.1.3 All-India Inflation rates based on Consumer Price Index (General), January to September 2020, in per cent



Source: National Statistical Office, Ministry of Statistics and Programme Implementation, GoI

Figure 1.1.4 Inflation rates in Kerala based on Consumer Price Index (General), January to September 2020, in per cent



Source: National Statistical Office, Ministry of Statistics and Programme Implementation, GoI

Box 1.1.3 Change in base year for Consumer Price Index for Industrial Worker (CPI-IW)

A new series of Consumer Price Index for Industrial Worker (CPI-IW) with the base year 2016 has been released by the Labour Bureau under the Ministry of Labour and Employment. The series is compiled and maintained by Labour Bureau. The new series will replace the existing series with base 2001.

Certain changes were made in calculations under the new series of CPI-IW (2016=100) when compared to previous series (2001=100) which are as under:

- The coverage has widened to 88 centres in the 2016 series as against 78 centres in the 2001 series.
- The sample size for the conduct of Working-Class Family Income and Expenditure Survey was increased to 48384 families in the new series from 41040 in the 2001 series.
- The number of selected markets for collection of retail price data has been increased to 317 markets under the 2016 series as against 289 markets covered in the 2001 series.
- The number of items directly retained in the index basket has increased to 463 items as against 392 items in the 2001 series.
- The number of States/UTs considered has increased to 28 under 2016 series from 25 in the 2001 series.

The Geometric mean based methodology (GM of Price Relatives) is used for the compilation of indices in the new series as opposed to Arithmetic mean used in 2001 series

The group-level weights under new series have changed in comparison to earlier series (1982 and 2001). The changes are as depicted in the figures below.

Figure 1.1.5 Group-level weights with 2001=100 Series

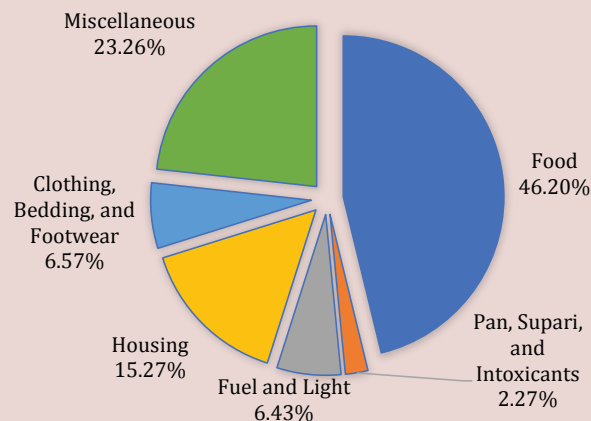
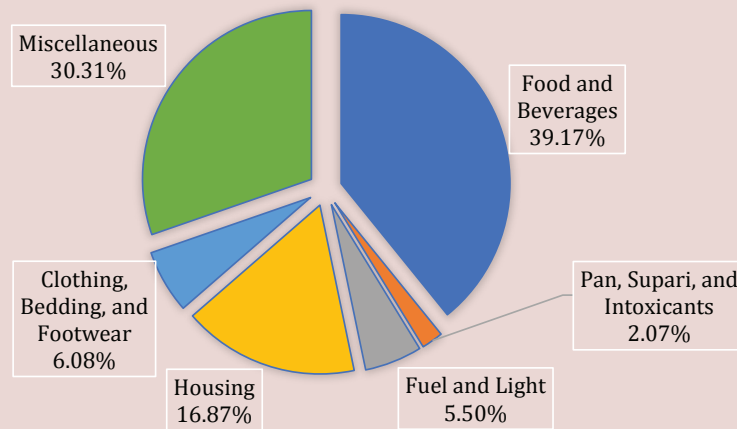


Figure 1.1.6 Group-level weights with 2016=100 Series



Another important aspect that needs to be noted in the new series is that the survey base year and price base are the same for the new series, unlike the previous series.

Source: Ministry of Labour and Employment, Government of India

Price Level in Kerala

Wholesale Price Index (WPI) for Agricultural Commodities

The Wholesale Price Index (WPI) for agricultural commodities in Kerala shows that the index of food crops has increased to 9736.68 in 2019 from 9702.48 in 2018. The increase in prices of food crops is attributed to the rise in prices of vegetables and fruits. Among the food crops, the prices of rice, and condiments and spices have decreased by 1.6 per cent and 3.8 per cent respectively. Similarly, the WPI of non-food items has also decreased by 12.6 per cent from 9023.64 in 2018 to 7883.40 in 2019. Of which, the price of oil and oilseeds decreased to 9550.11 in 2019 from 11187.08 in 2018. Altogether, the WPI of all crops has decreased by 4.2 per cent as compared to the previous year. The WPI of all items during the period from 2013 to 2019 on base 1952-53=100 is given in **Appendix 1.1.20**.

The month-wise WPI of agricultural commodities in Kerala shows that index of food crops has increased to 9853.74 in December 2019 from 9486.29 in January 2019 and the index of non-food items decreased to 7765.66 from 8969.98 during the above period. The month-wise WPI of agricultural commodities in Kerala from January to December 2019 is given in **Appendix 1.1.21**.

The base year of Wholesale Price Index of agriculture commodities in Kerala has been revised to 2015-16 =100 in 2020. The month-wise WPI of agricultural commodities (January to August 2020) with revised base year is given in **Appendix 1.1.22**. The WPI of food crops declined from 144.30 in January 2020 to 133.99 in August 2020 while that of non-food crops increased from 128.17 to 129.37. The Wholesale Price Index of agriculture commodities of all crops declined from 139.55 to 131.92.

Consumer Price Index (CPI)

The annual average CPI (Base 2011-12=100) in Kerala was estimated at 156.4 in 2018 which has increased to 167.2 in 2019. The CPI in Kerala upto July 2020 is 173.5. The per cent variation in 2019 over the previous year is 6.9. CPI of selected centres shows that the highest rate of inflation was registered in Thrissur (8.9 per cent) followed by Pathanamthitta (8.6 per cent) and Malappuram (8.4 per cent) in 2019. The lowest rate of inflation was registered in Palakkad at 5.4 per cent. The annual average CPI and percentage variation of selected centres are shown in **Appendix 1.1.23**. Monthly retail prices of essential commodities from January 2020 to September 2020 are given in the **Appendix 1.1.24**.

Parity Index

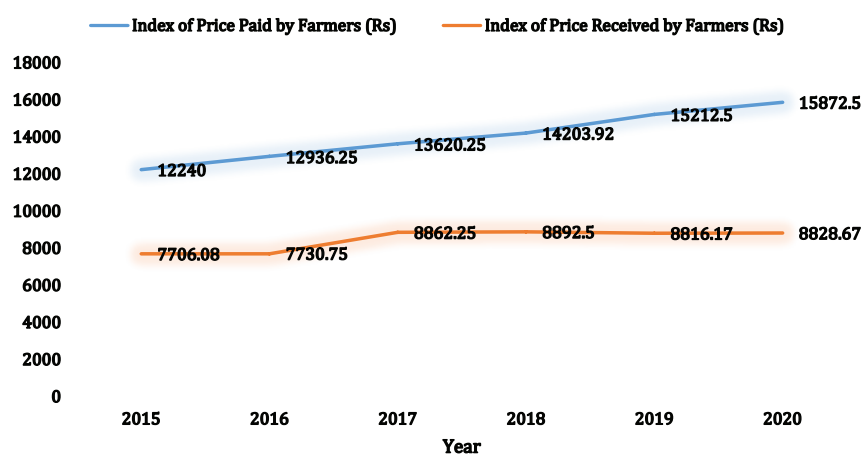
Parity Index estimates the income and expenditure of the farmers from their cultivation. From 2007 onwards, cultivation cost has exceeded the revenue of the farmers from their produces. Parity index has been estimated at 58.08 in 2019 lower than the index of 62.5 in 2018. In 2020 (upto June) it further declined to 55.83. In 2018, the index of price paid by the farmers was 14203.92 and the index of prices received by the farmers was only 8892.50.

The corresponding parity index in 2019 was 15212.50 and 8816.17 respectively. It reveals that the farmers are distressed heavily and the major reasons are the high cost of farm input, exorbitant transportation cost and steep hike in the wages of labourers. The situation further exacerbated during the Covid-19 pandemic time. The yearly average price received and paid by farmers is shown in **Appendix 1.1.25** and **Figure 1.1.7**.

Wages

In Kerala, the average daily wage rate of skilled workers in the agriculture sector has increased year on year. Daily wage rate of carpenters and masons have increased to ₹895.58 and ₹903.17 in 2019-20 from ₹861.92 and ₹866.58 in 2018-19 respectively. The daily wage rate of a carpenter has increased by 3.9 per cent and that of a mason has increased by 4.2 per cent during the above period. The average daily wage rate of skilled workers in the agriculture sector from 2007-08 to 2019-20 is given in **Appendix 1.1.26**. The average daily wage rate of male unskilled workers in the agricultural sector in 2007-08 was ₹195.97 and that of female unskilled workers was ₹137.42. After twelve years, the wage rate has changed significantly with the wage of male workers increasing by 275 per cent to ₹735.71 in 2019-20. Similarly, the female workers' wage

Figure 1.1.7 Price received and paid by farmers, in ₹



Source: Department of Economics and Statistics, GoK
Note: Data for 2020 is upto June

Box 1.1.4 Revision of Base Year of Wholesale Price Index for Agricultural Commodities, Kerala

Wholesale Price Index (WPI) for Agricultural Commodities is published by Directorate of Economics and Statistics, GoK every month since 1956. Until 2019, the base year of the index was 1952-53 = 100. From 2020 onwards, the base year has been revised to 2015-16.

Prices for computation of the Index are collected from different market centres in the State. The centres are selected taking into consideration the relative importance of the area with regard to production and marketing of agricultural commodities. The average of the weekend prices from selected market centres are taken for arriving at the monthly average price for computing the Index.

Revision of base year of any Price Index becomes essential when there is a change in the consumption pattern or in the production of the commodities included in the basket or the base period has become obsolete. The criteria for selection of a new base year are (i) that the year should be a normal year, that is, the year in which there are no abnormalities in the level of production, trade and prices (ii) a year for which reliable production, price, and other required data are available and (iii) a year as recent as possible and comparable with other data series. After considering these factors, 2015-16 was taken as the base year as farm price and production data were available. The year 2015-16 was assessed to be a normal year from the point of view of agricultural production and commodity price.

The index with base year 1952-53=100 had 17 agricultural commodities in the commodity basket. The commodities in the basket are grouped into two main groups namely Food and Nonfood groups. In the Food group, Rice and Sugar, Condiments and Spices, Fruits and vegetables are included whereas in the Nonfood group Oil seeds and Plantation crops are in the basket.

The new index has expanded coverage to include 24 commodities. The commodities included are as follows.

SI No	Group	Item
I	Food Group	
1	Cereal	Rice
2	Pulses	Tur Dal
3	Fruits and Vegetables	Banana, Pineapple, Mango, Tapioca, Potato, and Coconut
4	Condiments and Spices	Turmeric, Dry Ginger, Pepper, Nutmeg, Cardamom, Areca-nut, and Dry Chilly
II	Non-Food Group	
1	Commercial Crop	Cashewnut, Rubber, and Canegur
2	Oil Seeds	Groundnut and Copra
3	Beverages	Cocoa, Tea and Coffee
4	Other non-food	Betel Leaves

Data on production has been taken from 2015-16 EARAS (Establishment of an Agency for Reporting Agricultural Statistics) report, wholesale price from Market Intelligence for the period July 2015 to June 2016 and the expenditure data from the NSS 68th Round Consumer Expenditure Survey (2011-12) has been used.

Source: Directorate of Economics and Statistics, GoK

rate has also risen by 280 per cent and reached ₹522.08. The average daily wage rate of unskilled workers in the agriculture sector from 2007-08 to 2019-20 is given in **Appendix 1.1.27**.

State Interventions

The intervention in the market for providing commodities to consumers at fair prices is done with the help of co-operative institutions like Supplyco and Consumerfed. This is a major relief for the poor and fixed income groups, especially during festival seasons. Besides, the State Government offers substantial budgetary support to the Public Distribution System (PDS).

The volatility in the trend of global fuel prices and rupee exchange rate could be major factors shaping inflationary expectation in the immediate future. Substantial demand side interventions are beyond the scope of a State Government in the present division of constitutional powers. States can intervene mainly in the supply side subject to their resource constraint. Kerala is one such State which has been making consistent supply-side interventions to control prices of essential commodities.

1.2 DEMOGRAPHIC PROFILE

Population in India

The total population size as per 2011 Census in India is 1,21,08,54,977 as against 1,02,86,18,821 as per 2001 Census. As per the 2011 Census figures, there were 62,32,70,258 males and 58,75,84,719 females and the population density in the country was 382 persons per square kilometre. The sex ratio in the country in 2011 was 943 females per thousand males, 949 in rural area and 929 in urban area. The child population in the country in 2011 in the age group 0-6 was 16,45,15,253 and the child sex ratio in the age group 0-6 was 918 females per thousand males.

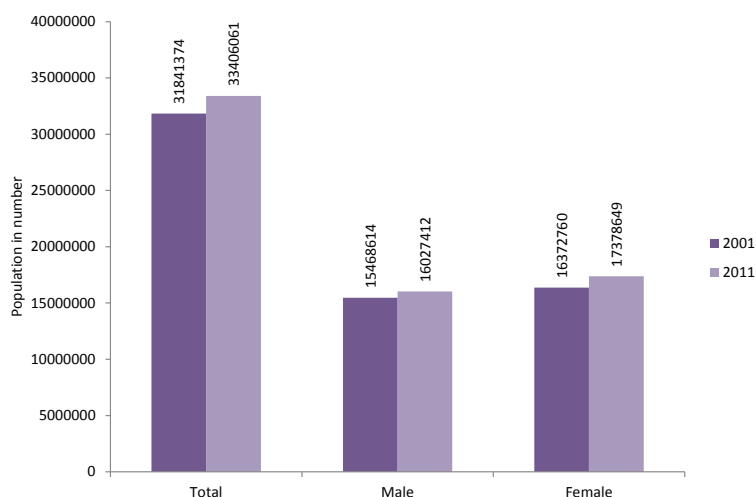
Population Profile of the State

While the discussion in this section is based entirely on the 2011 Census, population projections for Kerala and India (2011-36) are given in **Box 1.2.1**. According to the Census of India 2011, the population of Kerala was 33,406,061, or 2.76 per cent of India's population. Out of the State's total population, 48 per cent population are males and 52 per cent are females (**Figure 1.2.1**). During the period, the rural population was 1,74,71,135 and the urban population constitutes 1,59,34,926. The details are given in **Figure 1.2.2**.

Population Growth

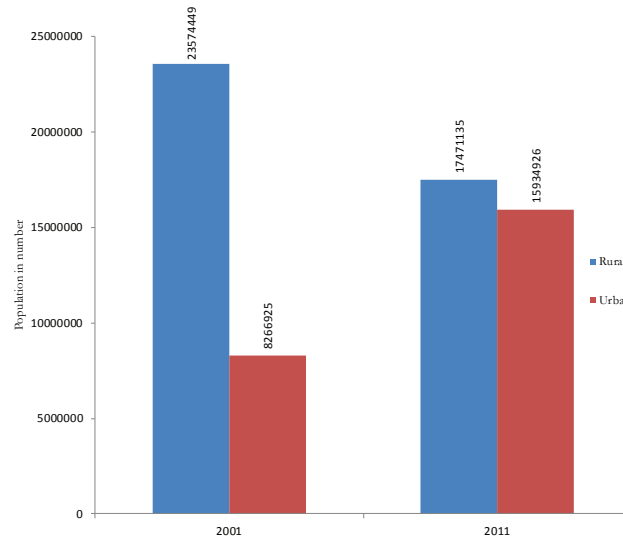
The percentage decadal growth rate of Kerala's population during 2001-2011 was 4.9 per cent,

Figure 1.2.1 Population in Kerala



Source: Census 2001, 2011

Figure 1.2.2 Population in Kerala



Source: Census 2001, 2011

the lowest among the Indian States. Among the Districts of the State, Malappuram has the highest growth rate (13.4 per cent), and Pathanamthitta has the lowest growth rate (-)3.0 per cent. Idukki also has seen a decline in population with a negative growth rate (-)1.8 per cent. The growth rate of population is lower in six southern Districts (Idukki, Kottayam, Alappuzha, Kollam, Pathanamthitta and Thiruvananthapuram) than in other Districts of the State.

Child Population

Kerala's total child population (0-6 years) in 2011 was 34,72,955 (10.3 per cent of total population) as against 37,93,146 (11.9 per cent of the total population) as per the 2001 Census data. The 2011 Census data shows an absolute decline in the number of children (0-6 years) in the State. At the all India level child population as per 2011 Census was 13.5 per cent while it was 15.9 per cent as per Census 2001. The child population as a proportion of the total population is below the national average for Tamil Nadu (9.5 per cent), Karnataka (11.2 per cent) and Andhra Pradesh (10.2 per cent).

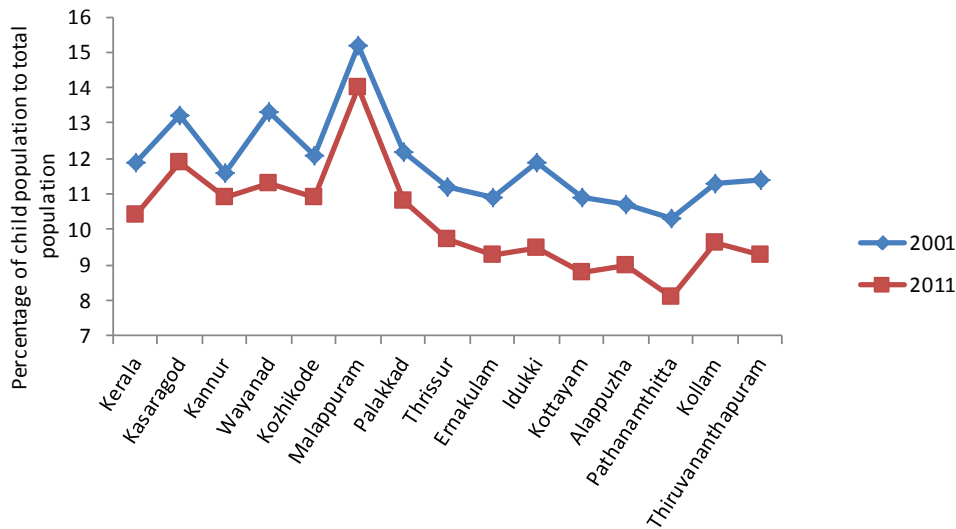
Figure 1.2.3 presents the District-wise picture of proportion of child population in Kerala as per Census data of 2001 and 2011. In absolute

number, Malappuram District is reported to have the highest child population (5,74,041) and Wayanad District with a child population of 92,324 is having the lowest number of children. A decreasing trend in the proportion of child population is seen in all Districts of the State **Appendix 1.2.1**. The southern Districts of Kerala witnessed 2 per cent decline except for Kollam, in which there was a decline of 1 per cent in the proportion of child population. The northern Districts in Kerala showed 1 per cent decline in the proportion of child population. Wayanad District was an exception with a decline of 2 per cent.

Urbanisation

In the first Census of 20th century (1901), the State had a population of 6.4 million of which 5.9 million (92.9 per cent) were living in rural areas. The urban population accounted for only half a million, estimated as less than 10 per cent of the total population of the State. Over a period of hundred years, the share of rural population has undergone a steady decline and was 74 per cent of total population in 2001. Significantly, in 2011 Census, the population of the State was almost equally divided between rural and urban areas. The State has now an urban population of 159 million which accounts for 47.7 per cent

Figure 1.2.3 Proportion of child population in Kerala, in per cent



Source: Census 2001, 2011

of total population against a rural population of 174 million (52.3 per cent). The decadal growth rate of the urban population is 92.72 per cent in 2011. Kerala is the third most urbanised State in India and also reckoned as the fastest urbanising State in the country. The District in which the proportion of urban population to total population is highest is Ernakulam (68.1 per cent).

It is evident that there is a large increase in the number of towns because of the increase in number of Census towns in 2011. A Census town is defined as one area which is not statutorily notified as town but has attained urban characteristics in number of population which exceeds 5,000; density of population is at least 400 persons per sq. km; and a minimum of 75 percentage of male working population is employed outside the agricultural sector. As per Census 2011, there are 461 Census towns and 59 statutory towns in Kerala as against 99 and 60 respectively in Census 2001 which shows a 366 per cent growth in the number of Census towns.

This classification of Census towns has brought down the rural population growth to negative figures. Furthermore, the decadal population growth rate of the towns which existed in both 2001 and 2011 Census is estimated to be 3.90 per

cent, lower than that of the State's average of 4.86 per cent decadal population growth rate. This negates the scope of migration to the towns as an attribute of urban population growth. The growth in urban population is largely due to the increase in Census towns that led to the urban sprawl in the State.

The highest number of towns is in Thrissur District with 135, which accounts for more than 25 per cent of total towns in the State. Around 60 percentage of towns are located in Thrissur, Kannur, Ernakulam and Kozhikode Districts. Urban population has crossed 1 million in 8 Districts. Of these, Ernakulam (68.1 per cent) has got the highest urban population, closely followed by Thrissur, Kozhikode and Malappuram Districts. The total urban population of these four Districts together constitutes more than 50 percentage of urban population in the State. Wayanad and Idukki Districts do not have any Census towns in 2011, except one statutory town each. Wayanad (3.8 per cent) is the District with least urban population in the State. Considering the urban population growth during 2001-2011, the population growth increased in all Districts except Idukki. Malappuram District shows significant increase in urban population growth followed by Kollam, Thrissur and Kasaragod. Wayanad has the least growth rate.

In terms of share of rural population to the total population of the State, Malappuram and Palakkad together account for 25 per cent. Along with the above Districts, Kasaragod, Kottayam, Pathanamthitta, Kollam, Idukki and Wayanad are the other Districts where rural population outnumber the urban population. In Idukki and Wayanad, rural population exceeds 95 per cent of the population of the Districts.

Literacy

Kerala has the highest effective literacy rate of 93.91 per cent among Indian states. It was 90 per cent in 2001 Census. In Kerala, 96.02 per cent men and 91.98 per cent of women are literate as against 82.14 per cent of men and 65.46 per cent of women at the all India level. Among Districts, Kottayam tops in literacy with 97.2 per cent followed by Pathanamthitta with 96.5 per cent. Lowest literacy rates are in Wayanad and Palakkad with 89 per cent and 89.3 per cent respectively. Even the lowest literacy rate of Wayanad (89 per cent) is higher than the national average. As compared to 2001, the literacy rate of all the Districts has improved (**Appendix 1.2.1**).

Sex Ratio

Sex ratio means number of female population per thousand of male population. The sex ratio of Kerala according to Census 2011 is 1,084 and has improved by 26 points since 2001. It increased from 1,032 to 1,036 from 1981 to 1991. Kerala is the only State where the sex ratio has historically been above unity. The sex ratio of Tamil Nadu is 996, of Karnataka is 973, of Andhra Pradesh is 993 and at all India level is 943.

Another significant feature of the State is that all Districts in Kerala show a positive sex ratio. Among the Districts, Kannur has the highest sex ratio (1,136) followed by Pathanamthitta (1,132). Idukki has the lowest sex ratio (1,006). The sex ratio of Ernakulam is 1,027. All the Districts have sex ratio above 1,000. In 2001, only Wayanad had a ratio below 1,000 (994). The difference between the lowest (Idukki, 1,006) and highest

(Kannur, 1,136) is 130 points. Details are given in **Appendix 1.2.2**.

Child Sex Ratio (0-6 Years)

Child sex ratio (number of females per 1000 males in age group 0-6 years) in Kerala is 964 as per the 2011 Census. It was 960 in 2001. The child sex ratio in Tamil Nadu is 943, Karnataka 948, Andhra Pradesh 939 and the all India average is 919. Among Districts, Pathanamthitta has the highest child sex ratio (976) followed by Kollam (973) and Kannur (971). Thrissur has the lowest ratio (950), and Alappuzha is just above with a ratio of 951. The difference between the lowest and highest is 26 points. When analysing the decadal change, the highest increase is in Kollam (13) followed by Kozhikode (10). The decadal change in other Districts is below 10. Thrissur (-)8, Idukki (-)5 and Alappuzha (-)5 have a negative decadal change in child sex ratio (**Appendix 1.2.2**).

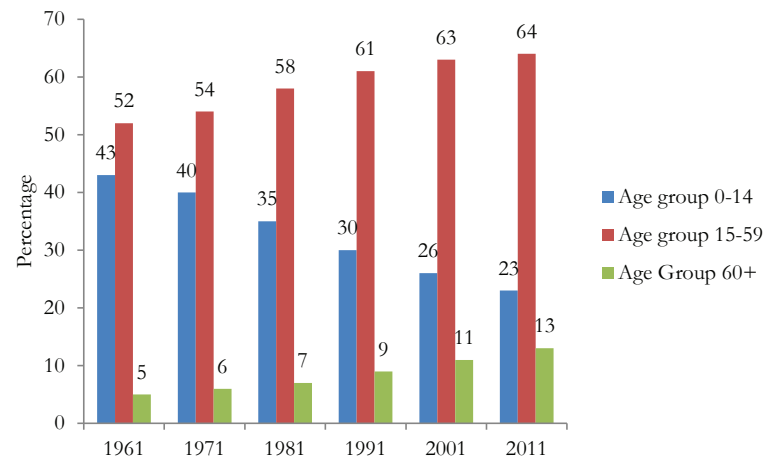
Density of Population

Kerala's density of population as per 2011 Census is 860 persons per square kilometre. It is much higher than that of India (382). Thiruvananthapuram is the most densely populated District (1508) and Idukki is the least densely populated District (255). Density of population has increased in all Districts compared to 2001 except for Pathanamthitta (-)16 and Idukki (-)4 where it has declined. Details are given in **Appendix 1.2.1**.

Age Group Distribution

It is interesting to note the demographic transition in Kerala during the last fifty years. It is observed that the proportion of population in the age group of (0-14 years), has declined from 43 per cent in 1961 to 23.4 per cent in 2011. Due to increasing life expectancy and availability of health facilities, the proportion of the population in the old age group (60 years and above) has increased from 5 per cent in 1961 to 12.7 per cent in 2011. At the National level, 29.5 per cent

Figure 1.2.4 Age group distribution of Kerala 1961-2011, in per cent



Source: Census Data

of the population of India falls in 0-14 years age group, 62.5 per cent in 15-59 and 8.0 per cent in 60+ age category as per Census 2011.

If this trend continues, the addition to the working age group of population (15-59) will decrease in the near future, as the proportion of the population in the age group of 0-14 is declining. The increasing proportion of the old age group (60 and above) would place higher social security obligations on the Government.

District-Wise Age Group Distribution

District-wise distribution of population among different age group as per 2011 Census is given in **Table 1.2.1**. The State has 63.9 per cent of its population in the working age group of 15-59, 23.4 per cent and 12.7 per cent in 0-14 age and

60 and above age groups respectively. Among Districts, Idukki has the highest per cent of the working population (66 per cent) while Malappuram has the lowest (61.4 per cent). In the age group of 60 and above Pathanamthitta has the highest per cent (17.9 per cent), while Malappuram has the lowest per cent (8.4 per cent). At the same time, Malappuram has the highest proportion of the population, in the 0-14 group at 30.2 per cent, while Pathanamthitta has a proportion of 19.4 per cent.

If the actual number is taken, Malappuram has the highest number both in 0-14 and 15-59 group (12.4 lakh and 25.2 lakh). While Ernakulam District has the highest number of people in the elderly group of 60 and above. Wayanad has the lowest number in all age groups, as the District has the least number of total population.

Table 1.2.1 District-wise distribution of the population in different age groups-2011

	Unit	Numbers in Different Age Group in total District population			Percentage of Different Age Group in total District population		
		0-14	15-59	60+	0-14	15-59	60+
1	Kasaragod	3,42,696	8,35,111	1,29,568	26.2	63.9	9.9
2	Kannur	5,94,411	16,06,593	3,21,999	23.6	63.7	12.8
3	Wayanad	2,12,246	5,26,414	78,760	26.0	64.4	9.6

4	Kozhikode	7,49,692	19,72,762	3,63,839	24.3	63.9	11.8
5	Malappuram	12,41,491	25,26,407	3,45,022	30.2	61.4	8.4
6	Palakkad	6,78,192	17,95,096	3,36,646	24.1	63.9	12.0
7	Thrissur	6,88,592	20,01,050	4,31,558	22.1	64.1	13.8
8	Ernakulam	6,93,215	21,35,689	4,53,484	21.1	65.1	13.8
9	Idukki	2,47,338	7,32,193	1,29,443	22.3	66.0	11.7
10	Kottayam	4,13,849	12,47,065	3,13,637	21.0	63.2	15.9
11	Alappuzha	4,46,279	13,57,100	3,24,410	21.0	63.8	15.2
12	Pathanamthitta	2,32,670	7,50,202	2,14,540	19.4	62.7	17.9
13	Kollam	5,83,023	17,00,534	3,51,818	22.1	64.5	13.3
14	Thiruvananthapuram	7,07,280	21,60,992	4,33,155	21.4	65.5	13.1
	Kerala	78,30,974	2,13,47,208	42,27,879	23.4	63.9	12.7

Source: Census 2011

Box 1.2.1 Population Projections for India and States 2011 – 2036

“Population Projections for India and States 2011 – 2036” is a report formulated by the Technical Group on Population Projections of the National Commission on Population under Ministry of Health and Family Welfare, Government of India in 2019. The Component Method is used in population projections with the growth of population being understood as being determined by fertility, mortality, and migration rates. The data used are from the 2011 Census and Sample Registration System (SRS). SRS provides time-series data of fertility and mortality, which has been used for predicting their future levels. The figures for the year 2011 are the Census figures.

India

The population of India is expected to increase from 121.1 crore to 151.8 crore during the period 2011-2036, an increase of 25 per cent in twenty-five years at the rate of 1.0 per cent annually. As a consequence, the density of population will increase from 368 to 462 persons per square kilometre.

The crude birth rate will decline from 19.6 during 2011-15 to 13.0 during 2031-35. In contrast, the crude death rate is expected to increase from 6.9 to 7.3. The Total Fertility Rate (TFR) is expected to decline from 2.34 during 2011-2015 to 1.72 during 2031-35. The sex ratio of the total population (females per 1000 males) is expected to increase from 943 in 2011 to 957 in 2036.

Between 2011 and 2036, the proportion of the population aged under 15 years is projected to decline from 30.8 to 19.8 per cent, the proportion of the middle age-group (15-59 years) is expected to rise from 60.7 per cent in 2011 to 65.1 per cent in 2036, and the older ages (60 years and above) are set to increase by more than double from 10 crore in 2011 to 23 crore in 2036 - an increase in their share to the total population from 8.4 to 15.0 per cent.

The youth population in the age-group 15-24 years is expected to increase from 23.3 crore in 2011 to 25.2 crore in 2021 and then continue to decrease to 22.7 crore in 2036. Its proportion to total population is expected to fall from 19.3 per cent in 2011 to 14.9 per cent in 2036. The average age of Indians is expected to be of 34.7 years in 2036 as compared to 24.9 years in 2011.

The urban population in the country, which is 31.8 per cent in 2011, is expected to increase to 38.6 per cent by 2036. Out of the total population increase of 30.7 crore during 2011-2036 in the country, the share of the increase in urban population is expected to be 22.4 crore

Kerala

The population of Kerala is expected to increase from 3.34 crore to 3.69 crore during the period 2011-2036. As a consequence, the density of population will increase from 860 to 951 persons per square kilometre.

The life expectancy in the State is set to increase with an increase in life expectants of males from 72.19 in 2011-15 to 74.49 in 2031-35 and life expectancy of females from 78.15 to 80.15. The lowest Infant Mortality Rate (IMR) in the country is expected to be in Kerala at 9 in 2031-35. The crude birth rate will decline from 14.5 during 2011-15 to 11.7 during 2031-35. In contrast, the crude death rate is expected to increase from 7.0 to 9.7. The Total Fertility Rate (TFR) is expected to decline from 1.82 during 2011-2015 to 1.80 during 2031-35. The sex ratio of the total population (females per 1000 males) is expected to show a marginal decrease from 1084 in 2011 to 1079 in 2036.

Between 2011 and 2036, the proportion of the population aged under 15 years is projected to decline from 23.5 to 17.7 per cent and the proportion of the middle age-group (15-59 years) is expected to decrease from 63.9 per cent in 2011 to 59.5 per cent in 2036.

The proportion of older persons aged 60 years and above is expected to increase from 13 per cent in 2011 to 23 per cent in 2036. Thus, almost every fifth individual in Kerala is expected to be a senior citizen by 2036. The median age of the population in Kerala is expected to go up from 31.9 years in 2011 to 39.6 years in 2036.

The share of Kerala in the total projected population of the country in 2036 will be 1.2 per cent.

Source: Report of the Technical Group on Population Projections, National Commission on Population, Ministry of Health and Family Welfare, Government of India, 2019

1.3 INDICATORS OF POVERTY

Poverty is a multifaceted concept, which may include social, economic and political elements. Historically, Kerala has followed a development path quite different from that of other Indian States. In Kerala, the factors such as land reforms, the spread of education and health care, decentralisation, pension schemes, public distribution system, Kudumbashree programmes, and the implementation of the Plan schemes have played an effective role in reducing the poverty ratio in rural and urban areas. According to the official figures, the absolute poverty ratio in Kerala is 11.3 per cent in 2011-12 and has shown a sharp reduction over the last forty years. The absolute poverty ratio (GoI, 2014) in Kerala and at all India level from 1973-74 to 2011-12 are given in **Table 1.3.1**.

The incidence of poverty in Kerala was 59.79 per cent in 1973-74 which came down to 11.3 per cent in 2011-12. At the all India level, the ratio of poverty was 54.88 per cent in 1973-74 (which was lower compared to Kerala) and it reduced to 29.5 per cent in 2011-12. Kerala has also made a substantial improvement in reducing the incidence of both rural and urban poverty. In Kerala, from 1973-74 to 2011-12, rural and urban poverty ratio has declined from 59.19 per cent to 7.3 per cent and from 62.74 per cent to 15.3 per cent respectively, whereas in India these figures declined from 56.44 per cent to 30.9 per cent for rural people and 49.01 per cent to 26.4 per cent for urban people. The challenge before Kerala is to bring it down further and continue the numerous programmes which have made the achievement possible.

Table 1.3.1 Proportion of Poor in India and in Kerala, 1973-74 to 2011-12

Year	Kerala			India		
	Rural	Urban	Total	Rural	Urban	Total
1973-74	59.19	62.74	59.79	56.44	49.01	54.88
1977-78	51.48	55.62	52.22	53.07	45.24	51.32
1983	39.03	45.68	40.42	45.65	40.79	44.48
1987-88	29.10	40.33	31.79	39.09	38.20	38.86
1993-94	25.76	24.55	25.43	37.27	32.36	35.97
1999-00	9.38	20.27	12.72	27.09	23.62	26.10
2004-05	13.2	20.2	15.0	28.3	25.7	27.5
Rangarajan Committee Estimates						
2009-10	9.7	23.7	16.0	39.6	35.1	38.2
2011-12	7.3	15.3	11.3	30.9	26.4	29.5

Source: Planning Commission, GoI, 2014 (Lakdawala Methodology is used from 1973-74 to 2004-05)

Socio-Economic and Caste Census (SECC), 2011, was the latest exercise conducted by Government of India (GoI) mainly aimed at ranking households based on their socio-economic status. SECC becomes very crucial for India because it gives a broader and dynamic definition of poverty. SECC estimates a deprivation index based on seven criteria. According to the SECC (2011) data, out of the 76.99 lakh households in Kerala, 63.19 lakh (82.08 per cent) live in rural areas. Of this, 10.32 per cent are Scheduled Castes (SC) households and 1.63 per cent are Scheduled Tribes (ST) households. Out of the total rural households, 19.16 lakh (30.33 per cent) rural households are deprived. The highest deprivation rate is in Palakkad (42.33 per cent) followed by Thiruvananthapuram (38.36 per cent) and Wayanad (36.33 per cent) Districts. And the lowest deprivation rate is in Ernakulam (20.30 per cent), Kottayam (23.02 per cent) and Kannur (24.25 per cent) Districts. Out of the total rural SC and ST households, 57.66 per cent of SC households and 61.68 per cent of ST households are included under the deprived category. District-wise details of the per cent of deprived rural households in Kerala against their total number of rural household across different categories are given in **Appendix 1.3.1**.

While considering the different indicator-wise deprivation rates among the rural households in Kerala, the highest deprivation was recorded in the indicator, 'landless households deriving major part of their income from manual casual labour' (18.86 per cent) followed by 'SC/ST household' (7.11 per cent) and 'female-headed households with no adult male member between age 16 to 59' (3.65 per cent) respectively. The lowest deprivation was reflected in the indicator, 'disabled member and no able-bodied adult member' (0.19 per cent) followed by the indicator 'only one room with kucha walls and kucha roof' (1.43 per cent) and 'no literate adult above 25 years' (1.81 per cent). District-wise details of the percentage of deprived rural households based on the deprivation index are given in **Appendix 1.3.2**.

According to the SECC data, the main breadwinner of 70.75 per cent of rural households in Kerala earns less than ₹5,000 per month, while at all India level, the corresponding share was 74.52 per cent. This ratio was the highest in Wayanad (79.67 per cent), followed by Malappuram (75.55 per cent) and Palakkad (74.38 per cent) Districts. The ratio was the lowest in Ernakulam (64.37 per cent), followed by Kottayam (64.46 per cent) and Pathanamthitta (64.66 per cent) Districts.

In Kerala, 50.61 per cent and 10.26 per cent of the rural households depend on manual casual labour and cultivation as their most important source of household income. At the all India level, the corresponding shares are 51.18 per cent and 30.10 per cent respectively. The largest number of households who depend on manual casual labour is in Malappuram (65.05 per cent) and the lowest number is in Pathanamthitta (31.71 per cent).

Even though Kerala is better off than most other States in India in terms of average poverty estimates, there are still several pockets of deprivation in the State. Poverty in Kerala is mainly concentrated in some social categories and groups such as SCs, STs, fisher-folk, potters and artisans. It points to the need for actions focussed on these groups under different central and State schemes and redesigning livelihood programmes in these areas to reduce poverty in the State. The Scheduled Caste Development Department, Scheduled Tribes Development Department and the Fisheries Department are implementing several poverty reduction/ livelihood programmes for uplifting people in these communities. Though the extent of poverty has been reduced, focused action to alleviate deprivation among marginalised sections is the urgent task of the State.

1.4 ROLE OF FINANCIAL INSTITUTIONS IN DEVELOPMENT INITIATIVES

Financial institutions play an important role in promoting growth and development in an economy. The role of financial institutions becomes all the more crucial when an economy is in a recession as credit is needed to sustain viability of agents and facilitate economic recovery. As constraints on fiscal space of Governments increase, intervention through financial institutions are part of steps to support the economy. Kerala has been facing different forms of crises over the last four years. In these critical circumstances, financial institutions played a key role in creating livelihoods.

Spread of Banking – All India and State level

The total number of bank branches in Kerala as on March 2020 is 7576 which includes public sector commercial banks, private sector commercial banks, regional rural banks, small finance banks and co-operative banks as per the State Level Bankers Committee (SLBC) data. Of the total number of bank branches 65.1 per cent branches are in semi-urban area and 23.2 per cent are in urban area. Only 11.7 per cent are in rural area. The group-wise branch network in Kerala is shown in the **Table 1.4.1**. As per SLBC report, Kerala has a total of 6,353 scheduled

Table 1.4.1 Banking Group-wise Branch Network in Kerala

Sl. No.	Banking Group	Number of Branches			
		Rural	Semi-urban	Urban	Total
1	Public Sector Commercial Banks	142	2394	863	3399
2	Regional Rural Bank - Kerala Gramin Bank	53	542	39	634
3	Private Sector Commercial Banks	143	1613	564	2320
4	Small Finance Banks	90	108	33	231
5	Co-operative Banks*	457	276	259	992
	Total	885	4933	1758	7576

Source: State Level Bankers Committee Report, Kerala, March 2020

*includes branches under Kerala Bank

commercial bank branches (which includes only public sector commercial banks, regional rural banks and private sector commercial banks) in March 2020 as against 6,284 bank branches in March 2019, which shows a marginal increase of 1 per cent. The total number of branches of Kerala Gramin Bank is 634 as on March 2020.

As per RBI Quarterly Statistics, in March 2020, the total number of bank branches all over India is 1,48,904. Uttar Pradesh has the largest number of bank branches (17,539) followed by Maharashtra (13,114) and Tamil Nadu (11,523). Kerala has the largest number of bank branches (4,716) among the semi-urban areas in the country (**Appendix 1.4.1**).

Deposits

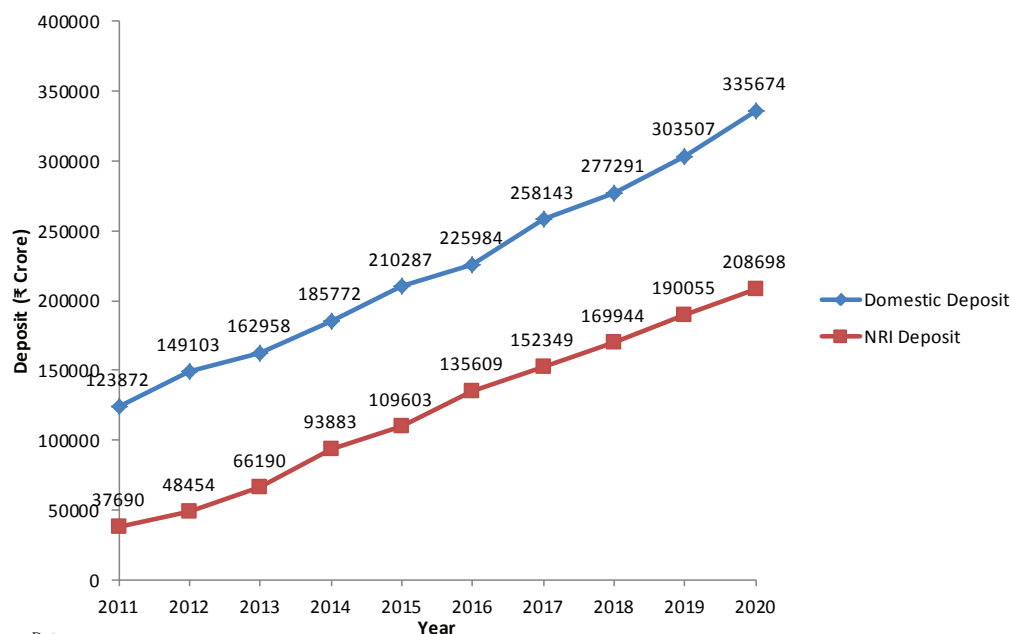
As per SLBC data, the total bank deposits (includes deposits of Commercial Banks, Regional Rural Banks and Small Finance Banks) in Kerala as on March 2020 is ₹5,44,372 crore as against ₹4,93,562 crore in March 2019. The total bank deposits comprises ₹3,35,674 crore as domestic deposits (61.7 per cent of total deposits) and ₹2,08,698 crore (38.3 per cent as NRI deposits)

in March 2020 whereas it was ₹3,03,507 crore and ₹1,90,055 crore respectively in March 2019. The growth of bank deposits in Kerala is shown in **Figure 1.4.1** and (**Appendix 1.4.2**).

Domestic deposits and NRI deposits

According to SLBC report, domestic deposits show a variation of 10.6 per cent compared to previous year. The total domestic deposits in March 2020 is ₹3,35,674 crore as against ₹3,03,507 crore in March 2019. The total NRI deposits in the banking sector in March 2020 is ₹2,08,698 crore as against ₹1,90,055 crore in March 2019. The deposits increased by almost 10 per cent. The total NRI deposit in private sector banks is higher than that of the public sector banks in Kerala. As on March 2020, the public sector banks have a total NRI deposit of ₹98,733.39 crore whereas the private sector banks have NRI deposits of ₹1,07,165.05 crore. Small Finance Banks are gaining prominence in the banking sector. The SFBs received ₹1306.51 crore as NRI deposits in March 2020 which is 182.6 per cent higher than compared to previous year (**Appendix 1.4.3**).

Figure 1.4.1 Growth of bank deposits in Kerala, 2011-2020, in ₹ crore



Source: Census Data

Deposits in Scheduled Commercial Banks

As per RBI data, the total deposits at the end of March 2020 in the country increased by 9.5 per cent over the previous year. The total bank deposits in all scheduled commercial banks (including public sector banks, private sector banks, foreign banks, regional rural banks (RRBs) and small finance banks) in Kerala in March 2020 increased by 10.5 per cent to ₹5,47,651 crore as compared to ₹4,95,741 crore in March 2019. The share of deposits in scheduled commercial banks in Kerala to the total deposits in the country as on March 2020 is 3.98 per cent. Maharashtra has the highest share of deposits (20.04 per cent) in the country (**Appendix 1.4.4**).

Advances

As per SLBC data, the commercial banks and co-operative banks in Kerala disbursed ₹4,09,607.65 crore as advances in March 2020 which is 7.6 per cent higher than that of March 2019. However, the increase is lower in March 2020 as compared to previous year's growth of 13.7 per cent. All Commercial banks including public sector commercial banks, private sector commercial banks, RRBs and Small Finance Banks (SFBs) together disbursed ₹3,59,274 crore as advances at the end of March 2020. Out of this, the advances of public sector commercial

banks, private sector commercial banks, RRBs and Small Finance Banks were ₹1,95,503 crore, ₹1,41,807 crore, ₹17,912 crore, and ₹4,052 crore respectively. The Priority Sector Lending (PSL) in the State is 52 per cent of total advances in March 2020. Bank-wise analysis shows that co-operative banks lead in maintaining priority sector lending in areas like agriculture, micro, small and medium enterprises and education. Small Finance Banks have provided advances 45 per cent higher than the previous year. As per quarterly RBI report, the major State-wise advances financed by scheduled commercial banks are given in **Appendix 1.4.5**.

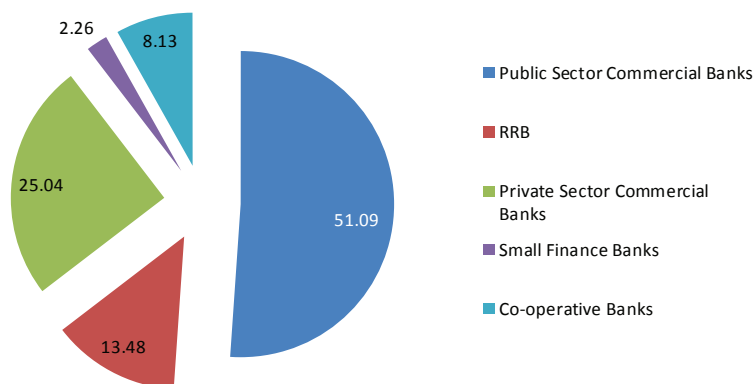
Advances for Agricultural Purpose

Total advances through commercial banks, RRBs, SFBs and co-operative banks for agricultural purpose in March 2020 registered only a marginal increase to ₹89,500 crore from ₹89,383 crore in March 2019. The per cent of agricultural advance to total advance decreased from 23.5 per cent to 22 per cent in March 2020. Share of agricultural advances of various banks as on March 2020 is shown in **Figure 1.4.2**.

Advances to SCs/STs and Weaker Section

As on March 2020, an amount of ₹5147.3 crore and ₹1204.9 crore was disbursed to Scheduled Caste (SC) and Scheduled Tribe (ST) persons

Figure 1.4.2 Share of Agricultural Advances as on March 2020, in per cent



Source: SLBC Report, March 2020

Table 1.4.2 Banking Group-wise Details of SC/ST Advances as on March 2020, in ₹ crore

S.I No.	Bank	SC Advances 2020		ST Advances 2020		SC Advances 2019		ST Advances 2019		Percentage increase or decrease of advances to SC	Percentage increase or decrease of advances to ST
		Number	Amount	Number	Amount	Number	Amount	Number	Amount		
1	Public Sector Commercial Banks	222151	4028.37	43476	810.63	302382	4915.48	65879	1064.03	-18.05	-23.82
2	RRB	40149	244.67	20683	126.04	36872	220.71	19475	115.42	10.86	9.20
3	Private Sector Commercial Banks	59844	340.72	3906	45.35	47754	243.71	3618	40.11	39.81	13.06
4	Small Finance Banks	146062	305.41	50027	108.94	111459	204.38	32160	54.91	49.43	98.40
5	Co-Operative Banks	13532	228.13	8632	114.03	9885	126.5	2704	31.85	80.34	258.02
	Total banking sector	481738	5147.3	126724	1204.99	508352	5710.78	123836	-9.87	-9.87	-7.76

Source: State Level Bankers Committee Report, Kerala, March 2020

respectively in the State by various banks as against ₹5710.8 crore and ₹1306.3 crore in March 2019. Compared to the previous year, there is around 10 per cent decrease in the advances provided to the Scheduled Caste and around 8 per cent decrease in the advances given to Scheduled Tribes. The report shows that advances provided to SC and ST by Public Sector banks in 2020 decreased by 18 per cent among SCs and 24 per cent among STs when compared with previous year. Advances provided by Co-operative Banks to STs increased by 258 per cent compared to previous year. In March 2020, ₹85,398 crore has been disbursed to weaker sections in the State which shows a 10 per cent increase as compared to March 2019 (₹77,474 crore).

The group-wise advances given by banks to SC and ST are given in **Table 1.4.2**.

Housing loans

As per SLBC data (as on March 2020), banks

in Kerala including commercial banks and co-operative banks sanctioned ₹37,324 crore to 8,27,096 beneficiaries as housing loan against ₹36,025 crore to 7,51,634 beneficiaries in March 2019. There is a 3.6 per cent increase in total housing loan sanctioned. Banking analysis show that public sector banks disbursed ₹20,400 crore to 3,10,913 beneficiaries, RRBs disbursed ₹2,897 crore to 58,855 beneficiaries, private sector commercial banks disbursed ₹5,596 crore to 73,019 beneficiaries, small finance banks disbursed ₹71 crore to 9,864 beneficiaries and co-operative banks disbursed ₹8,359 crore to 3,74,445 beneficiaries in 2019-20. The major share of housing loans are disbursed through public sector commercial banks (55 per cent) followed by co-operative banks (22 per cent).

Educational Loan

As on March 2020, ₹11,260 crore was sanctioned as educational loan for 3,49,815 students in the State. It shows an increase of 13.8 per cent in the

amount sanctioned compared to previous year. The public sector commercial banks disbursed ₹9,246 crore to 2,44,008 students, which accounts for 82 per cent of the total educational loan provided. RRBs disbursed ₹641 crore to 23,459 students which shows a decrease of 18 per cent in the amount disbursed as compared to March 2019. Private sector commercial banks disbursed ₹1,232 crore to 39,574 students. The loans disbursed by SFBs (₹83 crore to 40,669 students) are a huge increase in amount disbursed as educational loan when compared with March 2019 figures (₹14.74 crore to 16,083 students). Co-operative banks disbursed ₹58 crore to 2,105 students in March 2020. Out of the total outstanding educational loan provided by all banks, 12 per cent is Non-Performing Asset (NPA) as on March 2020.

Credit-Deposit Ratio

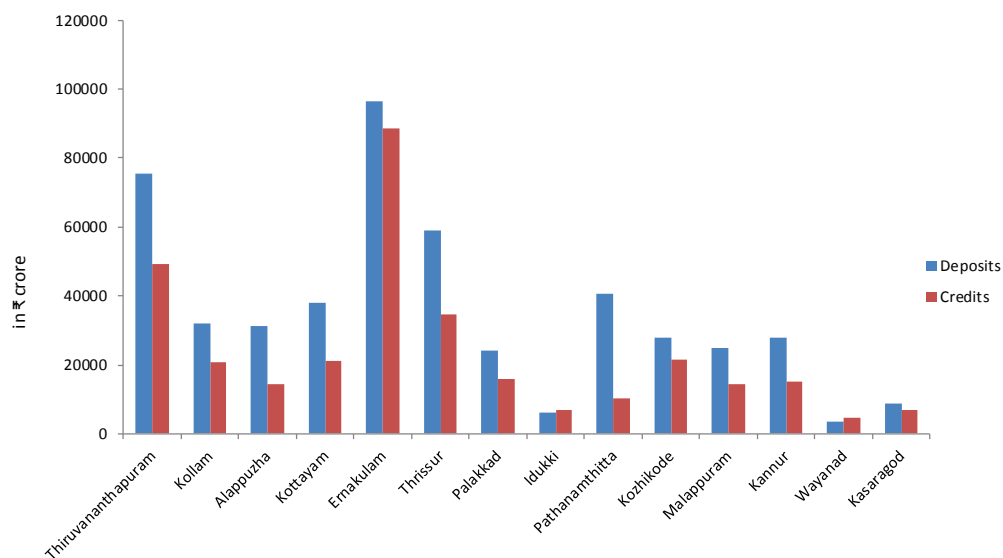
Kerala has a low Credit Deposit ratio (CD Ratio) among Indian states. The CD ratio of Kerala as on March 2020 is 67.25 per cent. The Credit-Deposit (CD) ratio of Scheduled Commercial Banks at the end of March 2020 shows a decrease according to the RBI quarterly statistics. As on March 2020, the CD ratio is 76 per cent in India while it was

78.18 per cent in March 2019. Andhra Pradesh maintains the highest CD ratio (123.84) in March 2020. Tamil Nadu (107.26 per cent) Maharashtra (102.59 per cent) and Telangana (102.21 per cent) also have a high CD ratio when compared with other States in India.

The CD ratio of scheduled commercial banks in Kerala as on March 2020 decreased to 64.26 per cent from 65.61 per cent in the previous year (**Appendix 1.4.6**). The total deposits in scheduled commercial banks in Kerala increased to ₹5,47,651 crore as on March 2020 from ₹4,95,741 crore in 2019 and total credit also increased to ₹3,51,908 crore as on March 2020 from ₹3,25,280 crore in 2019.

The CD Ratio of public sector banks in India has decreased to 70.18 per cent as on March 2020 from 72.85 per cent in March 2019. Andhra Pradesh has the highest CD Ratio of 127.99 per cent among the States followed by Telangana (108.24 per cent) and Tamil Nadu (106.28 per cent). The CD Ratio of public sector banks in Kerala increased to 66.62 per cent as on March 2020 from 64.93 per cent in March 2019. (**Appendix 1.4.7**)

Figure 1.4.3 District-wise Distribution of Deposits and Credit of Scheduled Commercial Banks in Kerala as on March 2020



Source: Reserve Bank of India -Quarterly statistics on Deposits and Credit of Scheduled Commercial Banks, March 2020

District-wise Analysis of Banking Statistics

The District-wise analysis of banking statistics in Kerala by RBI reveals that Ernakulam has the highest number of branches of Scheduled Commercial Banks (1,019) followed by Thrissur (760) and Thiruvananthapuram (741). The lowest number of branches is in Wayanad (133) (Appendix 1.4.8). District-wise distribution of deposits and credit of scheduled commercial banks in Kerala as on March 2020 is shown in Figure 1.4.3.

Co-operative banking sector in Kerala

Co-operative banks in Kerala have been playing a central role in providing credit facilities to different segments of the economy. Around 13 per cent of the total bank branches are in the co-operative sector. As on March 2020, there are 992 co-operative bank branches in Kerala. Of the total 992 branches, 457 are in rural area, 276 are in semi-urban area and 259 are in urban area.

The total deposits of commercial, RRBs, SFBs and Co-operative Banks as on March 2020 was

₹6,09,059 crore. The deposits of co-operative banks as on March 2020 decreased to ₹64,687 crore from ₹70,139 crore in March 2019. The share of co-operatives declined from 12.44 per cent to 11 per cent of the combined deposits of commercial banks and co-operatives. The total advances from both commercial banks and co-operatives in the State was ₹4,09,608 crore in March 2020, of which, the share of co-operatives is ₹50,334 crore which accounts for 12 per cent of the total advances of commercial and co-operative banks in the State. The total agricultural advances from commercial and co-operative banks in the State as on March 2020 was ₹89,500 crore and the share of co-operatives is ₹7,280 crore (8 per cent). The performance of Co-operative sector is shown in Table 1.4.3.

Non-Banking Financial Institutions

Kerala State Financial Enterprises (KSFE)

Kerala State Financial Enterprises (KSFE) is a fully owned Government Miscellaneous Non-Banking Finance Company (MNBC) which was incorporated in 1969. The major business

Table 1.4.3 Performance of Co-operative Sector, in ₹ crore

S. No.	Parameter	As on March 20			Share of co-operative to Total (%)
		Co-operative Sector	Commercial Banks+ RRBs+ SFBs	Total	
1	Branches	992	6584	7576	13
2	Total Deposits	64687	544372	609059	11
3	Total Advances	50334	359274	409608	12
4	Total Business	115021	903646	1018667	11
5	Priority sector advances	34476	179540	214016	16
6	% Priority sector advances	68%	50%	52%
7	Agriculture Advances	7280	82221	89500	8
8	% Agriculture Advances	14%	23%	22%
9	MSME Advances	4503	56894	61397	7
10	% MSME Advances	9%	16%	15%
11	CD Ratio	77.81	66%	67.52%

Source: State Level Bankers Committee, Kerala 2020

segments of KSFE may be classified as chitty, loans and advances and deposits. The aggregate monthly turnover as on March 2020 is ₹23,895 crore. The company has ₹3,043 crore as chitty security deposit and ₹2,122 crore as free deposits. In 2019, the company opened 2 regional offices at Palakkad and Pathanamthitta and started 18 new branches.

The company in association with KIIFB plays a significant role in overall infrastructural development of the State by mobilising funds through the Pravasi Chitty scheme for investment in various projects undertaken by Government of Kerala. More than ₹200 crore has already been invested in KIIFB bonds by utilising the funds generated through NRI Chitty.

In order to overcome the crisis because of Covid-19 pandemic and subsequent lockdown, apart from moratorium, KSFE chalked out various programmes such as interest free loans and concessional loans to NRKs, online educational support, liquidity and returns to senior citizens and other depositors. The Pravasi sauhrudam and Pravasimithram gold loans for returnee NRKs and gold loan up to ₹1.5 lakh at an interest rate of 3 per cent will help to cater to the urgent financial needs of NRIs, especially those who returned to the State after the onset of the pandemic.

Under the Online Vidhya Sahayi scheme, with the help of local administrative bodies, KSFE provided smart TV sets to start neighbourhood study centres wherever needed. KSFE provided ₹37 crore for this scheme. Another scheme called Vidyasree Programme was also introduced in association with Kudumbasree mission to provide laptops for the members of Kudumbasree.

Kerala Financial Corporation (KFC)

Kerala Financial Corporation (KFC) incorporated under the State Financial Corporations Act of 1951, plays a major role in the development and industrialisation of Kerala. Net profit of KFC increased to ₹18.4 crore in March 2019-20 from

₹17.7 crore in March 2018-19. The corporation has proposed few schemes to encourage entrepreneurship in the State. Government have approved a programme called 'Chief Minister's Entrepreneurship Development Programme (CMEDP). The programme targets a minimum of 2000 potential entrepreneurs so as to set up at least 1000 entrepreneurship units every year. KFC is the implementing agency of the programme. Further details on KFC are covered in the industry section of this Review.

1.5 STATE FINANCES

Kerala is known for its unique approach towards social and economic development and a range of welfare measures that the State has adopted as cornerstone of its policies. In this endeavour, the Government has made all efforts to ensure social welfare and protection to all by balancing welfare measures along with fiscal prudence. The Government, however, had to face unprecedented challenges in the last four years that were beyond the control of the State. The Thirteenth Five-Year Plan has been an exceptionally difficult period with severe economic shocks, which have put a severe strain on financial resources of the State and affected fiscal consolidation efforts of the Government. The State had to face Ockhi cyclone in 2017. The floods of 2018 and 2019 led to wide scale damage and destruction, putting considerable strain on finances. Adverse Central Government policies in terms of demonetisation and introduction of GST also affected the resource mobilisation capacity of the Government. The adverse financial situation has been further exacerbated by the Covid-19 pandemic and the consequent lockdown. The lockdown imposed by Central and State Governments brought the State economy to a halt and disrupted all revenue estimation done earlier.

In order to support the economy and to minimise the damage caused by the economic slowdown, the State decided to prioritise recovery and growth over stringent fiscal consolidation. The Government has stepped in to offer relief to the most vulnerable sections of the society by

providing essential services, goods and cash. During times of severe economic stress, the State provided some of the most essential services universally to its entire people.

The external economic shocks further intensified the problems created by the natural disasters. The most serious external shock that the State faced during this period was the string of nationalisation policies enacted by the Gulf Cooperation Council countries. This led to large scale job losses among Non-Resident Keralites in these countries. The job losses create a double shock on the Kerala Economy. Job losses add on to the already high levels of unemployment in the State. It also reduces external remittance, which is a major source of counter-cyclical support to the State economy. The global backlash against globalisation and the subsequent erection of higher tariff barriers led to a decline in the export of plantation and related products of Kerala.

Recent policy initiatives of the Central Government have squeezed the fiscal space of the States in utilising the resources received from the central transfer. Permission granted by Central Government to the states on additional borrowing of 2 per cent of the State Gross Domestic Product in the light of Covid-19 and the conditional grants to local bodies under 15th Finance Commission (FC) recommendations are the substantial illustrations in this case. The spirit of fiscal federalism has also derailed because of the unilateral approach in decision making

by Centre. In most of the Centrally Sponsored Schemes, there has been a decline in central share.

The implementation of GST has further limited the manouvering space to raise resources through taxes. Besides, there has been a delay in receipt of GST compensation from the Central Government. About 30 per cent of the total revenue of the State Government comes from loans or grants from the Central Government. This has been affected due to changes in funding pattern of Centrally Sponsored Schemes (CSS) since 2015-16. In schemes where earlier 25 per cent of cost was met by the State, now 40 per cent of the cost is borne by the State.

Despite all these setbacks, it is noteworthy that the State has attained top position in its progress towards UN Sustainable Development Goals as measured by NITI Aayog through SDG India Index. This indicates the quality of expenditure set apart for key social services like education and health. Government of Kerala has also promoted accelerated investment in infrastructure for ensuring sustainable growth in the economy.

The Government's flagship programmes across the Four Missions, namely Haritha Keralam, Livelihood Inclusion and Financial Empowerment (LIFE), Education Rejuvenation Mission and Aardram Mission continues to make substantial improvements in the quality of life of the people of the State. Activities under these missions include housing for homeless people and people who lost houses in the floods, developing schools to international standards, improving health centres and the establishment of more Cath labs, taking up hectares of fallow land for agriculture, and preservation of water bodies. In the coming quarters, the Government priority is expected to be on economic recovery while maintaining macroeconomic stability. The Government has to carefully calibrate fiscal policies to meet this delicate task in the coming years. Unanticipated expenditure for crisis management is a great challenge for Governments, especially State Governments whose revenue raising capability is limited.

Revenue Deficit for 2019-20 is 2.01 per cent as against 2.23 per cent in 2018-19. As per the Budget estimates of 2020-21, Revenue Deficit is estimated to be 1.55 per cent. Fiscal deficit to GSDP proportion, which was 3.45 per cent

Table 1.5.1 Major Deficit Indicators from 2011-12 to 2020-21, in ₹ crore

Year	Revenue Deficit		Fiscal Deficit		Primary Deficit		GSDP
	Amount	% to GSDP	Amount	% to GSDP	Amount	% to GSDP	
2011-12	8034.26	2.21	12814.77	3.52	6521.17	1.79	364048
2012-13	9351.45	2.27	15002.47	3.63	7797.66	1.89	412313
2013-14	11308.60	2.43	16944.13	3.64	8678.74	1.87	465041
2014-15	13796.00	2.69	18641.72	3.63	8872.13	1.73	512564
2015-16	9656.81	1.73	17818.46	3.19	6707.61	1.20	557947
2016-17	15484.59	2.51	26448.35	4.28	14331.85	2.32	617035
2017-18	16928.21	2.41	26837.41	3.82	11717.48	1.67	701577
2018-19	17461.92	2.23	26958.30	3.44	10210.37	1.31	781653
2019-20 RE	17474.27	2.01	26186.24	3.00	7751.67	0.89	871534
2020-21 BE	15201.47	1.55	29295.39	2.99	9445.39	0.97	978064

Source: Finance Department, Government of Kerala

in 2018-19 has declined to 3.005 per cent in 2019-20 and estimated to be 2.995 per cent in 2020-21. The present fiscal stress may persist due to the prevalent economic slowdown at national and global level and the associated expenditure to deal with the pandemic.

Major deficit indicators of the State for the period from 2011-12 to 2020-21 are shown in **Table 1.5.1**.

Receipts

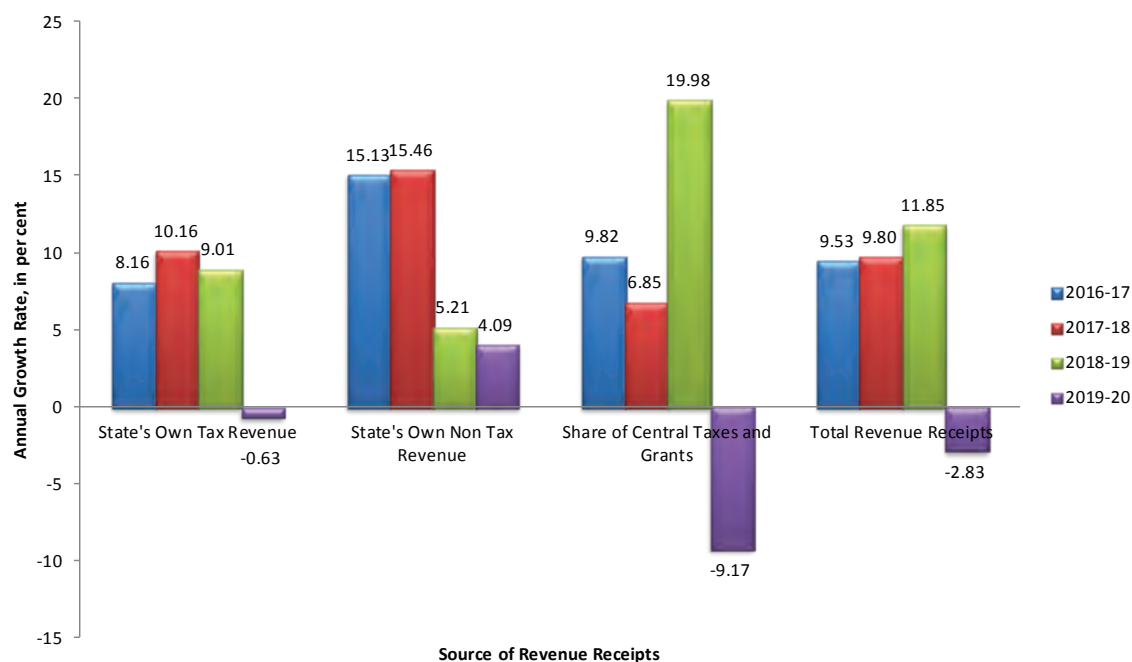
The State Government's receipts are divided into Revenue receipts and Capital receipts. The revenue receipts comprise State's own tax and non-tax revenues, share of central tax transfers and grants-in-aid from Government of India, whereas capital receipts mostly consist of disinvestment receipts, recoveries of loans and advances, debt receipts from internal resources and loans and advances from Government of India and net accretions under public account.

Revenue Receipts

The revenue receipts of the State increased from ₹38010.36 crore in 2011-12 to ₹90224.67 crore in 2019-20 in nominal terms, recording a CAGR of 11.4 per cent. However the revenue receipts as compared with 2018-19 has declined by ₹2629.8 crore in 2019-20. Meanwhile, the share of central taxes and grants has sharply declined by ₹2790.82 crore in 2019-20. The growth of own tax revenue has also declined from 9 per cent in 2018-19 to (-)0.6 per cent in 2019-20. The source-wise annual growth of revenue receipts of the State is given in the **Figure 1.5.1**. Details of revenue receipts of the State are given in the **Appendix 1.5.1**.

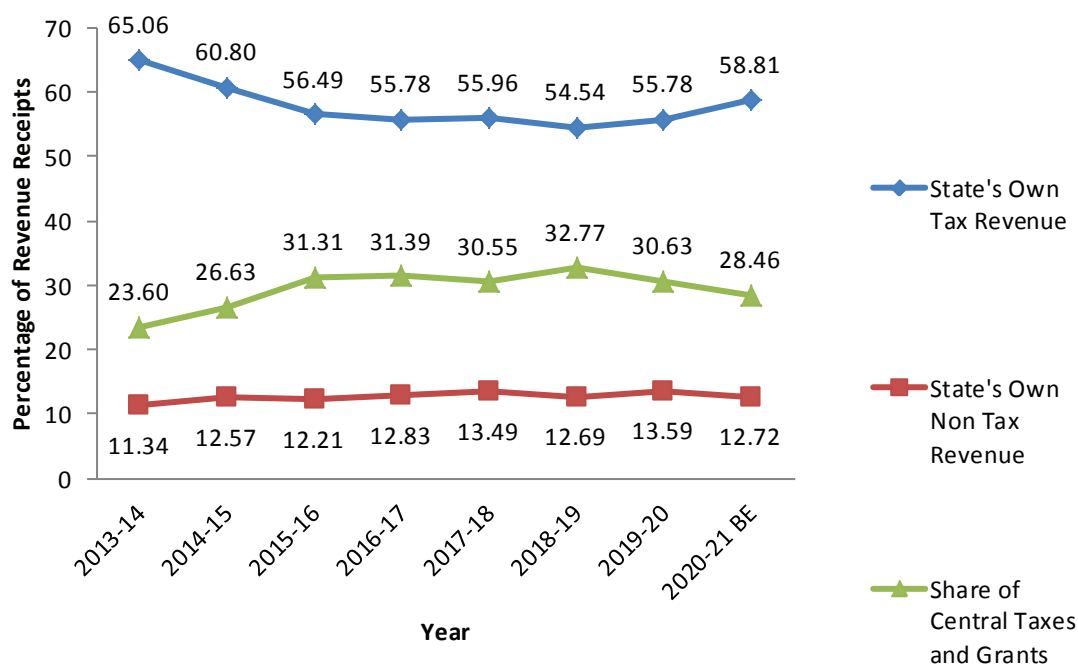
State's own taxes are the main source of revenue receipts of the State. In 2019-20 contribution from State's own taxes to the total revenue receipts was ₹50323.14 crore (55.78 per cent). Similarly, the State Own Non Tax Revenue in

Figure 1.5.1 Source-wise annual growth of revenue receipts of the State, in per cent



Source: Finance Department, Government of Kerala

Figure 1.5.2 Proportion of State Revenue Receipts, in per cent



Source: Finance Department, Government of Kerala

2019-20 was ₹12265.22 crore (13.59 per cent). The contribution from the share of central taxes and grants was ₹27636.31 crore (30.63 per cent). In 2013-14, the proportion of central assistance to the total revenue receipts was 23.6 per cent. The hike in the central share in the total revenue receipts after 2014-15 is attributed to the change in procedure of routing central share in centrally sponsored schemes (CSS) through the State Budgets instead of directly to implementing agencies. The trend of State revenue receipts from different sources are given in the **Figure 1.5.2**.

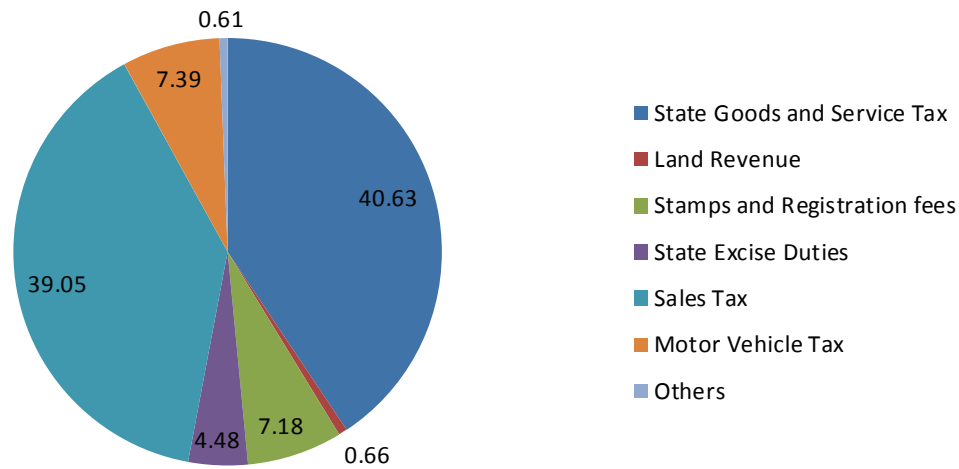
(i) State's Own Tax Revenue

The main sources of State's Own Tax Revenue (SOTR) are State Goods and Services tax, Sales Tax on petroleum and alcoholic liquor for human consumption, Stamps and Registration fees, State Excise Duties, Motor Vehicle Tax and Land Revenue. In 2013-14, SOTR was 65.06 per cent of total revenue. It declined to 55.78 per cent in

2019-20 in the backdrop of general economic slowdown and other external and internal factors which influenced the State's economy. Details of SOTR are given in the **Appendix 1.5.2**.

The receipt from State's Own Tax Revenue in 2019-20 was ₹50323.14 crore. State Goods and Services Tax constituted the major share of State's Own Tax resource. In 2019-20 receipts from State Goods and services tax (₹20446.95 crore) contributed 40.63 per cent of the total SOTR, followed by 39.05 per cent from Sales Tax and VAT (₹19649.64 crore), 7.39 per cent from Taxes on Vehicles (₹3721.14 crore), 7.18 per cent from Stamp duties and registration fees (₹3615.01 crore), 4.48 per cent from State Excise Duties (₹2255.28 crore), and 0.66 per cent from Land Revenue (₹332.42 crore) and 0.60 per cent (₹302.70 crore) from other sources. **Figure 1.5.3** shows the source-wise State own tax revenue in 2019-20.

Figure 1.5.3 Source-wise State own tax revenue in 2019-20, in per cent



Source: Finance Department, Government of Kerala

(ii) State's Own Non-Tax Revenue

Gross receipts under State Lotteries is the major source of Non Tax revenue of the State which constitutes 81.32 per cent of total non-tax revenue of the State. Other main sources of State's own Non-Tax Revenue (SONTR) are sale proceeds of forest produces and receipts in the form of fees and fines from various social developmental services. In 2019-20, ₹12265.22 crore was realised as SONTR, recording growth of 4.09 per cent over 2018-19 (₹11783.24 crore). In 2019-20 receipts from State Lotteries was ₹9973.67 crore recording a growth rate of 7.65 per cent, compared to 2018-19 (₹9264.66 crore). This was followed by receipts of ₹961.10 crore from Social Developmental Services and ₹255.85 crore from the sale proceeds of forest produces. Details of State own non-tax revenue are given in the **Appendix 1.5.3**.

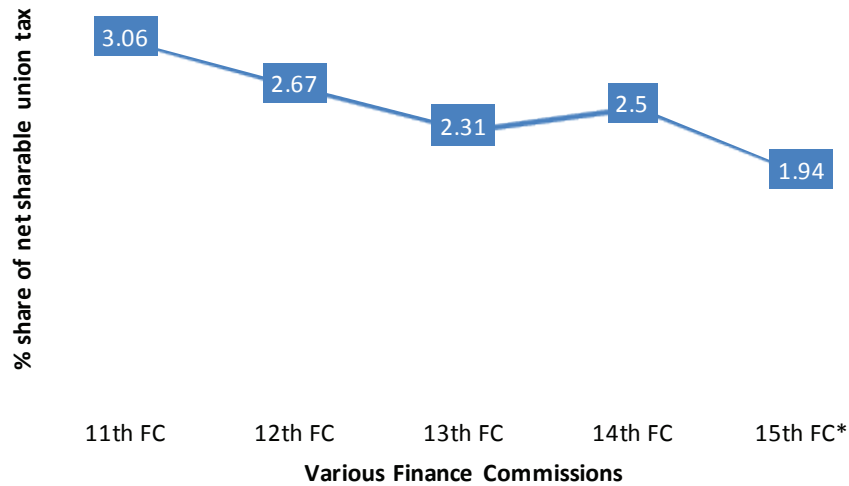
(iii) Central Resource Transfers

Two major components of central devolution are share of taxes and grants as recommended by the Finance Commissions (FC) and grants disbursed by the Central Government. Within Central Devolution, share of Taxes to be devolved

is based on the formula recommended by the FC as mandated in Article 280 of the Constitution. The FC also recommends grants-in-aid under Article 275 of the constitution to bridge post tax devolution revenue deficits. Moreover, the FC also devolves sector specific grants. But the 14th FC did away with the sector specific grants except for Local Governments and for disaster response. The tax devolution and revenue deficit grants form the flexible part of Central resource transfer. The other components like central share in CSS are tied grants over which the State has no flexibility in spending.

As per the recommendations of the 14th Finance Commission the share of the States in the net tax proceeds of Union Government from 2015-16 to 2019-20 was 42 per cent. The sharing pattern during the award period of the Twelfth and the Thirteenth Finance Commissions was 30.5 per cent and 32 per cent respectively. Kerala was entitled for 2.5 per cent of net sharable union tax proceeds during the 14th FC period. As per the recommendations of the 15th Finance Commission the share of the States in the net tax proceeds of Union Government for 2020-21 is 41 per cent. Due to change in the criteria for horizontal devolution, the net tax proceeds

Figure 1.5.4 Net sharable union tax as per Finance Commission Recommendation, in per cent



Source: Various Finance Commission Reports, GoI
 *15th Finance Commission recommendation for only 2020-21

for a single year entitled to the State of Kerala is reduced to 1.94 per cent in the 15th FC. **Figure 1.5.4** shows the trend of net sharable tax proceeds based on different Finance Commissions.

In 2019-20, total central transfers to the State were ₹27636.31 crore against ₹30427.13 crore in 2018-19. During this period, the share of central taxes was ₹16401.05 crore witnessing a decline of 13.85 per cent compared to that in 2018-19 (₹19038.17 crore). In 2019-20, the State received ₹11235.26 crore as Grant in aid from the centre which included compensation for loss of revenue arising out of the implementation of the GST of ₹5575.04 crore. Details of central transfer are given in the **Table 1.5.2**.

Expenditure

Expenditure of State includes three components namely, revenue expenditure, capital expenditure and expenditure on loan disbursements. Between 2011-12 and 2019-20, total expenditure comprising Plan and non-Plan expenditure increased from ₹50896.08 crore to ₹114384.95 crore in nominal terms; recording

a CAGR of 10.65 per cent. It is noteworthy that expenditure grew at a slower pace than revenue receipts. Out of the total expenditure of ₹114384.95 crore in 2019-20, non-Plan and Plan expenditure stood at ₹93202.22 crore (81.48 per cent) and ₹21182.73 crore (18.52 per cent) respectively.

Revenue Expenditure

Revenue expenditure involves both development and non-development expenditure. Development expenditure includes expenditure such as on Education, Health, Agriculture and Animal Husbandry, Industries, and Labour and Employment. Non-development expenditure comprises interest payment, pension payment and others. Details of revenue expenditure are given in the **Table 1.5.3**.

The operational and maintenance cost for the completed projects and programmes are also classified under the revenue account. Grants provided by the State to meet salaries and pension liabilities of employees in the Universities and State autonomous bodies and also the pension liabilities of employees

Table 1.5.2 Details of central transfer, in ₹crore

Year	Share in central tax and duties		Grant in aid and other receipts from centre for Plan and Non Plan		Total transfer	
	Amount	Annual Growth Rate in %	Amount	Annual Growth Rate in %	Amount	Annual Growth Rate in %
2012-13	6840.65	14.19	3021.53	-18.54	9862.18	1.68
2013-14	7468.68	9.18	4138.21	36.96	11606.9	17.69
2014-15	7926.29	6.13	7507.99	81.43	15434.3	32.98
2015-16	12690.7	60.11	8921.35	18.82	21612	40.03
2016-17	15225.02	19.97	8510.35	-4.61	23735.4	9.82
2017-18	16833.08	10.56	8527.84	0.21	25360.9	6.85
2018-19	19038.2	13.10	11389	33.55	30427.1	19.98
2019-20	16401.05	-13.85	11235.26	-1.35	27636.3	-9.17

Source: Finance Department, Government of Kerala

of Panchayat Raj Institutions are classified as revenue expenditure. Major portion of revenue expenditure devolved to the LSGIs is utilised for the creation of capital assets at local body level.

Revenue expenditure marginally declined to ₹104719.92 crore in 2019-20 as against ₹110316.39 crore in 2018-19. Of the total revenue expenditure in 2019-20, Development expenditure was ₹47550.18 crore (45.21 per cent) and Non Development expenditure was ₹57169.74 crore (54.59 per cent). The ratio of revenue expenditure to GSDP declined marginally to 12.25 per cent in 2019-20 compared to 13.96 per cent in the previous year.

In 2019-20, the share of committed liabilities on revenue expenditure increased compared to the previous year. Expenditure on committed liabilities like salaries, pension, interest payments, subsidies and devolution to the LSGIs constituted 74.70 per cent of revenue expenditure. In 2019-20 salary expenditure as proportion of total revenue expenditure was 30.25 per cent compared to 28.47 per cent in 2018-19. Pension expenditure as per cent of total revenue expenditure was 18.21 per cent in 2019-20 compared to 17.23 per cent in 2018-19. Interest payment as per cent of total revenue

expenditure increased to 18.35 per cent in 2019-20 from 15.18 per cent in 2018-19. Details of Revenue expenditure are given in the **Appendix 1.5.4** and **Appendix 1.5.5**.

Capital Expenditure

As most of the State expenditure on human capital is categorised as Revenue Expenditure, the outlay in Capital Expenditure has always been small. This is also in line with the division of work between Central and State Governments as per the Constitution of India. The deficiency in resources is the major impediment in financing infrastructure projects in the State. The Government has therefore adopted alternative policy for financing major infrastructural projects for the sustainable development of the State economy. Alternative development model initiated by the Government have already begun to show positive signs in attracting long term investment in capital projects. Details of capital expenditure and total expenditure are given in the **Appendix 1.5.6** and the trend in capital outlay is given in the **Appendix 1.5.7**.

The share of Government spending on capital projects in various sectors has increased during recent years. The capital outlay of the State in

Table 1.5.3 Trends in Revenue Expenditure, in ₹crore

Year	Total Revenue Expenditure		Development Expenditure		Non Development Expenditure	
	Amount	Annual Growth Rate	Amount	% of total revenue expenditure	Amount	% of total revenue expenditure
2011-12	46044.62	32.83	25069.8	54.45	20974.8	45.55
2012-13	53488.74	16.17	29889.0	55.88	23599.7	44.12
2013-14	60485.50	13.08	32921.1	54.43	27564.4	45.57
2014-15	71746.43	18.62	39182.2	54.61	32564.2	45.39
2015-16	78689.47	9.68	41762.7	53.07	36926.8	46.93
2016-17	91096.31	15.77	48602.6	53.35	42493.7	46.65
2017-18	99948.35	9.72	52979.5	53.01	46968.8	46.99
2018-19	110316.39	10.37	56788.0	51.48	53528.4	48.52
2019-20	104719.92	-5.07	47550.2	45.41	57169.7	54.59
2020-21	129837.37	23.99	68231.1	52.55	61606.3	47.45

Source: Finance Department, Government of Kerala

From 2006-07 onwards, assistance to LSG is being classified under "Grant in Aid and Contributions",

Developmental Expenditure of the devolutions to LSGs is also reckoned.

2019-20 was ₹8454.80 crore and in 2018-19 it was ₹7430.54 crore. Capital outlay - GSDP ratio increased slightly to 0.99 per cent in 2019-20 from 0.94 per cent in 2018-19. Public Works comprises 28.81 per cent of the total capital outlay in 2019-20, Agriculture and allied activities constitutes 4.03 per cent, Irrigation 3.35 per cent and Industries and Labour contributes 3.00 per cent. Trend in capital outlay is given in the **Table 1.5.4**.

Economic Services like Agriculture, Irrigation, and Industries are the dominant components of capital expenditure in the State. In 2018-19, economic services constitute 56 per cent of the total capital expenditure in the State. In 2019-20, (RE) it increased to 74 per cent. **Figure 1.5.5** shows the trend in the components of capital expenditure in the State.

Debt Profile

Borrowings which are repayable and on which

interest accrues are classified as debt. Debt of the State comprises of internal debt, loans and advances from the Central Government and liabilities on account of Small Savings and Provident Fund Deposits. During the last five years market borrowings and accretions in Small Savings and Provident Fund Deposits are the main sources of the State Government to finance the fiscal deficit.

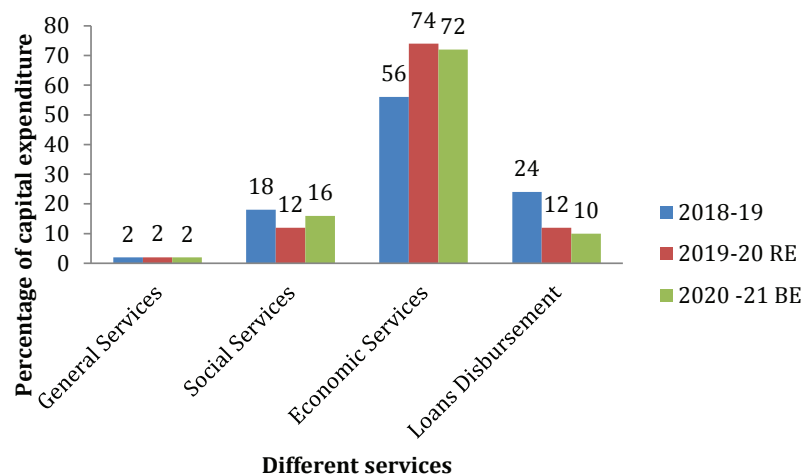
Outstanding debt liabilities of the State at the end of 2019-20 were ₹2,60,311.37 crore. The annual growth rate of debt decreased to 10.47 per cent in 2019-20 from 11.80 per cent in 2018-19. The Debt-GSDP ratio in 2012-13 was 25.12 per cent. In 2019-20 it stood at 30.46 per cent.

The share of internal debt in the total debt liabilities of the State was 64.08 per cent in 2018-19. Outstanding internal debt increased to ₹1,65,960.04 crore in 2019-20 from ₹1,50,991.04 crore in 2018-19. The growth rate of outstanding internal debt in 2019-20 was 9.91

Table 1.5.4 Trend in Capital Outlay, in ₹crore

Year	Irrigation	Agriculture and Allied Services	Industries, Labour and Employment	Public Works	Others	Total
2012-13	340.60	192.11	273.95	2142.92	1653.71	4603.29
2013-14	342.39	210.62	342.24	1549.43	1849.65	4294.33
2014-15	270.24	355.90	260.22	1578.94	1789.29	4254.59
2015-16	526.23	473.08	334.94	2924.26	3241.53	7500.04
2016-17	674.83	555.62	516.79	3001.88	5376.83	10125.95
2017-18	544.49	629.83	548.06	2595.57	4430.92	8748.87
2018-19	271.78	543.95	276.74	2000.48	4337.58	7430.53
2019-20	282.83	340.37	254.01	2435.51	5142.08	8454.80
2020-21	630.98	420.26	496.54	2047.68	9317.76	12913.22

Source: Finance Department, Government of Kerala

Figure 1.5.5 Components of Capital Expenditure in Kerala

Source: Budget Document, Government of Kerala

per cent. The liabilities under small savings and Provident Fund constituted 33.53 per cent of the total liabilities. The outstanding liabilities under small savings and provident fund at the end of 2019-20 were ₹85,671.15 crore compared to ₹77,397.04 crore in 2018-19. The outstanding liabilities under loans and advances from the Centre at the end of 2019-20 were ₹8680.19 crore. The gross and net retention of debt in 2019-20 was ₹24679.88 crore and ₹5488.88 crore respectively.

A higher deficit is inevitable when the economy is under severe economic crisis. The State is leaving no stone unturned in its response to the humanitarian and economic crisis. The State is also committed to mobilise resources with the least possible deadweight on the economy. In order to stabilise the economy strenuous efforts have to be continued to mobilise resources, prioritise expenditure and to continue the development efforts of the State.

1.6 PLAN OUTLAY 2020-21

The Government of Kerala has continued with the process of formulation of Annual Plans and Five-Year Plans even though Government of India has done away with Five-Year Plans. The State Planning Board plays a vital role in the formulation of the Five-Year Plans and Annual Plans in the State. Annual Plan 2020-21 was the fourth year of 13th Five-Year Plan. The objectives of the Annual Plan 2020-21 were to protect and extend social services and social infrastructure, promote production, and strengthen regional development. The Plan also focussed on creation of livelihoods in the State. Priority was given for the completion of ongoing schemes and efforts taken to reduce the number of schemes by merging schemes having similar objectives without losing flexibility in implementation. Initiatives have been taken for winding up long pending schemes and projects.

The aggregate Plan outlay of Annual Plan 2020-21 was ₹36,786.33 crore which includes State Plan of ₹27,610 crore and central assistance of ₹9,176.33 crore. The total State Plan outlay for 2020-21 at ₹27,610 crore reflected 9.80 per cent decrease over the outlay of ₹30,610 crore in 2019-20. Out of the State Plan outlay, ₹7,158 crore was earmarked for assistance to Local Self Government Institutions and the remaining ₹20,452 crore was for State sector schemes. ₹2,708.54 crore was allocated to Special Component Sub Plan (SCSP) and ₹781.36 crore

to Tribal Sub Plan (TSP). An amount of ₹1000 crore was earmarked for Major Infrastructure Development Projects (MIDP). Besides, ₹3,809.87 crore of the State Plan outlay was exclusively earmarked for girls/women which includes ₹5.00 crore for the Transgender community. In 2020-21, the total allocation of resources intended for benefiting children was ₹1,847.33 crore. The sector-wise outlays earmarked in the Annual Plans 2019-20 and 2020-21 are given in **Table 1.6.1**.

Sequencing of Annual Plan 2020-21

In the wake of Covid-19 pandemic and the resource crunch arising out of the increase in non-plan revenue expenditure in the contagion period, Kerala State Planning Board had initiated prioritisation of Plan Schemes of 2020-21 by sequencing of already proposed schemes in the budget based on the immediate need and availability of resources. Based on the exercise, Annual Plan 2020-21 (free Plan and State Share to Centrally Sponsored Schemes) have been divided into two parts of six months each. First six months referred to April 2020 to September 2020 and the second half is from October 2020 to March 2021. This exercise has achieved the desired objective of fast tracking of expenditure by departments.

Table 1.6.1 Sector-wise Outlay in Annual Plan 2019-20 and 2020-21, in ₹ crore

Sl. No.	Sector/ Sub Sector	2019-20			2020-21			Per cent increase/ decrease in Aggregate Plan (20-21) over 2019-20
		Outlay	Central Assistance	Aggregate Plan	Outlay	Central Assistance	Aggregate Plan	
1	2	3	4	5	6	7	8	9
I	Agriculture and Allied Activities	1748.70	379.46	2128.16	1463.77	242.08	1705.85	-19.84
II	Rural Development	1690.65	4282.83	5973.48	1598.50	4146.37	5744.87	-3.83
III	Special Area Programmes	283.33	12.00	295.33	243.24	12.00	255.24	-13.57
IV	Irrigation and Flood Control	517.71	38.03	555.74	461.51	177.57	639.08	15.00
V	Energy	1781.45	0.00	1781.45	1764.57	0.00	1764.57	-0.95
VI	Industry and Minerals	978.69	0.00	978.69	859.70	0.00	859.70	-12.16
VII	Transport	1711.16	0.00	1711.16	1703.63	0.00	1703.63	-0.44
VIII	Science, Technology and Environment	1074.44	115.56	1190.00	924.84	117.98	1042.82	-12.37
IX	General Economic Services	2571.09	91.17	2662.26	1828.38	85.29	1913.67	-28.12
X	Social Services	9660.08	4217.12	13877.20	8522.82	4359.04	12881.86	-7.17
XI	General Services	92.70	36.00	128.70	81.04	36.00	117.04	-9.06
	Total (I To XI)	22110.00	9172.17	31282.17	19452.00	9176.33	28628.33	-8.48
XII	LSGD	7500.00	0.00	7500.00	7158.00	0.00	7158.00	-4.56
XIII	RKI	1000.00	0.00	1000.00	1000.00	0.00	1000.00	0.00
	Grand Total	30610.00	9172.17	39782.17	27610.00	9176.33	36786.33	-7.53

Source: PLANSPLACE, State Planning Board

PLANSPLACE

PLANSPLACE is a portal developed by the State Planning Board with the technical support of IITM-K, to strengthen Plan monitoring and evaluation mechanism in the State. It is a web

based online management information system built on G2G e-Governance frame work, which helps to monitor and evaluate the Plan schemes implemented across all departments in the State on a real time basis. It facilitates the planners and decision makers in the Government to take

timely and suitable decisions and interventions for the effective implementation of Plan schemes. Moreover, it provides online access to all citizens in the State to the continuously updated database on Plan implementation with respect to every individual department and thus ensures transparency and democratisation in Plan implementation and monitoring.

PLANSPLACE tracks the entire implementation life cycle of all Plan schemes or projects which have been included in the State budget and implemented by Government agencies and departments in the State. In order to strengthen the District Level Plan Monitoring System, PLANSPLACE has been rolled out to the entire Districts in the State in 2015-16. This enables the implementing officers at District and sub-District levels to directly feed in data into the system which further enhances its accuracy and timeliness.

PLANSPLACE has widened its scope of activity and Plan proposals of departments are submitted online from 2014-15 onwards. The departments, after deliberations within their organisations, prepare the Plan for every forth coming financial year and submit it to the State Planning Board for further deliberations in connection with the preparation of Annual Plan for the State. In 2019-20, additional features were added in the PLANSPLACE space to enable the State Planning Board to carry out its Plan formulation activities online.

In 2020-21, the PLANSPLACE has been integrated with the “e-office”, the complete software for office file flow mechanism in Government. This enhances the accessibility and usefulness of the system in decision making process. Moreover, the development of a new version of PLANSPLACE has been initiated in 2020-21 to enhance the effectiveness of the monitoring software. The new version is envisaged to track the milestones in scheme implementation and measure the productivity of Government spending in different areas. In addition to this, it has been decided to integrate PLANSPLACE with the Public

Financial Management System (PFMS), a web-based online software application developed and implemented by the Controller General of Accounts, Government of India. This would help in tracking funds released under all Plan schemes of Government of India being implemented across the State.

PLANSPLACE is not only an effective online monitoring and evaluation tool but also serves as database for analysis of Plan implementation of schemes of all departments.

CHAPTER

02

COVID-19 PANDEMIC
AND
KERALA'S RESPONSE

COVID-19 PANDEMIC AND KERALA'S RESPONSE

The Covid-19 pandemic is a public health emergency — but it is far more. It is an economic crisis. A social crisis. And a human crisis that is fast becoming a human rights crisis. (Antonio Guterres, Secretary General of the United Nations)

On January 30, 2020, the first case of Covid-19 in India was identified in Kerala. Ever since the first Covid-19 confirmed case was reported, Kerala adopted a multi-pronged strategy in dealing with the pandemic for which it has received wide appreciation and acclaim. International and national media have applauded the proactive role played by the Government in dealing with the global public health exigency. Kerala has time and again demonstrated a unique resilience to disasters and the strength of public action in overcoming crises. It is Kerala's unique strengths of a well-established public healthcare system and decentralised governance that have contributed to the effective handling of the pandemic.

Covid-19

In late December 2019, clusters of pneumonia cases of unknown origin were reported from Wuhan City in China and was identified to be caused by a new type of Coronavirus. On March 11, 2020, WHO declared Novel Coronavirus Disease (Covid-19) outbreak as a pandemic and reiterated the call for countries to take immediate

action and scale up responses to treat, detect, and reduce transmission to save people's lives.

Globally, as on December 30, 2020, there have been 80,773,033 confirmed cases of Covid-19 including 17,83,619 deaths (WHO 2020). The number of active cases in India was 2,57,656 as on December 31, 2020. In India, a total of 98,60,280 individuals were discharged with the total number of deaths reported being 1,48,738. In more than 70 per cent of cases of deaths reported the presence of comorbidities was observed. (Source: Ministry of Health and Family Welfare, GoI)

Kerala's Response

The response by the Government of Kerala (GoK) to address Covid-19 should be understood as part of a global response to a global crisis. The crisis has affected elements of both supply and demand in all sectors. All the wings of Government have stepped in with timely action. The coordinated action by all Departments in the State reflects the efforts made by the Government of Kerala to address the pandemic.

Health System Response to Covid-19

Kerala's response to Covid-19 started much before the Director General of the World Health Organisation (WHO) declared Covid-19 a

pandemic. The containment strategies in the State were well in place from the day the first case was reported.

When the information regarding the outbreak of corona virus in Wuhan city of China was received, health department activated its emergency response mechanism to prevent an outbreak within the State. Kerala went into “alert mode” and on January 24 issued guidelines on managing the pandemic. The experience of the State in handling two previous public health exigencies in the form of Nipah in 2018 and 2019 came in handy. Kerala already had developed the systems of tracing, tracking, and transporting persons with symptoms to hospitals. The health system geared itself to meet the challenge by taking up various health related interventions for management of Covid-19.

Assessment of Infrastructure Facilities

Soon after the declaration of first Covid-19 case in the State, Kerala took stock of all the healthcare facilities in the State, both in Government and private sectors. The baseline data regarding the number of hospital beds, ICUs, and ventilators were collected and assessed. The total available beds were categorised into Plan A and Plan B and any additional beds that could be allocated by converting other facilities were allocated as Plan C. A detailed action plan on how to use these facilities was prepared at the State level by conducting a series of meetings with the stakeholders in all the districts. All confirmed and suspect cases were initially admitted to Plan A facilities. It was also decided, if the occupancy in Plan A facilities goes beyond the threshold, Plan B facilities will be utilised.

Covid Care Centres (CCCs) were created for the quarantine of all international passengers, inter-state travellers, and contacts, who do not have facility for quarantine at home as per guidelines. Covid hospitals were designated for management of symptomatic patients and Covid First Line Treatment Centres (CFLTCs) were designated for management of asymptomatic Covid positive patients.

The guidelines and standard operating procedures were prepared for setting up and management of Covid hospitals and CFLTCs. The guidelines for admission to these centres were revised from time to time. CFLTCs and provision of adequate staff and other facilities in the centres such as biomedical waste management were supported by Local Self Governments (LSG). Supervisory teams were sent to all districts to monitor the functioning of all Covid hospitals and CFLTCs. The teams did supportive supervision of all facilities using a checklist prepared at the State level. The guidelines and other related documents were published on the website www.dhs.kerala.gov.in so that there is transparency regarding the guidelines and Standard Operating Procedures used in Covid management.

Covid patients are admitted to these facilities as per the state guidelines. All Covid positive patients are admitted to the nearest Covid hospital/CFLTC. A nodal officer was assigned to each Covid care facility. Helpdesks were also put in place in all such facilities and helpline numbers have been provided to the patients and bystanders. In addition, psychological support was also provided to all the Covid positive patients and other persons in quarantine through dedicated psychological support team.

In addition, infrastructure management teams at State and Districts levels were closely monitoring the functioning of all facilities and also providing Covid treatment. The management and supervision of all infrastructure related matters was dealt directly by a high-level committee at the GoK level. As on September 28, 2020, a total of 9125 beds were allocated in Covid hospitals. 1429 beds in other Government hospitals, 35874 beds in CFLTCs and 4813 beds in other private hospitals (total beds in these private hospitals is 21768) were allocated for treatment of Covid-19.

All treatment was free in Government hospitals, including testing. At all times, food was also provided free of cost to all patients.

Private Sector Engagement in Covid-19 Management

A dedicated Private Hospital Management team was constituted in the State as well as District Control Rooms. From the beginning of Covid control activities, the Private Hospital Engagement Team was working in close liaison with the District Private Hospital Engagement nodal officers, the private hospital managements, and Indian Medical Association (IMA). The team enlisted all the private hospitals, district-wise, and collected the details of the available facilities including bed strength, ICU facilities, ventilators, specialists available, dialysis facilities, and ambulances.

A series of online meetings with the representatives of private hospital organisations, namely Indian Medical Association, Kerala Private Hospital Association, Catholic Hospital Association of India (CHAI), Private Medical Colleges Association, and Qualified Private Medical Practitioners Association were held to discuss Covid-19 case management in private hospitals, non-Covid case management, telemedicine facilities, mobile medical units, and HR support.

After consultation with the organisations representing the private healthcare providers, the Government of Kerala announced the Health Benefit Package 2.0. Organisations of private healthcare providers agreed to the Government rates, fixed reflecting the existing rates under Karunya Arogya Suraksha Padhathi (KASP). Government of Kerala issued a Government Order announcing the package rates and issued guidelines to implement the Public Private Participation in Covid-19 management. As on October 1, 2020, 50 hospitals joined in with the Government system in Covid care.

Infrastructure and Material Management

The role of the public sector companies in assisting the health providers is substantial.

Kerala Medical Services Corporation Limited (KMSCL), a fully owned company of Government of Kerala under the Department of Health and Family Welfare provided the GoK with the essential drugs and medical devices in combating Covid-19. KMSCL is the central procurement agency in the State for all essential drugs including medical devices and equipment for the healthcare institutions under Government of Kerala. It is also the Special Purpose Vehicle and is entrusted with the setting up of medical based ancillary facilities such as cath lab, dialysis centres, pathological labs, diagnostic centres, x-ray/scanning facilities, and ambulance services in the State.

Tracking and Testing Strategy

As the initial cases were reported from Wuhan, Kerala focused on persons who returned from China. The strategy of testing and tracking was modified when new epicentres of disease emerged in Europe, Iran, and Gulf Co-operation Council (GCC) countries. Kerala followed an aggressive strategy of quarantining and placing under observation all those who came from hotspots. Contact tracing of all Covid affected persons was conducted and they were placed under observation.

Setting up of Covid First Level Treatment Centres (CFLTCs)

In order to manage the Covid-19 pandemic, Government identified certain hospitals and declared them as dedicated Covid hospitals for managing and providing treatment to patients who tested positive. With the increase in cases more hospitals were added to grid. However, it was understood by June 2020 that all the patients who tested positive and are admitted to Covid hospitals did not require treatment and medical management and only symptomatic patients had to be kept in isolation till the infection ended. Hence Government introduced categorisation of the patients based on new set of guidelines. It was decided that patients under the category

Table No. 2.1.1 Summary of admission in Covid Hospitals and CFLTCs as on September 28, 2020

Covid Hospital Summary		CFLTC Summary	
Total Beds set apart for Covid treatment	15,367	Total beds set apart for Covid treatment	35,874
Beds occupied by Covid positives	7856	Beds occupied by Covid positives	20,029
Beds occupied by Covid suspects waiting for test results	565	Beds occupied by Covid suspects waiting for test results	179
Covid positive patients admitted with severe symptoms	457	-	
Covid positive patients admitted with mild symptoms	1629	Covid positive patients admitted with mild symptoms	2225
Covid positive patients admitted who are Asymptomatic	5770	Covid positive patients admitted who are Asymptomatic	17,804

Source: Directorate of Health Services, GoK

with mild symptoms will be admitted to lower level of medical care so that Covid hospitals can provide treatment to the critical patients. Hence the concept of Covid First Level Treatment Centre (CFLTC) was introduced. A treatment protocol to shift the patients from CFLTCs to Covid hospitals and vice versa was formulated to reduce the burden on the hospitals. CFLTCs were to be setup in an area, other than hospitals, by taking up facilities such as hostels and auditoriums which can be converted like a general ward kind of arrangement. The status of admission in Covid hospitals and CFLTCs are given in **Table 2.1.1**.

Managing the Arrival of Non-Resident Keralites

In the first phase of the pandemic up to March 5, 2020, 3 cases were reported from different districts of Kerala. The second wave of Covid-19 pandemic was reported in the State from March 6, 2020 with heavy case load. The State of Kerala took extensive steps for containment and mitigation which resulted in an average active case load of less than 2,000 across the State. In the last week of June 2020, Government of India permitted the return of expatriates from various foreign countries.

Government of Kerala intended to bring back all the stranded Keralites safely into Kerala. It was decided that all returnees shall undergo screening on arrival at airports as per the

protocols set by Health Department, Government of Kerala. It was further decided that all returnees including asymptomatic persons who do not have proof of having undergone necessary tests will be subjected to rapid antibody test upon arrival at airport by authorised agencies of Government of Kerala.

Ambulance network

The ambulance service network is one of the critical areas as far as patient care is concerned. Kerala Medical Services Corporation Limited played the most critical role in the ambulance services by managing the Kaniv-108 ambulances to mobilise the Covid-19 suspects/patients from their households/exit points to the isolation facilities. Total number of 316 ambulance vehicles are available in these categories and number of vehicle used for Covid-19 are 293.

Psychosocial Support during Covid Outbreak in Kerala – ‘Ottakkalla Oppamundu’

The Government of Kerala recognised the need for psychosocial support to the people, given the context of lockdown and measures such as isolation and quarantine undertaken to address the spread of Covid-19. GoK decided to provide psychosocial support to the persons in quarantine/isolation and their family members. On February 4, 2020 Psychosocial Support

(PSS) Teams were constituted by Government in all districts under the District Mental Health Programme (DMHP). Psychiatrists, Psychiatric Social Workers (PSWs), Clinical Psychologists, Social Workers, and Counsellors all across the State were engaged in implementation of the actions under DMHPs. Psychosocial helplines were arranged in all Districts in addition to the DISHA Helpline Number for the entire state. All persons in quarantine/isolation were called, given psychosocial support. District Helpline Number was provided to call back in case of any further psychological or social needs. Psychiatrists/Clinical Psychologists/PSWs were enlisted to address the needs, if any, and follow up calls were also made every 3 to 5 days.

Later as the number of persons in quarantine began to increase drastically, psychosocial counsellors from Department of Women and Child Development, Integrated Counselling and Testing Centre (ICTC), and National Health Mission (NHM) were given training and pooled under the PSS Teams in Districts. As on September 2020, 1,327 personnel are working in the entire State to provide psychosocial support. Two Helpline Numbers are available per district for general public and health personnel. A six-minute video on relaxation technique was prepared by Mental Health Programme and sent to the persons in need. An awareness leaflet on better communication and stress management was prepared and given to staff of isolation wards. The same was also provided to the training teams to be included in the training module of isolation ward staff.

Targeted services were also started under PSS Teams whereby psychosocial support/counselling calls are made to mentally ill patients on treatment, children with special needs, guest labourers, elderly people living alone, and personnel working as part of Covid response teams. During the lockdown period, as the number of alcohol withdrawal cases began to increase, community de-addiction guidelines were prepared with the aim of treating majority of the cases in primary care centres itself. A panel

of psychiatrists was formed in all districts to help primary care medical officers in community based de-addiction efforts.

As on October 6, 2020, 14.44 lakh persons in quarantine/isolation were given psychosocial support/counselling calls. Among the psychological issues noted were stress, anxiety, stigma, social needs, and sleep impairment. A total of 12.99 lakh follow up and 70,216 counselling calls were made to those with previously stated issues. Need for food, medicine, medical consultations, and other essential items when required was met through ICDS, Youth Welfare Board, and LSGs. Psychosocial support/counselling calls were made to 31,520 mentally ill patients, 74,087 children with special needs, 24,690 guest labourers, and 2,18,563 elderly people living alone. Psychological support was also provided to health personnel working in Corona Control activities, and 60,166 calls were made in this regard. A module on Stress Management and Motivation Enhancement among Health Personnel was prepared and sent to Districts for conducting online classes to frontline doctors, nurses, health workers, ASHAs, and control room personnel.

When a case of suicide was reported among school children at the onset of the online classes, psychosocial support was extended to all school children. ASHAs and anganwadis identified children with emotional-behavioural issues using checklists provided by Mental Health Programme (MHP). Till October 6, 2020, 3,47,105 children have been given reassurance calls and among them 34,931 children were given counselling and 36 children were given pharmacotherapy for various psychological issues. A total of 35,41,194 psycho social support/counselling calls were attended till October 6, 2020.

Capacity Building

The Directorate of Health Services and the National Health Mission (NHM) joined hands with Government Departments and private organisations to set up a capacity building team

to provide training to deal with the pandemic and the associated issues. Trainings were designed and conducted in three domains, namely sensitisation programme, skill training, motivational and stress management training, and refresher training. NHM training division also provided certain financial support for conducting the training in the districts. The State-level activities of capacity building team are divided in to three aspects: a team of content preparation was undertaken by NHM, training division team for training implementation by District training teams, and team for training monitoring undertaken by State Health Systems Resource Centre team.

State-level trainings were conducted exhaustively and elaborately covering all staff working with in the health sector and covering different sections of the society. Healthcare staff (both Government and private) includes doctors, staff nurses, nursing assistants, laboratory technicians, field staff, ASHA worker, anganawadi workers, attendants, house-keeping staff, ambulance drivers, and security personnel. Others include LSGD representatives, Kerala Police Department, Volunteers of NSS and NCC, Kudumbashree, school students, college students, teachers of school and colleges, drivers (both Government and private), taxi drivers, migrant workers, and general public. 18707 ASHAs, 10658 anganwadi workers, 42574 Kudumbashree, 21312 palliative volunteers, and 9596 others have been deployed as healthcare volunteers. A total number of 16474 additional human resources were approved through NHM and 10610 were posted.

Covid-19 Management and Elderly Care

A community-level coordination with the support of LSGs, community volunteers, Kudumbashree, and Women and Child Development Department was organised in all Districts. Ward level teams are active in all Panchayats and are ensuring daily calls and visits to the homes of the elderly. Under the leadership of the ward member, a volunteer team comprising ASHA, Kudumbasree, palliative

volunteers, and community level volunteers was constituted in all wards. 3 lakh volunteers of ASHA, Kudumbashree and palliative volunteers are coordinating the elderly and palliative care activities at the field level.

Kerala also adopted the reverse quarantine strategy whereby all persons above 65 and those affected from chronic diseases will stay indoors.

Mass Media Campaign for Covid-19 Awareness

A series of mass media campaigns were conducted to create awareness regarding Covid-19 from the beginning of 2020. The campaign was started in January 2020 by sending out alert messages regarding Covid-19. The campaign shifted its gear and intensified when the first Covid case was officially announced in the State on January 30. The Health Minister's video byte requesting all the people coming from Covid affected countries to follow Government regulation was widely disseminated through television channels, FM Stations, print media, and social media.

Break the Chain campaign was initiated by the Department to curb the spread of the pandemic.

A Special Booklet named 'Karuthal' with details on Covid and non-Covid diseases was printed and disseminated through District Programme Managers. In order to intensify the social media campaigns, a Comprehensive Whatsapp Chatbot was implemented with the help of Whatsapp where the people could get important messages and contact details by just saving the official mobile number in their phone. A Special postal cover was issued with Covid awareness content with the help of Postal Department. A special campaign was also conducted through Victers channel after the Government started online classes.

Hoardings with awareness contents were placed all over Kerala with special consideration to major cities. Vehicle branding was conducted by

placing awareness contents on Janashathabdi train and different vehicles of Department of Health and Family Welfare. A special campaign was conducted through the online media handles of mainstream media and important awareness messages were also published in most circulated magazines as well. A series of awareness videos, animation videos, graphical videos, were produced and disseminated through all the platforms. A special interactive session was conducted for media persons as well as for common people to clear doubts about the pandemic and the session went live through all social media handles.

e-Sanjeevani – Telemedicine platform

Health Department launched e-Sanjeevani telemedicine services in Kerala on June 10, 2020. They are providing services in a centralised manner and DISHA is the State hub managing the telemedicine activities for the State. e-Sanjeevani has on board 368 doctors including specialist doctors providing services on the platform. They are providing services for an average of 500 persons per day across the State. The average time for a consultation is 10 minutes 40 seconds and the average patient wait time to get connected to a doctor is 3 minutes 54 seconds. e-Sanjeevani has general OPD services as well as speciality OPD services. When social distancing is among the major measures used to fight against Covid-19 pandemic, tele-health is stepping-up as a key technology for safe and efficient communication. The World Health Organisation mentioned telemedicine among essential services in “Strengthening the Health Systems Response to Covid-19” policy.

GoK Dashboard

In times of crisis, availability of reliable information will help people make better decisions and it would also help the Government gather the support of the people to adequately implement the measures to contain and manage the Covid-19 and its effects. The Government of Kerala embarked on a drive to ensure that

reliable information is provided to the people regarding the status of the Covid-19 pandemic and related aspects. The daily press conference by the Chief Minister ensured that the people receive reliable information from one of the highest official source in the State. The Covid-19 data was made available to the public via the GoK dashboard available in the web address www.dashboard.kerala.gov.in. This dashboard is daily updated with the Covid-19 data made available by various departments. The dashboard depicts the number of Covid-19 cases, active cases, recovered cases, total number of deaths, district-wise distribution of cases, district-wise distribution of persons in hospital quarantine and home quarantine, daily hospitalisation, number of samples sent for testing, number of tests, and the result. Dashboard also provides information about the hotspots across the State, volunteer distribution, distribution of volunteer support group, and details of psychosocial support.

Data Management

The collection and organisation of the data is an important aspect in providing reliable information to the people and the Departments and agencies of the Government for decision making process. The data is collected from Integrated Disease Surveillance Programme (IDSP), Kerala State Disaster Management Authority (KSDMA), and Kerala State Spatial Data Infrastructure (KSDI) and is collated in a google spreadsheet. The data collected were regarding LSGD-wise active cases, primary contact, secondary contact, Covid positive health worker, and LSGD-wise daily count of cases. Initially this was done using the technical expertise of a volunteer, later the activities related to maintenance and task of updating the google spreadsheet was shifted to NHM data manager.

Management Strategy of Government

The Covid-19 management strategy of Government of Kerala is based on scientific findings at the global level. Management

structures with specific roles and responsibilities were constituted at the State and District level for pandemic control and mitigation interventions. These structures ensured that Government policy took into account the evolving situation. The Government of Kerala created a five-tier structure outside the health infrastructure — home quarantine, Domiciliary Care Centres, Covid First Line Treatment Centres, Covid Second Line Treatment Centres and designated Covid Hospitals — to provide care and support to Covid patients. This intervention enabled the State not only to deal with the pandemic but also effectively to handle the burden of non-covid disease. These measures built confidence among health personnel and helped develop resilience and cope with the pandemic of such large magnitude.

Covid-19 – Police Engagement

Kerala Police, Department of Health and Family Welfare and other agencies have been in the forefront in Kerala’s war against this deadly virus. For the strict implementation of instructions issued by the Government from time to time and for the imposition of prohibitory orders in the State because of the outbreak of Covid-19, the entire State Police Personnel and Officers from all the units have been mobilised with effect from March 15, 2020. They have been deployed for duty round the clock from March 24, 2020 for about 10 to 12 hours per day to contain public movement on roads, in markets, bus stands, railway stations, and airports. They are also deployed on the inter-State borders to check and monitor movement of essential commodities.

Kerala Police had successfully adopted a threefold approach in its efforts to prevent community spread of Covid-19 as follows:

1. Innovative approaches to spread awareness among general public to encourage personal hygiene and to keep physical distancing. Some of these innovations were highlighted in renowned press and visual media across the world.

2. Providing help to Health Department in tracing the contacts of infected persons, to prepare route maps as well as ensure strict enforcement of lockdown.
3. Social outreach programmes to support the vulnerable sections of the society and people in quarantine by timely visits, ensuring their basic needs through Janamaithri¹ (community policing) and implementing collaborative interventions such as ‘Feed a Stomach’, ‘Jeevadhara’ blood donor bank etc.

Some of the activities implemented under this threefold approach are given below:

- In the wake of Covid-19 pandemic, ‘Triple Lockdown’ has been imposed in many ‘Containment Zones’ and the Police took all possible measures to ensure strict enforcement of lockdown.
- As on September 30, 2020, the Janamaithri Police personnel had visited/re-visited/digitally surveyed around 16 lakh houses during the Covid-19 pandemic for the safety of society at the local level. The dedicated Janamaithri Beat Officers regularly conduct house visits/digitally surveying people for tracing quarantine violations and identifying all people whom a Covid-19 patient has come into contact with in the past two weeks.
- A detailed Standard Operating Procedure (SOP) on various aspects of work, hygiene and sanitisation has been issued to ensure that the Police Department remains infection free.
- Transportation of Medicine by the Janamaithri Beat Police Officers: Through this endeavour, Janamaithri Police distributed life-saving medicines to 28369 patients in distress.
- A scheme named “**Prasanthi**” Senior Citizen Help Desk has been introduced under the Janamaithri Suraksha Project for addressing the hardships faced by the senior citizens of Kerala.
- A special scheme to help students to participate in online classes named **e-Vidhyarabham** was launched with the help

¹ Janamaithri Suraksha Project of Kerala Police aims to bridge the gap between Police and public through participation of citizens in matters of crime prevention, intelligence sharing, and prioritising policing areas at the level of police beats.

of Janamaithri Police Project.

- As on July 31, 2020, Kerala Police had facilitated the safe return of 3,52,244 guest workers to their native states since the Shramik trains began operations from the State.
- Initiated the **Chiri Project** for supporting children in distress during the Covid period.
- There has been an increase in domestic abuse and other forms of atrocities against women and children since the emergence of the Covid-19 pandemic to address which Domestic Conflict Resolution Centres have been formed to ensure peace and order. Their aim is to mitigate violence against women, children, and persons with disability within households during the Covid and post-Covid period. The concerned District Police Chief is responsible for the proper implementation of the program.

In sum, the Kerala Police Department took stern steps to prevent the spread of the disease, especially community spread by imposing strong restrictions in the containment zones. In the initial stages, the Police personnel and officers paid due attention and made sincere efforts to check the spread of the virus. Numerous directions were given to the District Police Chiefs (DPC) to impose the restrictions promulgated by the Government with dedication. The controlling officers in the ranges and zones are always in the forefront to thwart fake news circulated in social media and to ease panic among the citizens. Directions were given to the DPCs to register cases of those who are engaging in the said activities. The vibrant activities of the Police force were coordinated in the Covid Cell, Police Headquarters. The 24x7 activities of the Cell have been commendable.

The Police played a vital role in executing the "Covid-19 e-Jagratha pass". The Police personnel in the border districts and check posts did remarkable work which helped to manage the huge inflow of passengers from other states. The inter-District restrictions have also been implemented through the Police

force in a spirited manner. The Kerala Police in co-ordination with the forest authorities in the state took efforts to control the movement of the people from Kerala to other neighbouring States and vice versa.

The Janamaithri Police played a crucial role in looking after the persons under quarantine. They contacted the persons under quarantine to ensure that they were abiding by the orders of the Government and the health department. Directions were also issued from the Police Headquarters to take strong measures in the matter to ensure strict protocol was being observed for the persons under quarantine. After discharge of the Covid patients from the hospitals also, the Police played a key role. The post-Covid 7-days quarantine for the patients discharged from hospitals has to be ensured in all respects. The Government of Kerala issued strict instructions and the executing agency was the Police force. The systematic and professional attitude and work of the force and its selfless services during Covid-19 pandemic is laudable.

Kerala's Economic Response to Covid-19

Anticipating the adverse scenario that could emerge, the Government of Kerala undertook various initiatives to arrest the impact of Covid-19 on the State's economy and lives of people. These include infusion of money into the economy through direct and indirect support, ensuring food and shelter for the needy, generating employment opportunities, increasing production of agriculture and industrial sector, and support to non-resident Keralites who returned home from abroad as well from other States. The Government disseminated information about the spread of the pandemic and the containment strategies adopted by it.

The ₹20,000 Crore Package

The Government of Kerala was the first to announce a substantial programme much ahead of other States in India and the Central

Government to address the anticipated economic impact of the Covid-19 pandemic in the form of a ₹20,000 crore package. Out of the ₹20,000 crore economic package, ₹1,320 crore was set aside to disburse welfare pensions in advance for 2 months in March itself. Another ₹100 crore was allocated to provide assistance of ₹1,000 each for families that are not eligible for welfare pensions. In the subsequent two months, ₹2,000 crore was disbursed as loans through the Kudumbashree scheme, with the State Government bearing the interest component. ₹2,000 crore was set aside to provide jobs under the employment guarantee scheme.

The Government allocated ₹500 crore to meet the additional expenses in the public health to roll out Covid-19 care facilities. To provide food grain through the public distribution system, the Government further allocated ₹100 crore. Besides, an allocation of ₹50 crore was made to provide meals at just ₹20, as part of the Hunger-Free Kerala project. To implement this project, the Government set up 1,000 food stalls in April. Further, the State Government allocated ₹14,000 crore to clear all pending payments of the State Government to institutions and individuals.

Over and above the economic package, the Government of Kerala provided relaxations in norms and bill payments to ensure that people have additional cash at disposal. Fitness fee for auto rickshaws and taxis was relaxed. Relaxation of one month was provided in the quarterly taxes of stage carriages and contract carriages. These concessions amount to ₹23.60 crore. The Government also allowed delayed payment of electricity and water bills for one month without any fines. Entertainment tax on movie theatres was waived.

Wide consultation with the organisations of traders and businessmen were undertaken to ensure adequate availability of essential materials during the lockdown. Online facilities were set up to ensure delivery of essential articles, including vegetables and pulses to

families during the lockdown. Voluntary services of organisations were ensured to assist people in need. Books were made available to those in quarantine with the assistance of publishing houses. Sufficient internet bandwidth was also ensured, following discussions with service providers.

A meeting of the State Level Bankers Committee (SLBC) was called to persuade banks not to undertake any loan recovery proceedings during the economic turmoil caused by the pandemic and to provide financial relief.

The Government took measures to channelise the scarce resources at its disposal to address the most important needs of the economy. The schemes in the Plan of 2020-21 were sequenced in order of priority, so that the resources are utilised effectively.

Agriculture and Allied Sectors

Subhiksha Keralam

The Government of Kerala formulated 'Subhiksha Keralam', a people's campaign, to achieve self-sufficiency in food production. The campaign aims to increase farmers' income, attract youngsters to farming, and rehabilitate return migrants, through promoting agriculture in the State. An amount of ₹3,860 crore is to be infused into the economy under this programme in one year. The expected expenditure for the scheme is ₹1,449 crore for agriculture, ₹2,078 crore for fisheries, ₹215 crore for dairy development, and ₹115 crore for animal husbandry.

Under the programme, measures are undertaken to cultivate a total of 25,000 hectares of fallow under the leadership of the Local Self Governments, with the guidance of the Department of Agriculture and active participation of Kudumbashree groups along with mass participation from the people. Paddy is to be cultivated in 5,000 hectares, vegetables and plantain in 7,000 hectares each, tubers in

5,000 hectares, and lentils and small grains in 500 hectares each. Kitchen gardens are also encouraged. The Government provided seeds and saplings. A chain of cold storage facilities is envisaged to ensure that the product is preserved after harvesting. The Government of Kerala also took measures to adequately market the produce.

The major departments involved in the programme are Agriculture and Farmers' Welfare, Animal Husbandry, Dairy Development, Fisheries, Co-operation, Water Resources, Industries and LSG to provide credit, marketing, and irrigation support.

Fruits and Vegetables

The measures by the Government of Kerala for ensuring assistance and relief to the agriculture sector in the period of Covid-19 pandemic and associated lockdown started before the announcement of 'Subhiksha Keralam' programme. At the onset of the Covid-19 and lockdown induced by it, Standard Operating Procedure for procurement and marketing was established to overcome the issues related to selling of farm produce. Collection centres for procurement were identified. *WhatsApp* groups at Block-level and District-level with officers, market office bearers, traders, grocery shops, Vegetable and Fruit Promotion Council Kerala (VFPCCK), and Kerala State Horticultural Products Development Corporation (Horticorn) as members were constituted. The Government of Kerala also constituted a committee to observe the prices and take corrective measures.

The Department of Agriculture, VFPCCK, and Horticorn intervened in the marketing of vegetables. The Farmers Retail Outlets (FRO) set up locally (one in every panchayat, two in municipalities, and five in corporations) enabled farmers to sell their products locally to consumers. The online marketing strategy was adopted by the Government agencies to help in the sale of products such as mango, pineapple, banana, papaya, and vegetables to the city dwellers. The inter-district movement

of surplus produce was also organised. VFPCCK and Horticorn intervened to procure mango varieties, especially Banganapalli and Sindoor in Palakkad and pineapple from Ernakulam District and enabled the sale of the same through their outlets and online marketing platforms. State Horticulture Mission channelised and coordinated procurement of strawberry, cabbage, and carrot from the farmers receiving benefits from the Mission and transferred them to Horticorn for marketing. Supplies of fruits and vegetables were also arranged for community kitchens, residents' associations, guest worker camps, and other agencies throughout the State. Sale of fruits and vegetables to consumers also took place through 100 own-stalls and around 200 franchised outlets of Horticorn. Horticorn was involved in the procurement of fruits and vegetables from vegetable production centres, the involvement of local as well as wholesale traders in this process was ensured by District officials.

There are 287 *Swasraya Karshaka Vipanis* of VFPCCK in the State. Fruits, vegetables, and other farm produce were traded through various *Swasraya Karshaka Sanghams*. *Swasraya Karshaka Sanghams* also supplied fruits and vegetables for the community kitchen free of cost.

Paddy

The harvested paddy was procured by Kerala State Civil Supplies Corporation Limited (Supplyco) to address the difficulty in marketing and sales that emerged due to Covid-19 and associated lockdown. Six hundred paddy threshers were arranged by the department in Palakkad, Kuttanad, and Kole areas. The Government of Kerala directed the rice mills to be kept operational during the lockdown period to fully utilise the resources.

Tea

The procurement of the tea by the Government of Kerala for supply through the public distribution system lifted prices of the commodity and provided certain relief to the stakeholders.

Supplyco purchased about 2.5 lakh kg for distribution under PDS as a part of the food kits of essential items being distributed during the lockdown period.

Animal Husbandry

Along with the agriculture sector, attention was also paid to issues that were faced by the animal husbandry sector in the State. Multiple measures were undertaken by the Government of Kerala considering the specificity of each sub-sector.

Poultry

The Covid-19 induced lockdown reduced the availability of the poultry feed in the State, the Government of Kerala in association with Government of Tamil Nadu made arrangements for the import of poultry feed to the State during the lockdown.

Hatching of eggs was stopped in poultry farms under the Department of Animal Husbandry to reduce the cost of poultry products from the farms. Eggs that remained as a result of stopping the hatching of eggs were sold to the public.

Livestock

Kerala Livestock Development Board (KLDB) continued the supply of frozen semen, liquid nitrogen, and other artificial insemination (AI) inputs to all centres in the State during the lockdown period, even when the production suffered, mainly because of the shortage of liquid nitrogen, which arrives from Pondicherry. The limited quantities of liquid nitrogen received were used to save the frozen semen doses already in stock. Under the Covid Relief Cattle Feed Subsidy Scheme, 2.95 lakh sacks of cattle feed were given to 1.82 lakh dairy farmers with a Government subsidy of ₹400 per sack. Government of Kerala funded ₹11.83 crore of the entire cost of ₹39.68 crore. The Government of Kerala also took action to ensure the availability of fodder in the State.

Dairy

The reduction in milk consumption during the lockdown and the restriction on its movement led to reduction in the sales of milk but the production and procurement remained relatively high. This necessitated the conversion of surplus milk into milk powder. Nearly 1.2 to 1.25 lakh litres per day of milk was sent for conversion to Tamil Nadu. However, the Government of Tamil Nadu refused to procure milk from Kerala initially. Later, after discussions between the Kerala and Tamil Nadu Governments, on an emergency basis, Tamil Nadu agreed to procure 50,000 litres of milk for conversion per day.

To avoid wastage of the surplus milk and ensure nutrition to the vulnerable sections of the society, the Government of Kerala decided to distribute milk and milk products to anganwadis, guest labour camps, community kitchens, Consumerfed, and the Civil Supplies Cooperation through Milma. To give an impetus to the animal husbandry sector, the Government proposed to set up 10,000 cross breed cattle units. In all Local Self Government bodies, 8,000 dairy units are to be set up. Of these, 200 of them will be mechanised with Government support. Farmers were provided assistance in procuring milking machines as well. Support is being provided to value addition of dairy products – like cheese and curd. Domestic poultry farms and piggeries were encouraged and assisted.

The State Government has also sanctioned ₹100.09 crore as credit as part of the Kisan Credit Card campaign for the dairy farmers.

Fisheries

During the period of lockdown, all fishing harbours and fish landing centres in the State were closed as per the guidelines. Mechanised fishing boats were not allowed to operate and fish auctions were prohibited. The traditional way of fishing was, however, permitted. Traditional fishermen were allowed to go out to fish but were asked to not auction their products, as

social distancing measures were difficult to implement. Instead, purchase and sales of marine fish were conducted at a price fixed by the Government. The Harbour Management Societies were entrusted to fix the prices of different fish. In the fishing harbours and landing centres, a token system was introduced to avoid crowds. A mobile application was also developed for the online marketing of fish. The Government issued orders exempting aquaculture activities, fish farms and hatcheries and movement of feed, seed, and aquaculture essentials from lockdown restrictions.

Saltwater ponds are to be set up in 3,000 hectares for farming Pearl Spot. Besides, 5,000 units are to be set up for joint saltwater fish farming so that production can be increased by 5,000 tonnes. 5,000 plastic ponds costing ₹1 lakh per unit are also to be set up. Mobile aqualabs will be set up in all 14 Districts to ensure quality and disease control. The sanctions on the marine fishing activities were lifted from the mid-August, 2020.

Cooperative Sector

Essential commodities were provided to those under home quarantine through Consumerfed and Neethi stores in respective areas. Neethi medical stores, labs, hospitals under cooperatives are assisting the Health Department in the fight against the Covid-19 pandemic. Telemedicine facilities were also arranged in cooperative hospitals.

In terms of financial support, a moratorium was announced for loans taken from Co-operative institutions from March 1, 2020, to May 31, 2020. Chief Ministers Helping Hand Loan Scheme which provides loan up to ₹20,000 was implemented through cooperative societies and regional cooperative institutions are providing interest-free loans, free home delivery, and other such services.

10 new cooperative consumer stores were established in the Kasaragod District near Karnataka border in the early days of lockdown.

Forest produce

The Government of Kerala developed an online platform to ensure market access for non-wood forest produce and agricultural produce from tribal hamlets. The platform developed under Kerala Forest and Wildlife Department aimed at ensuring market access to non-wood forest produce (wild turmeric- *Kasthoorimanjal*, honey, handicrafts, bamboo products) and agricultural produce (tapioca, long beans, yam, and plantain) from tribal hamlets during the lockdown. The project was implemented in the forest ranges of Agasthyavanam Biological Park (ABP), Neyyar, and Peppara.

The Forest Department staff procured the forest produce directly from tribal hamlets at market rates, to ensure livelihood. Through the WhatsApp group *Vanika*, these are delivered at the doorstep of prospective consumers on first come first serve basis to the city dwellers. The initiative ensured that the people living inside forest areas who would have otherwise lost their perishable products find a market.

Agriculture and Non-Wood Forest Produce collection are the main source of income of traditional forest dwellers in these areas. After the lockdown, the people belonging to tribal hamlets located in tough terrains have lost their access to local markets.

Food Security and Public Distribution System

Food supply is ensured in the State in two ways: public distribution system owned and operated by the Government and the private sector. Government of Kerala also engages in market intervention through Supplyco, which is mandated to control the prices of 13 essential commodities by distributing it at subsidised prices. These well-established mechanisms acted as a backbone to ensure required food supply in the State in Covid-19 induced lockdown period, especially given the large-scale disruptions in supply chain and lockdown in food manufacturing.

Table 2.1.2 Details of items in Athijeevana Kit

Items	Quantity
Sugar	1 kg
Tea	250 g
Beans	1 kg
Chickpea	1 kg
Coconut oil	500 g
Atta	2 kg
Corn flour	1 kg
Chilli powder	100 g
Coriander powder	100 g
Dal	250 g
Turmeric powder	100 g
Fenugreek	100 g
Mustard	100 g
Soap	2 nos
Sunflower oil	1 litre
Urad dal	1 kg

Source: Civil Supplies Department, GoK

Civil Supplies

Throughout the lockdown period and after, the Government of Kerala gave priority to ensuring that the people have enough food materials and no one is going hungry. A kit with 17 items was provided to all ration card-holding households in the State. The components of the special grocery kit (*Athijeevana* kit) is listed in the **Table 2.1.2**.

A total of 84,48,016 ration cards were provided with the *Athijeevana* kit. The scheme-wise

distribution of *Athijeevana* kit is given in **Appendix 2.1.1**.

Athijeevana kit was provided in April as a one-time provision. Besides, Government of Kerala provided an Onam kit in August 2020 containing 11 items – sugar (1 kg), green gram (500 g), jaggery (1 kg), chilli powder (100 gm), coriander powder (100 g), turmeric powder (100 g), sambar powder (100 g), coconut oil (500 ml), pappad (1 packet), vermicelli/payasam ada (1 packet), and broken wheat (1 kg).

Table 2.1.3 Monthly Rations Distributed from April to September 2020, in million tonne

Month	Total rice distributed (regular+PMGKAY+Normal+SpI) to all ration cards (AAY, PHH, NPS, and NPNS)	Total wheat distributed (regular +PMGKAY) all eligible ration cards (AAY and PHH)	Total atta distributed all eligible ration cards (NPS and NPNS)	% of ration cards availed
April	2,17,025.69	15,709.55	5,698.45	98
May	1,97,881.78	15,536.44	4,572.01	97.3
June	1,92,711.02	15,414.23	7,377.94	90.1
July	1,55,475.33	29,733.28	6,904.21	89
August	1,90,253.63	30,502.33	6,436.24	96.1
September	1,57,236.22	29,792.84	5,777.24	84.7
Total	11,10,583.67	1,36,688.68	36,766.09	

Source: Civil Supplies Department, GoK

From September 2020 onwards the Government of Kerala started providing grocery kit containing eight items – chickpeas (750 g), sugar (1 kg), atta (1 kg), coconut oil (500 ml), chilli powder (100 g), salt (1 kg), green gram (750 g), dal (250 gm). Eight-item kit was distributed each month from September 2020 to December 2020 to all ration cardholders.

The monthly ration was provided without delay. Monthly rations distributed from April to September 2020, in million tonnes (MT), is given in the **Table 2.1.3**.

A total of 11,10,583.67 MT of rice, 1,36,688.68 MT of wheat, and 36,766.09 MT of atta was distributed to the ration card holders from April to September 2020.

Students

As part of the measures taken to contain the spread of Covid-19 pandemic, schools were closed on March 10, 2020. To compensate for the cooked mid-day meal which could not be provided to children under the prevailing circumstances, food security allowance was provided.

As per Government Order, Food Security Allowance was given to eligible students, from pre-primary classes to 8th standard. The allowance comprises of the entitled quantity of food grains and the cooking cost due to the child. Food Security Allowance was sanctioned for 39 days in April and May 2020 and 15 working days in March, which were lost because of the lockdown. Kits were distributed during June-July.

Food kit contained rice and nine other grocery items, which was distributed based on the

feeding strength of the academic year 2019-20. The kit was distributed through Supplyco stores. Details are given in the **Table 2.1.4**.

ICDS Food Supplements

Anganwadis were closed as a preventive measure with the outbreak of Covid-19. During the period from March 12, 2020 (that is even before the lockdown was declared), to September 30, 2020, 5,17,841 children under 3 years and 4,44,175 children in the age group of 3-6 years were given food as Take Home Ration (THR) scheme as part of Supplementary Nutrition Programme. Accordingly, food items were provided to a total of 9,62,016 children in the above two categories. Anganwadi workers delivered THR at the doorsteps of all beneficiaries. Amrutham Nutrimix was given to children of 0 to 3 years and a kit consisting of rice, green gram, and broken wheat were provided (twice in a month) to children of age 3-6 years.

Scheduled Tribes

All people belonging to the Scheduled Tribes above the age 60 years (61,790 persons) were provided with food kit containing cherupayar (500g), vanpayar (500g), kadala (500g), jaggery (500g), coconut oil (500g), and broken wheat (3 kg). This was in addition to the kits and other benefits that were being provided to all ration cardholder by the Government of Kerala.

Migrant workers

Migrant labourers were also provided food and other provisions during the lockdown period. Camps were set up to ensure better facilities for the migrant workers. The camps that were set up for the migrant labourers, were of four types.

Table 2.1.4 Food Kits to Students

Section	Items in the kit
Kit A-Pre-Primary	1.2 kg of rice + 9 items of grocery worth ₹ 297.5
Kit B-Primary (Class 1-5)	4 kg of rice + 9 items of grocery worth ₹ 299.5
Kit C-Upper Primary (Class 6-8)	6 kg of rice + 9 items of grocery worth ₹ 399.5

Source: Civil Supplies Department, GoK

1. **Camps run by District Administration:** The workers here were provided with cooked food through the community kitchen run by the LSGD with the aid of voluntary agencies and Kudumbashree using their own fund. Adequate provisions were distributed to those workers who were willing to cook their own food.
2. **Camps run by Employer/Contractor:** The workers in these camps were ensured with food and other amenities by their employer/contractor. The Officials of the Labour Department supervised the activities.
3. **Shelters scattered in rented buildings/converted as camps:** The workers here were provided with cooked food through the community kitchen. Necessary provisions were disbursed to those workers who could cook on their own by the Labour department officials in coordination with the District Administration.
4. **Shelters scattered;** for workers not willing to join camps: The migrant workers sheltered here were provided with cooked food materials and other provisions by the Labour Department officials designated as camp coordinators.

Food was prepared in 1,165 community kitchens which were started under 1034 Local Self Government Authorities and provided food to 92,05,585 beneficiaries. Out of them, 4,34,280 were migrant workers.

Manufacturing Sector

To address the impact of the Covid-19 pandemic and the associated lockdown on the industrial sector and to revitalise the economy the Government of Kerala formulated 'Vyavasaya Bhadratha'. Department of Industries and Commerce is the implementing agency for the scheme. As part of 'Vyavasaya Bhadratha', ₹3,434 crore is being provided to small and medium enterprises (SMEs) by way of additional capital

infusion and interest subvention. There are 1.56 lakh small enterprises in Kerala, making up 70 per cent of the total enterprises in the State. The sector also employs 40 lakh workers. Margin money assistance and interest concession for additional credit will be provided to existing micro, small, and medium enterprises (MSME).

One-time settlement of loan arrears is also being undertaken by KSIDC and KINFRA under the scheme. Six months extension is given to these enterprises for the repayment of interest. Three months' rent was waived off in standard design factories under the Department of Industry. Entrepreneurs who use public facilities in industrial parks were exempted from rent for three months. Interest subsidy was granted for MSMEs and manufacturing industries. The interest rate on loans taken for diversification and development is discounted by 6 per cent for six months.

Provision for special loans for working capital and asset creation for the businesses that already have a KSIDC loan is also part of the scheme. A three-month moratorium was announced on interest and capital to all operating units under KSIDC. After the moratorium, the loan can be repaid without penalty. The fine for delayed payment to entrepreneurs who have taken loans from KSIDC will be waived off completely for six months. KSIDC will provide loans of up to ₹50 lakh to MSMEs. The repayment period will be extended to entrepreneurs who take up space in the industrial parks of KSIDC and KINFRA. The lease premium will be reduced in advance. By way of giving special attention to the enterprises owned by members of the disadvantaged sections, women, SC, ST and young entrepreneurs will be given 25 per cent margin money.

The Government has also implemented a string of relief measures and provided various incentives to IT firms which are based in the state-run IT Parks. Rent has been waived or a moratorium has been granted on payment of rent for April, May, and June, 2020, depending on the area under the lease, for companies based in the State's IT Parks.

Surcharge on rent has been waived for 6 months, from April to September. Annual rent escalation of 5 per cent has been waived for FY 2020-21, in Government-owned buildings within IT Parks. Subsidies have been announced on electricity tariffs in IT Parks as well. Additional time of six months has been granted for commencement and completion of construction works in land under the IT Parks, over and above the deadline as per agreement.

The Kerala State Coir Corporation used to provide 2 months for exporters to make payments for the goods they procured from the Corporation. As a part of measures to address the economic issues due to the Covid-19 pandemic, this has been extended to 4 months. Similarly, buyers who entered into MoU at Coir Kerala Fest have been provided 20 per cent discount (on the products they purchase). The benefit initially offered for 3 months till December 2019, has been extended for 6 months till June 2020. A relief package has been announced, and 1.37 lakh coir workers were provided relief of ₹1,000 per worker. Further, income support assistance is being provided to coir workers.

Public Sector Enterprises

The Government of Kerala mobilised its resources to produce hand sanitisers. Kerala Drugs and Pharmaceuticals Ltd., a public sector company under the Government of Kerala, started mass production of hand sanitisers to ensure the availability of the sanitisers at the onset of the Covid-19 pandemic.

Steel Industrials Kerala Ltd (SILK) manufactured and supplied hospital cots to newly established Covid-19 hospital at Kasaragod. The PSU is also taking up and fulfilling the requirement of hospital furniture as per need. Travancore Cochin Chemicals Ltd (TCCL) supplied sodium hypochloride to various Government and Local bodies to disinfect the hospitals and public utilities. Kerala Soaps, a unit of Kerala State Industrial Enterprises Ltd (KSIE), increased the production and supplies of hand sanitisers and liquid soap.

Government of Kerala mobilised the resources and potential of the public sector companies for ensuring the supply of necessary materials to the Health Department to facilitate the control of Covid-19 pandemic.

Tourism

The State Government has announced one-time financial assistance of ₹10,000 to 328 tourist guides who are rendered jobless because of the pandemic and a one-time maintenance grant of ₹80,000 to ₹1.20 lakh to houseboats based on the number of rooms in them.

The relief was also provided to the homestays, which have been moved from the commercial category to the residential category. This allows the facility some relief in the house tax amount to be remitted to the local bodies. Administrative sanction of ₹32.80 lakh had been given to assist approved tourist guides. After construction works were allowed as per the guidelines, there was a concerted effort to complete the infrastructure creation project at major tourism spots.

Transport

With the onset of the Covid-19 induced lockdown Kerala State Road Transport Corporation (KSRTC) actively intervened to assist the Keralites stranded in other parts of the country. It conducted special services to transport 400 persons, including students stranded in various parts of Karnataka (Gulbarga, Mangalore, Mysore, and Bangalore) to different parts of Kerala. Similar special services were conducted to help the students stranded in Theni and Madurai in Tamil Nadu.

KSRTC also provided bus services from Palakkad and Thrissur depots to transport persons who came by train from outside Kerala, including migrant labourers, to isolation centres at Palakkad and Thrissur. Special services were provided at airports for travel needs of those persons coming from abroad.

The special service of KSRTC was used extensively for the transfer of the sick and non-infected persons to the isolation centres and other camps in different parts of the State. Special services were also undertaken as per the directions of the District Collectors for the travel of health sector officials.

Though lockdown was partially relaxed with effect from May 3, 2020, the public transport system was only allowed from May 20, 2020. To ensure that the people have adequate transportation facilities available to them, the KSRTC started to operate a limited number of services as per the direction of the Government by complying with the Covid-19 protocol. From June 9, 2020, KSRTC gradually started to operate more services.

Labour Welfare

The Government of Kerala came out with a scheme to provide 68,02,984 workers with membership in 16 different labour welfare boards with ₹943.20 crore as immediate assistance to address the financial problems faced by labourers during the lockdown. All registered labourers were provided ₹1,000 as relief fund. Welfare boards with better fiscal standing have sanctioned more funds. Welfare pension for four months, including April,

was sanctioned in a lump sum. Government sanctioned over ₹58 crore to almost four lakh labour welfare society members registered with societies under various Government departments.

Members of Abkari Workers Welfare Board were provided ₹5,000 as financial aid and ₹10,000 as interest loan. Under the Motor Vehicle Workers' Welfare Board, bus workers were provided ₹5,000, goods vehicle workers ₹3,500, and taxi workers ₹2,500. Auto rickshaw and tractor workers and automobile workshop workers were provided ₹2,000 and ₹1,000 respectively. Members of the Toddy Workers' Welfare Fund Board were provided ₹5,000 assistance and ₹10,000 as an interest-free loan. Construction workers and farmers, who are members of their respective welfare boards, were provided ₹1,000. Beauticians (approximately 40,000) who are part of the welfare fund boards were each provided ₹1000.

The Kerala Dairy Farmers Welfare Fund Board distributed pensions to dairy farmers. Special relief scheme for the farmers who had to pour out milk from March 1, 2020, to March 20, 2020, at ₹1 per litre of milk poured and a maximum of ₹1000 per farmer has been distributed. An allowance of ₹10,000 each for Covid affected farmers and

Box 2.1.1 Role of Kudumbashree

The role of the Kudumbashree in Kerala's Covid-19 fight is multi-sectoral and substantial. Kudumbashree effectively intervened to meet the demand for the masks and sanitisers arising out of the fight against the pandemic. Kudumbashree units started the production of cloth masks from March 15, 2020, onwards and rapidly increased their production. Starting from March 18, 2020, Kudumbashree units also started producing sanitisers.

Kudumbashree in convergence with Local Self Governments started Community Kitchen to prepare food and to home deliver to those under home quarantine and for needy people. Joint Liability Groups also supplied their crops to the community kitchens.

The Government extended credit facility for employment generation by providing loans worth ₹2,000 crore to self-help groups under Kudumbashree. Under this scheme, known as the Chief Minister's Helping Hand Loan Scheme (CMHLS), each unit would receive ₹5000, ₹10,000, or ₹20,000 based on their financial status. The interest of loan will be borne by the State Government. The tenure of the loan will be 36 months with an initial moratorium of 6 months.

₹2,000 for farmers who are under quarantine is also being distributed.

Social Welfare Pensions

The Government of Kerala have streamlined the distribution of the social welfare pensions and paid off the arrears. The pension was gradually increased from ₹600 in 2015-16 to ₹1300 in 2019-20. The number of beneficiaries has also been increased from 35 lakh to 58 lakh during this period. In the wake of Covid-19, the Government of Kerala increased the social welfare pension by ₹100 to ₹1,400 and ensured the regular distribution of the pension on a monthly basis. These measures further strengthen the comprehensive social security net in the State building resilience in the context of Covid-19 pandemic.

Non-Resident Keralites

The role played by non-resident Keralites in the growth of Kerala's economy has been well acknowledged. In the light of the economic hurdles this pandemic has created, non-resident Keralites have returned to Kerala in large numbers. Right from ensuring their wellbeing while they were abroad amidst the Covid-19 outbreak, to arranging for their safe return to Kerala, Government of Kerala has catered to their needs. A Covid Response Cell was set up in NORKA-ROOTS with 24x7 helplines to assist non-resident citizens. Help desks were set up in 14 countries, across the Gulf, Europe, North America, Africa and South-East Asia.

The Chief Minister conducted video conferences on April 5, April 26, and May 23, 2020, with prominent non-resident Keralites and representatives of non-resident Keralites' organisations to ascertain the situation on the ground and bring relevant issues to the notice of the Central Government. Letters were written both to the Prime Minister and the External Affairs Minister to arrange the safe return of those with expired visas and students whose educational institutions have been shut down

owing to the pandemic. It was also requested that the Government of India should provide airfare for those who have lost their jobs, those who have been freed from jails and labourers staying in camps. Priority was sought for those requiring immediate medical assistance, pregnant women and children as well, in returning to India. It was also requested that a rehabilitation package for return migrants should be announced, and that special schemes for their skill development should be administered.

On April 26, 2020, NORKA initiated registration for migrants who wished to return to India. 5,55,074 non-resident Keralites registered and their details were handed over to the Ministry of External Affairs. NOC was granted for 2,423 chartered flights. Online medical consultation was made available to Non-resident Keralites through Quick Doctor and Doctor on Call. An agreement was reached with DHL so that medicines could be shipped to Non-resident Keralites in foreign countries on a discount.

A project called 'Dream Kerala' has been formulated to reform the existing welfare programmes and to include new ideas, so that return migrants could be benefited. Measures are underway to take stock of the skills and experience of the return migrants as well so that programmes could be devised accordingly for their rehabilitation.

The Norka Department initiated multi-sectoral actions to assist the return emigrants. Along with non-financial measures like Help Desk in host countries and Covid Response Cell in Norka Roots, there were multiple financial measures. ₹57.50 crore has been allotted to provide assistance to those who had returned with valid passport and job visa since January 1, 2020, and were unable to return because of the lockdown, at ₹5,000 per person. More than 1.75 lakh applications are under process. 78,000 applications have been approved and an amount of ₹39 crore has been released to eligible persons so far.

Similarly, for non-resident Keralites who came in since, January 2020, and contracted Covid-19 ₹10,000 has been issued as medical assistance as part of the Santhwana Scheme.

Medical Assistance was provided for Covid affected return emigrants. ₹10,000 is given as financial assistance to the members of the Pravasi Welfare Board who are infected with corona virus. For non-members, the same amount will be released from Norka Roots under the scheme Santhwana. An amount of ₹1 crore has been released to Norka Roots in this regard.

To provide a livelihood for return emigrants by promoting self-employment ventures Norka Department has been providing interest cum capital subsidy loan up to ₹30 lakh under NDPREM. Considering the importance of livelihood of the return emigrants Norka Department proposes to enhance the loan limit from 30 lakh to 50 lakh and interest subsidy from 3 per cent to 5 per cent. Under this scheme, projects of Meat products of India, CM's Entrepreneurship Development Programme by KFC, Pravasi store scheme by Supplyco and Startup Mission scheme are being explored.

NORKA ROOTS launched NORKA Skill Repository (NSR) portal for returnees aimed at creating a database, based on their skill sets and experience. Portal provides the possibility to connect the returnee with potential employers to integrate and rehabilitate Pravasis in Kerala. NSR also opens a platform for self-employment, enterprises creation, up skilling and investment support.

100 Days, 100 Projects

The Government of Kerala in September 2020 has launched a '100 Days, 100 Projects' campaign. The aim is to complete 100 projects in the State in the next 100 days as part of an action plan. The campaign will speed up projects which were delayed due to the pandemic. This action plan includes the fulfilment of the promises made by the Government and enhances relief measures. These projects will generate employment opportunities in the State.

Highlights of Kerala's Response

Kerala's response to the Covid-19 is multidimensional. Providing healthcare and other facilities is coupled with measures to ensure food security and vitalise the economy. The measures undertaken recognise the peculiarity of the conditions brought out by the Covid-19 pandemic and the lockdown induced by it. The health and well-being of the individuals and society as such cannot be protected without ensuring the presence of adequate social and economic infrastructure. Action undertaken by the Government of Kerala amid the pandemic demonstrates a commitment towards development and social justice.

The core element of Kerala's response to Covid-19 is the strong health system of the State. Strengthening of public health infrastructure under Aardram Mission contributed to the pivotal role played by the health sector in Covid-19 management. As part of the Mission, the Government built new public health infrastructure, increased humanpower in terms of doctors, nurses and care staff, deepened community management and improved hygiene and sanitation.

Another significant feature in Covid-19 management in the State is the exemplary role played by Local Governments. Local Governments led the efforts at the grassroots level by spreading awareness about Covid-19 and "Break the Chain" campaign, providing sanitation, support services for persons in isolation, ensuring availability of essential items, and preparing an inventory of healthcare facilities available at local level. Local Governments spearheaded the setting up of Community Kitchens across the State ably supported by Kudumshree in this effort. They also played an important part in monitoring of migrant camps and ensuring food and medical treatment to the needy. The exemplary role played by Local Governments in managing Covid-19 pandemic has been covered in detailed in Chapter 12 of this *Review*.

A notable feature of Covid-19 management in the State is information dissemination at the highest level. The daily press conferences conducted by the Honourable Chief Minister provided daily updates of the virus, the precautions to be taken by people, and the policy measures by the Government to manage the pandemic. This provided transparency and instilled trust among people. Public action and its efficacy were in its most evident form.

The Government ensured food and shelter to the needy in the most difficult times. The strategies to contain the pandemic were accompanied by support measures to revive livelihoods to alleviate the adverse impact of the pandemic.

The Government has also assured that when vaccine becomes available, it will be administered free of cost to all on priority basis.

More specific Departmental-level initiatives in response to the Covid-19 pandemic are discussed in the concerned Chapters.

CHAPTER

03

AGRICULTURE
AND
ALLIED SECTORS

AGRICULTURE AND ALLIED SECTORS

3.1 AGRICULTURE

Agriculture and allied sectors hold a significant position in any development process with its role in engaging and employing people, providing food and ensuring food security and raw materials. Agriculture is a pivotal sector for the economy to achieve the Sustainable Development Goals (SDG) of no poverty, zero hunger, and good health and well-being. With decline in the size of land holdings in agriculture, the State has to focus on production, productivity, and profitability to attain the SDG targets and sustainability in agriculture.

Crops, livestock, fishing, and forestry contributed 8.03 per cent to Kerala's Gross State Value Added (GSVA) in 2019-20 (constant prices). The share has been falling steadily over the years. The agricultural sector in Kerala has undergone significant structural changes in the form of decline in share of Gross State Domestic Product (GSDP) indicating a shift from the agrarian economy.

Agricultural performance is subject to year to year fluctuations due to vagaries of nature as well as price volatility. The natural disaster that hit the State in the form of floods and landslides in 2018 and 2019, had affected the agricultural sector the most.

Trends in Growth Rate

At the national level, the share of crops, livestock, forestry, and fishing sector in Gross Value Added (GVA) has shown decline over the years from 17.8 per cent in 2013-14 to 14.6 per cent in 2018-19. The share of crops in GVA declined from 11.4 per cent in 2013-14 to 8.2 per cent in 2018-19. The all India growth rate of agriculture and allied sectors has been fluctuating as seen in **Table 3.1.1**.

However, the importance of agriculture for the livelihood of the rural population and food security of large masses is significant

Table 3.1.1 Percentage change in GVA in agriculture and allied sectors

Year	Growth rate per annum (%)
2013-14	5.6
2014-15	(-)0.2
2015-16	0.6
2016-17	6.8
2017-18	5.9
2018-19	2.4

Source: National Accounts Statistics, 2020

in the economy. As per the Census of 2011, the agriculture sector in India employed 263 million workers. Out of these, 45 per cent were cultivators while 55 per cent worked as agricultural labourers.

The agriculture sector in Kerala has been facing challenges with regard to its growth. According to the data from the Directorate of Economics and Statistics (DES), the annual growth rate (GSVA at constant 2011-12 prices) of agriculture and allied activities (including crops, livestock, forestry and logging and fishing and aquaculture) was (-)6.31 per cent in 2013-14, 0.02 per cent in 2014-15, (-)5.10 per cent in 2015-16 and (-)0.65 per cent in 2016-17. The sector witnessed a growth of 2.11 per cent in 2017-18. But the growth declined to (-)2.38 per cent in 2018-19 and further to (-)6.62 per cent in 2019-20. In 2018-19, fishing and forestry sector in the State had shown positive growth rate with, 6.55 per cent and 0.54 per cent respectively, while the rest of the sectors had displayed negative growth rate. In 2019-20 all the sectors had shown negative growth rates.

On a positive note, as per SDG India Index 2019, even though the share of agriculture and allied sector in GSVA is negligible, Kerala ranks third in India with respect to GVA in agriculture per worker at ₹2.19 lakh.

The share of agriculture and allied sectors in total GSVA (at constant 2011-12 prices) of the State has witnessed a secular decline from 12.37

per cent in 2013-14 to 8.03 per cent in 2019-20. Details are provided in **Table 3.1.2**.

Monsoon 2020

The pre-monsoon rainfall received in the State from March 1, 2020, to May 31, 2020 was normal with a departure of 10.34 per cent from the normal. The actual rainfall received during the period was 404.7 mm. Pathanamthitta (856 mm) and Thiruvananthapuram (592.2 mm) Districts received large excess rainfall during the period. Five Districts namely, Kannur, Kasaragod, Malappuram, Palakkad, and Thrissur, recorded deficient rainfall. The per centage departure from normal was highest in Pathanamthitta (73 per cent) followed by Thiruvananthapuram (63 per cent) and Kottayam (50 per cent).

The actual rainfall received in Kerala during the southwest monsoon season (June 1 to September 30, 2020) was 2246.0 mm as against the normal rainfall of 2038.7 mm which was normal with a departure of 10.2 per cent from the normal. During the previous Southwest monsoon (2019), Kerala had received an actual rainfall of 2300.2 mm. Nine Districts in the State received normal rainfall in 2020, while five Districts received excess rainfall, namely, Kannur (3365.9 mm), Kasaragod (3605.6 mm), Kozhikode (3440.3 mm), Kottayam (2329.6 mm), Thiruvananthapuram (1153.7 mm). Kasaragod District received the highest rainfall (**Figure 3.1.1**).

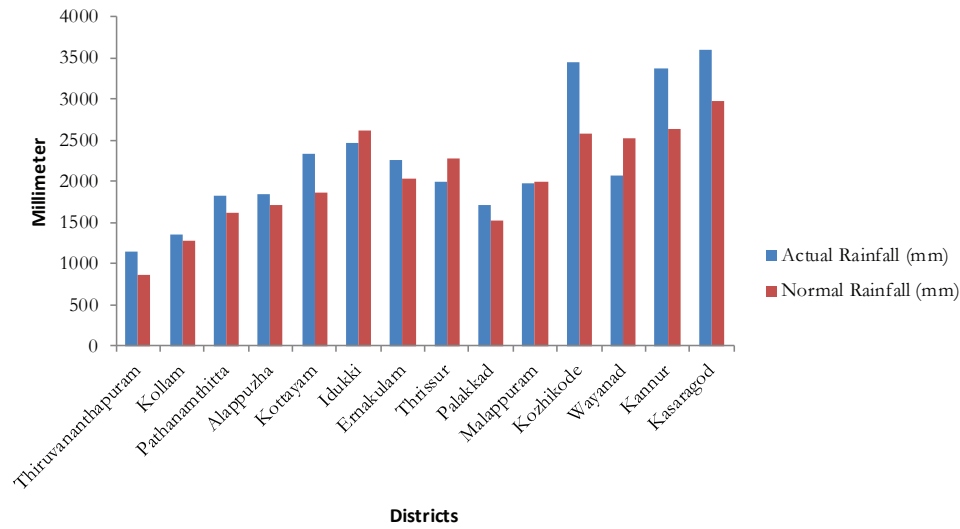
Table 3.1.2 Share of agriculture and allied sectors in GVA/GSVA National and State level, at constant prices 2011-12, from 2013-14 to 2019-20, in per cent

Year	Share of agriculture and allied sectors in total GVA (India)	Share of agriculture and allied sectors in GSVA (Kerala)
2013-14	17.8	12.37
2014-15	16.5	11.92
2015-16	15.4	10.74
2016-17	15.2	9.96
2017-18	15.1	9.60
2018-19	14.6	8.83(P)
2019-20	n.a	8.03(Q)

Notes: (P) Provisional, (Q) Quick; n. a.= not available.

Sources: National Accounts Statistics 2020, GoI; Directorate of Economics and Statistics, GoK

Figure 3.1.1 South west monsoon rainfall received from June 1 to September 30, 2020



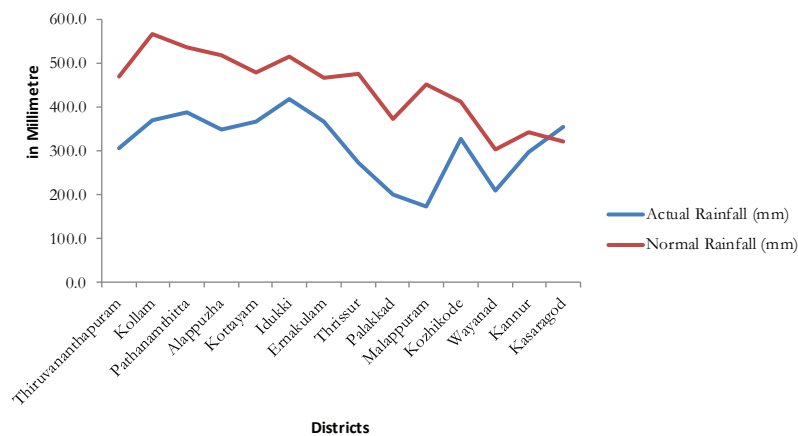
Source: Indian Meteorological Department

During the northeast monsoon season 2020 (October 1 to November 24, 2020), the State received 314.9 mm of rainfall against normal rainfall of 445.8 mm which was deficient with a percentage departure of (-)29.4 per cent from the normal. Except three Districts namely, Kannur, Idukki, and Kasaragod, all Districts received deficient rainfall (**Figure.3.1.2**). District-wise rainfall distribution in the State in 2020 is given in **Appendix 3.1.1**.

In 2019, many parts of Kerala were affected by flood, though it was not as severe as

in 2018. Compared to 2018, which was a flood year, there were less number of heavy rainfall events in the scale of 75-100 mm in Kerala during the southwest monsoon season of 2019. There were more number of heavy rainfall events in the scale ≥ 100 mm in northern Kerala in 2019 compared to southern Kerala and most parts of central Kerala. During the 2018 floods, southern Kerala was most affected. The heavy rainfall events (≥ 100 mm) were more in southern and central Kerala in 2018 (Source: Kerala Agricultural University).

Figure 3.1.2 Northeast monsoon rainfall received from October 1 to November 24, 2020



Source: Indian Meteorological Department

Land Use

Kerala has witnessed major changes in its land use pattern over the years. The major change was the shift from cultivation of food crops to non-food crops and increase in area under land put to non-agricultural use. Changes in land use and cropping pattern in Kerala pose a challenge not only to food security but also to the ecological sustainability of the State. An analysis of changes in land use pattern over a period helps to comprehend the present scenario of agricultural land utilisation. Data on land use pattern for the year 2019-20 is given in **Appendix 3.1.2**.

As per the land use data of 2019-20, out of a total geographical area of 38.86 lakh ha, total cultivated area is 25.89 lakh ha (66.64 per cent) and the net area sown is 20.26 lakh ha (52.13 per cent). Land put to non-agricultural use is 11.73 per cent and forest area is 27.83 per cent. The cultivable waste and current fallow constituted 2.57 per cent and 1.48 per cent respectively.

Compared to 2018-19, there is increase in area under barren and uncultivated land, land under miscellaneous tree crops, land put to non-agricultural uses, cultivable waste and fallow lands other than current fallow by 3.29

per cent, 1.18 per cent, 0.41 per cent, 3.43 per cent and 3.05 per cent, respectively. The area under cultivable waste increased by 3,313 ha and fallow other than current fallow by 1390 ha. The net area sown decreased by 0.37 per cent.

The total cropped area and area sown more than once increased by 0.73 per cent and 4.92 per cent respectively. The cropping intensity increased from 126 per cent to 128 per cent. The land use pattern is shown in **Figure 3.1.3**.

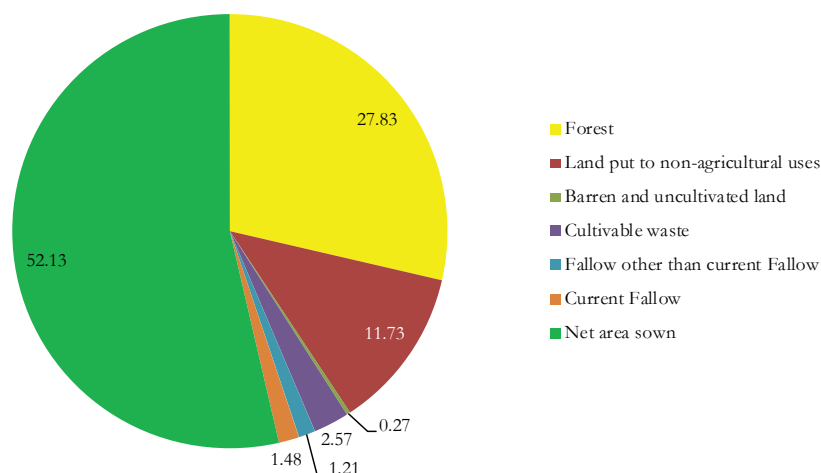
The total number of operational holdings in the State has increased from 6,831 thousand in 2010-11 to 7,583 thousand in 2015-16 showing an increase of 11 per cent. The average size of operational holding has declined to 0.18 ha in 2015-16 as compared to 0.22 ha in 2010-11 **Appendix 3.1.3**.

Cropping Pattern

Data regarding the area, production and productivity of important crops grown in Kerala are shown in **Appendix 3.1.4**.

Food crops comprising rice, tapioca, sweet potato, millets, and pulses accounted for 9.88 per cent of the total cropped area in 2019-20 while

Figure 3.1.3 Land use pattern of Kerala 2019-20



Source: Directorate of Economics and Statistics

cash crops (cashew, rubber, pepper, coconut, cardamom, tea and coffee) constituted 61.6 per cent. The area under crops like rubber, coffee, tea, and cardamom was 27.5 per cent of the total cropped area.

Coconut occupies the largest area with 29.3 per cent coverage followed by rubber with 21.28 per cent. Rice comes third with 7.37 per cent of the total cropped area. Compared to 2018-19, area under tapioca showed an increase of 0.31 per cent and area under pulses declined by 229.54 ha with a decline in production by 197 tonnes recording 2260.46 ha and 2103 tonnes respectively. Among other crops, arecanut, coffee, cashew, banana, cardamom, and pepper recorded an increase in area over 2018-19. Ginger, turmeric, tea, and coconut recorded a decline in area. Banana recorded the highest increase in area with 14.7 per cent over 2018-19. There was an increase in production for banana, cashewnut, coffee and other plantains.

Crop-Wise Analysis

Rice

Rice is the major food crop cultivated in the State occupying 7.37 per cent of the total cultivated area. On analysing the area under paddy cultivation for the last 10 years, the area under wetland paddy cultivation was highest in 2010-11 recording an area of 2.13 lakh ha with a production of 5.23 lakh tonnes.

During the period of the 13th Five Year Plan, the downward slide in the area cultivated with paddy

could be arrested. In 2015-16, 1.97 lakh hectares was cultivated with paddy in the State. In 2019-20, 1.98 lakh hectares was cultivated with paddy. This was in contrast to earlier plan periods, where the area cultivated with paddy consistently fell. **Table 3.1.3** depicts the change in area of wetland and dryland paddy over the period from 2015-16 to 2019-20. It may be noted that the area under harvested paddy, despite the severe and unfavorable weather conditions, which led to substantial crop loss across the state, has been maintained in a steady manner.

Specific policy interventions of the State government, under which cultivation of paddy was encouraged with increased subsidies, a bonus over the minimum support price (MSP) and higher procurement, were instrumental in preventing a further decline in the area cultivated with paddy. The government has been taking comprehensive steps for increasing the area, production and productivity of paddy in a sustainable manner. In 2020, the government has announced an additional royalty of ₹2000 per hectare for wetland owners, as an incentive to not convert them to other uses or to leave them fallow.

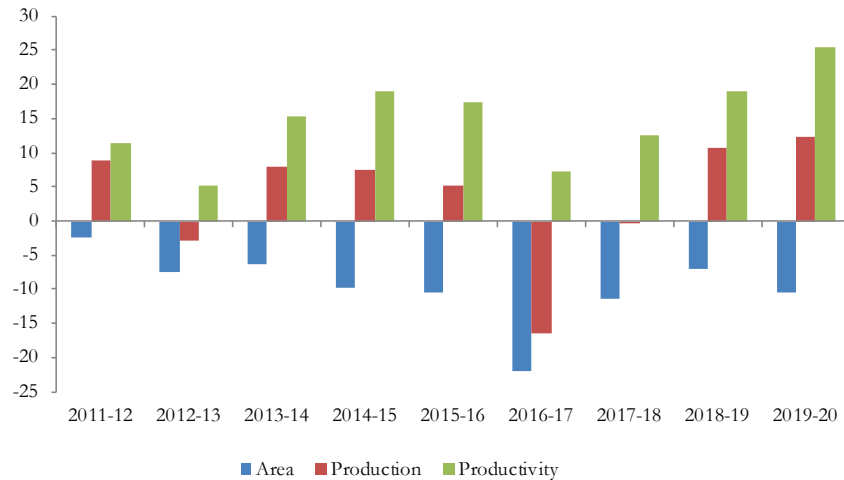
The total area sown in the state under paddy was reported as 2.31 lakh hectare by the Department of Agriculture Development and Farmers Welfare. As per the data of the department an area of 0.33 lakh ha was affected due to natural calamities and total harvested area under paddy was 1.98 lakh ha. But for the unprecedented crop loss of 0.33 lakh ha, the paddy area would have risen.

Table 3.1.3 Area under Wetland and Dryland Paddy in the State (2015-16 to 2019-20)

Year	Area under Paddy (ha)		
	Wetland	Dry land	Total
2015-16	190939	5931	196870
2016-17	166184	5214	171398
2017-18	189086	5149	194235
2018-19	198026	4881	202907
2019-20	191051	7129	198180

Source: Directorate of Economics and Statistics

Figure 3.1.4 Percentage change in area, production and productivity of rice over the years from 2011-12 compared to 2010-11



Source: Directorate of Economics and Statistics

On comparing the wetland rice statistics of the State over the past ten years, 2010-11 to 2019-20, the area under rice has been declining. But with respect to production, except for 2012-13, 2016-17, and 2017-18, the rice production has shown an increasing trend ranging from lowest of 5 per cent increase in 2015-16 to highest increase of 12 per cent in 2019-20.

Productivity of wetland rice has shown an increasing trend during the period, with highest productivity in 2019-20. (Figure 3.1.4). A steady increase in production and productivity is noticed from 2017-18 onwards. The increase in productivity of rice can be considered a positive trend in the State rice sector.

The area under paddy cultivation in Kerala in 2019-20 was 1.98 lakh ha of which 1.91 lakh ha was wetland paddy. The wetland paddy over the last ten years recorded the highest production and productivity of 5.87 lakh tonnes and 3073 kg per ha respectively in 2019-20 which is an increase of 12.3 per cent and 25.3 per cent compared to 2010-11 levels.

In 2019-20, the production and productivity of paddy increased by 1.52 per cent and 5.24

per cent, respectively, compared to 2018-19 (Appendix 3.1.5). The area under upland rice increased by 46 per cent recording 7129 ha.

Season-wise data on the performance of rice reveal that the area under *Virippu* (autumn) and *Mundakan* (winter) has decreased and *Puncha* (summer) crop area has increased in 2019-20 over the previous year. The production in *Virippu* season increased by 40 per cent even though there was a 9.9 per cent reduction in area compared to 2018-19. The productivity of *Puncha* was the highest among the three seasons during the year with 3540 kg per ha. In 2019-20, except for *Virippu* season with 55 per cent increase in productivity recording 2614 kg per ha, the other two seasons had decreased productivity compared to 2018-19.

Mundakan crop was prominent in the State (Appendix 3.1.6). While *Puncha* crop was dominant in Alappuzha District, *Mundakan* and *Virippu* crops were prominent in Palakkad District (Appendix 3.1.7).

Palakkad, Alappuzha, Thrissur, and Kottayam accounted for about 79.9 per cent of the total area of rice in the State, their individual

shares being 40.1 per cent, 18.6 per cent, 11.8 per cent, and 9.2 per cent, respectively. These Districts contributed 83 per cent of the total rice production in the State. Kollam, Pathanamthitta, Thrissur, Malappuram, Kannur, Kasaragod had an increase in area under paddy compared to 2018-19.

Palakkad and Alappuzha Districts stood first and second with respect to area and production of rice in the State. But with respect to productivity, Thrissur and Malappuram hold the first and second position. The production in all the Districts except Palakkad, Kannur, Malappuram, and Thrissur had declined compared to 2018-19. Palakkad District recorded the highest increase in paddy production of 15.3 per cent followed by Thrissur District with 10.22 per cent and Kannur with 5.9 per cent. A decline in productivity was recorded in all Districts except Kottayam, Idukki, Ernakulam, Thrissur, Palakkad and Kannur in 2019-20 compared to 2018-19 with highest decline of 12.77 per cent in Kollam District (**Appendix 3.1.8**).

The area under high yielding and local varieties are given season-wise in **Appendices 3.1.9** and **3.1.10**. About 97.1 per cent of the paddy area extending to 1.85492 lakh ha was cultivated with high yielding varieties and 5559 ha under local varieties.

The interventions to promote paddy cultivation in the State include assistance to undertake fallow land cultivation, upland cultivation, conversion of single crop to double crop and promotion of specialty rice. Other incentives to paddy farmers include input assistance at the rate of ₹5500 per ha, paddy production bonus at the rate of ₹1000 per ha per season and free electricity to paddy farmers.

A seed production plan and seed supply mechanism to ensure timely availability of quality seeds in sufficient quantity is essential to overcome the shortage of the basic input of crop production. Coordinated approach in

the implementation of schemes of Agriculture Department, Local Self Government Department, Minor Irrigation Department, Kerala State Civil Supplies Corporation, Kudumbasree, and MNREGS would facilitate holistic development of rice production benefiting the farmers as well as the State economy. Efficient channelisation of available credit facilities, organised marketing and mechanisation are the other areas that need to be focused.

Vegetables

Vegetable production in the State has gained momentum over the past years. The production which was 7.25 lakh metric tonnes from an area of 52830 ha in 2016-17 increased to 12.12 lakh tonnes from an area of 82166.55 ha in 2018-19 which is an increase of 55 per cent in area and 67 per cent in production. The vegetable production in 2019-20 was 14.9 lakh tonnes from an area of 96,313 ha which is an increase of 17 per cent and 23 per cent in area and production respectively compared to 2018-19.

(Source: Department of Agriculture Development and Farmers Welfare)

The increase in area and production of vegetables in the State can be attributed to the support provided through vegetable development programmes implemented by the State Department of Agriculture Development and Farmers Welfare, Vegetable and Fruit Promotion Council, Kerala, State Horticulture Mission, Local Self Government Department and Kudumbasree. Vegetable cultivation in homesteads, vegetable clusters including urban, staggered, and graded clusters, institutions, rain shelter cultivation and micro-irrigation and fertigation support were the activities promoted for vegetable cultivation in the State in 2019-20.

Strengthening of farms and nurseries under the Department of Agriculture and establishment of new nurseries at Corporation/Municipality/Panchayat levels facilitated the availability of quality planting materials especially during the Covid-19 pandemic outbreak. A quantity of 7.467 MT vegetable seeds and 70.76 lakh vegetable

seedlings were produced and distributed through 33 seed production farms in 2019-20 through the Department of Agriculture.

Organic Farming/Safe to Eat Vegetable Cultivation

The State is on the path of promoting safe to eat vegetable cultivation through good agricultural practices. Agriculture Development and Farmers' Welfare Department, Vegetable and Fruit Promotion Council, Kerala, and State Horticulture Mission played a key role in promoting organic farming through adoption of organic village by cluster approach. In 2019-20, organic cluster cultivation was promoted through formation of 200 GAP (Good Agricultural Practices) clusters in 5000 ha with a contiguous area of 25 ha per cluster and production of 25,000 MT. A total of 1405 GAP clusters extending to 64,095 ha exist in the State. Under PKVY (Paramparagat Krishi Vikas Yojana), a total of 619 organic clusters extending to 12,380 ha have been established in the State. The marketing of organic products was facilitated through ecoshops functioning in the State. Of this 11 ecoshops were newly established in 2019-20 (Source: Department of Agriculture Development and Farmers Welfare)

VFPCK, the Regional Council for Organic Certification promoted Participatory Guarantee System (PGS) on Organic Certification in the State, in addition to supporting vegetable cultivation. In 2019-20, 214 farmers were registered under PGS with a total area of 87.68 ha, making the total PGS farmers to 1859 under 252 local groups in an area of 833.33 ha. Organic Green Certificate was awarded to 208 farmers and PGS certified production of 957 MT was achieved in 2019-20. (Source: Vegetable and Fruit Promotion Council, Kerala)

Pesticide Residue Analysis

With the objective of creating public awareness on pesticide residues in food commodities and sensitise people on use of "Safe to Eat" items, pesticide residue analysis is being conducted in four Pesticide Residue Laboratories functioning

at Padannakkad, Kumarakom, Vellanikkara, and Thiruvananthapuram under Kerala Agricultural University.

The Pesticide Residue Research and Analytical Laboratory at College of Agriculture, Vellayani, is the laboratory under Government of Kerala having ISO 17025 accreditation for testing pesticide residues from food commodities. Monitoring of pesticide residues is conducted in vegetables and fruits collected from public markets, farm gate, ecoshops and "Organic" shops in Kerala and the results are being published in public domain (www.kerala.gov.in) periodically.

In 2019-2020, a total of 4705 vegetable samples and 156 fruit samples collected from various parts of the State were analysed in the four laboratories. Presence of pesticide residue was detected in 754 vegetable samples (16 per cent) and 27 fruit samples (17.3 per cent) out of which residue level in 20 vegetable samples were above Maximum Residue Level (MRL) as prescribed under Food Safety Standard Authority of India (FSSAI), Ministry of Health and Family Welfare. None of the fruit samples detected above MRL. (Source: Kerala Agricultural University)

Coconut

In India, coconut is cultivated in 16 States and 4 Union Territories with 89.4 per cent of area and 91.6 per cent of production contributed by the southern States of Tamil Nadu, Kerala, Karnataka, and Andhra Pradesh. As per the second advance estimate 2019-20, the area and production of coconut in the country is 2.153 million ha and 21308.41 million nuts respectively. Kerala stands first in terms of area and production and in terms of productivity Andhra Pradesh stands first followed by West Bengal (Source: Coconut Development Board).

Although coconut is one of the principal crops, its cultivation in the State has not been encouraging over the years. The area, production and productivity of coconut which showed a marginal increase in 2018-19 has recorded a decline in 2019-20.

Coconut, cultivated in 7.61 lakh ha occupies 29.3 per cent of the gross cropped area. Compared to the area under coconut cultivation in 2010-11, 1.26 per cent decline has been observed during the last decade in the State. The decline in production was 8.9 per cent during the last decade indicating the comparatively low per ha productivity of coconut in the State. A marginal decrease in area to the tune of 0.02 per cent and production and productivity by 9.15 per cent and 9.13 per cent respectively was observed in 2019-20 compared to 2018-19 (**Appendix 3.1.11**).

The Coconut development programmes in the State is directed towards integrated management of coconut gardens, promotion of multi-species cropping system, integrated farming system and promotion of entrepreneurship ventures through value addition. Keragramam is one such programme being undertaken for the integrated management of coconut gardens on cluster basis and replanting to replace senile and diseased palms. The Coconut Mission launched in 2018-19 is functioning with the objective of reviving the coconut wealth of Kerala through a campaign of replanting and maintenance, enhancing the coconut productivity and ensuring forward linkages with the agro industry.

The constraints in coconut production sector in the State include predominance of old and senile palms, poor spread of hybrid varieties, poor attention to soil, and high cost of labour and shortage of climbing labour in addition to constraints in value addition sector. There is a serious data gap with respect to output per yielding palm, variety wise data, irrigated or unirrigated areas, well managed or poorly managed palm, and age wise distribution necessitating regular and updated data on coconut cultivation.

The major way forward in the coconut sector includes replanting, quality planting material production, integrated pest management, integrated nutrient management, value addition, and agro processing. The policy response should be for collective management models through

replanting of old and senile palms using high yielding planting materials, mechanisation, and micro irrigation. Considering the need of continuous availability of moisture for sustainable production of coconut, promotion of irrigation facilities need to be given prime importance. The focus on marketing policy should be on aggregation at farmer level through Farmer Producer Organisations (FPO), and Cooperatives and value addition policy should be on industrial growth in processing sector and FPO promotion.

Ensuring availability of sufficient number of quality planting materials including new and improved high yielding varieties is the prerequisite for replanting strategy adopted in the State for increasing the coconut productivity. Encouraging decentralised nurseries, participatory approach in seedling production by imparting training in surveying and identification, marking and labelling mother palms, seed nut collection and storage and nursery establishment and maintenance along with a mechanism for accreditation of nurseries and certification of coconut seedlings, growing recommended varieties in agroecological zones, demand based planting material production, traceability of coconut seedlings, and responsible seedling concept will facilitate seedling production with respect to quality and quantity.

The immense opportunities in the coconut sector such as intercropping with a wide variety of crops, integrated mixed farming, value addition through product diversification, increasing demand for coir and coir products and good prospects for coconut holding based farm tourism needs to be tapped for the holistic development (Source: Proceedings of the International Conference and Exposition on Coconut Development 2020, Kerala State Planning Board).

Pepper

World pepper production in 2019 was estimated at 591.95 thousand tonnes compared to 532.76 thousand tonnes reported in 2018, with Vietnam topping the list contributing 47.3 per

cent. India stands fourth in pepper production contributing 8.1 per cent of the total production.

(Source: International Pepper Community).

Pepper production in India in 2019-20 is estimated at 61 thousand tonnes compared to 48 thousand tonnes in 2018-19 (Source: Advance estimate of Spices Board 2019-20, United Planters Association of Southern India (UPASI) Annual Report, 2020) which is an increase of 27 per cent. Grown mostly on the slopes of Western Ghats in Kerala, Karnataka and Tamil Nadu, cultivation base of pepper has come down sharply in the last decade hitting production and export.

The area under pepper in the State was 83765 ha in 2019-20 which is an increase of 1004 ha compared to 2018-19. But there was decline in production and productivity by 6 per cent and 7.2 per cent respectively recording 34545 tonnes and 412 kg per ha respectively contributing to 56.6 per cent of the domestic production (**Appendix 3.1.4**).

The price of pepper has been on a declining trend since 2017 as the prices declined from ₹529.59 per kg to ₹354.05 per kg in the year 2019. The decline in pepper prices was largely on account of imports of pepper (Source: UPASI Annual Report 2020).

Even though the pepper exports in 2019-20 indicated an increase of 2,710 tonnes at 16,250 tonnes, the value realisation and unit value realisation witnessed a decline. The value realisation was at ₹551.87 crore, a decrease of ₹16.81 crore and the unit value realisation was at ₹339.61 per kg, a decrease of ₹80.39 per kg, compared to 2018-19.

Integrated pepper development in Idukki, pepper rehabilitation programme through decentralised pepper nurseries assistance for area expansion, support for secondary and micronutrients, soil ameliorants, and revitalisation of pepper *samithis* are the programmes promoted for improving pepper production in the State.

Cashew

The production of raw cashew nuts in India declined from 742 thousand metric tonnes in 2018-19 to 702.8 thousand metric tonnes in 2019-20. However, the area under cashew cultivation recorded an increase from 1105.4 thousand ha to 1,125.06 thousand ha in the respective years.

Among the cashew growing States in India, Maharashtra stands first in production contributing a share of 25.7 per cent followed by Andhra Pradesh contributing to 16.4 per cent. Kerala occupies sixth position in the country.

In the last one decade in Kerala, there has been a continuous and considerable decline in both area and production of cashew. The production which stood at 34.75 thousand metric tonnes in 2010-11 declined to 19.44 thousand metric tonnes in 2019-20, with a decline in the area from 43.85 thousand ha to 39.89 thousand ha during the same period. Productivity of the crop which was around 793 kg per ha in the year 2010-11 also showed a decline to 487 kg per ha in 2019-20 seriously affecting the prospects of the crop. The area and production increased by 2.9 per cent and 24.4 per cent respectively in 2019-20 compared to 2018-19 (**Appendix 3.1.12**).

Even though the cashew kernel exports from India in 2019-20 indicated an increase of 954 tonnes at 67,647 tonnes, the value realisation witnessed a decline of ₹566.82 crore compared to 2018-19. The total realisation was ₹3867.17 crore. The contribution of Kerala to cashew export in 2019-20 was 45.05 per cent in terms of quantity as well as realised value. India imported 9.38 lakh tonnes of raw cashewnut worth ₹8861 crore of which import to Kerala was 13202 metric tonnes worth ₹125.5 crore (Source: Directorate of Cashewnut and Cocoa Development, CEPCL).

Plantation Crops

Plantation crops are high value commercial crops of great economic importance and play a vital role in the Indian economy, in view of their export and employment generation potential and capacity for poverty alleviation, particularly in the rural sector. Each of the four plantation crops of South India has its distinct characteristics and economic problems.

Kerala has a substantial share in the four plantation crops of rubber, tea, coffee and cardamom. These four crops together occupy 7.12 lakh ha, accounting for 27.5 per cent of the total cropped area in the State (**Appendix 3.1.4**). Kerala's share in the national production of rubber is 74.9 per cent, cardamom 89.7 per cent, coffee 21.87 per cent, and tea 4.35 per cent in the year 2019-20 (**Appendix 3.1.13**).

Even though the complete lockdown imposed due to the Covid-19 pandemic towards the end of the year 2019-20 was lifted in plantations in South India within a span of fortnight and permission was given to resume operations conditionally, severe challenges on account of movement of goods, both raw materials and finished goods across the country led to higher costs and uncertain market conditions thereby adversely affecting revenue flow of plantations. (Source: United Planters Association of Southern India (UPASI) Annual Report, 2020)

Rubber

The world Natural Rubber (NR) production in 2019 was 13.695 million tonnes as against 13.892 million tonnes produced in 2018 registering a negative growth of 1.4 per cent. In 2019, NR production in main producing countries namely, Thailand, Indonesia and China decreased, whereas production in Vietnam, Côte d'Ivoire, India, and Malaysia increased. India became the sixth largest producer of NR in 2019 with the share of 5.1 per cent of world production. India holds third rank in productivity in the world in 2019, Vietnam being in the first position.

Natural Rubber (NR) production in the country in 2019-20 was 7.12 lakh tonnes compared to 6.51 lakh tonnes in 2018-19 recording a growth of 9.4 per cent. Out of the 663,250 ha of tappable area under Natural Rubber only 488,000 ha has contributed to the NR production in 2019-20. However, the share of untapped area declined to 26.4 per cent in 2019-20 from 29.8 per cent in 2018-19. The growth in production is attributed to increase in tapped area, increase in rain guarded area, favorable climate compared to the previous year, relatively high rubber prices and continuation of Rubber Production Incentive Scheme (RPIS) by Government of Kerala.

The country consumed 1,134,120 tonnes of NR in 2019-20, 6.4 per cent less than the quantity of 1,211,940 tonnes consumed in 2018-19. The import declined by 21 per cent to 4.57 lakh tonnes compared to 5.82 lakh tonnes in 2018-19.

Annual average price for domestic RSS 4 grade rubber for the year 2019-20 was ₹13,522 per 100 kg compared to ₹12,595 per 100 kg in 2018-19 (**Appendices 3.1.14, 3.1.15, and 3.1.16**). (Source: Rubber Statistical News 2019-20).

Rubber occupies the second largest area in the State next to Coconut with 21.3 per cent of the gross cropped area. In Kerala, the area under rubber decreased by 170 ha in 2019-20 while the production increased by 8.32 per cent to 5.33 lakh tonnes compared to 2018-19 (**Appendix 3.1.13**).

Coffee

Domestic coffee production for the year 2019-20 was estimated at 299.3 thousand tonnes (post monsoon estimates) with Arabica production of 90,400 tonnes (30.2 per cent) and Robusta at 208.9 thousand tonnes (69.8 per cent). This represents an overall decrease of the total production as well as within the break-up of Arabica and Robusta production by 20.2 thousand tonnes, 4.6 thousand tonnes and 15.6 thousand tonnes respectively compared to 2018-19.

The export performance of the Indian coffee sector in 2019-20 saw a dip in the quantum exported, value realisation and unit value. The export performance in terms of quantity exported decreased by 26.92 thousand tonnes to 327.07 thousand tonnes, value realisation decreased by ₹698.90 crore to ₹5,209.16 crore and the unit value realisation decreased by ₹7.63 per kg. (Source: UPASI Annual Report 2020)

Coffee harvesting and processing was almost completed by the time of Covid-19 pandemic first phase of lockdown. However in April-May months, normal cultural operations could not be carried out due to shortage of labourers. The demand and marketing of coffee dropped significantly due to lockdown of coffee shops. To mitigate the decline in exports, the Coffee Board issued export permits online and extended the validity period of export permits. Farmer whatsapp group was created to facilitate dissemination of information regarding price, weather forecast and agricultural practices.

With respect to Kerala, the production of coffee increased from 64,676 metric tonnes in 2018-19 to 65,459 metric tonnes in 2019-20 with increase in area from 84976 ha to 85880 ha. Among the coffee producing States, Kerala stands second next to Karnataka in the country (Appendix 3.1.13). The productivity of the crop in terms of bearing area in Kerala is 762 kg/ha.

Focus on productivity improvement of existing coffee plantations by systematic planting and adequate irrigation facilities can facilitate increase of coffee production in the State. Encouraging coffee growers to access high value specialty markets through production of eco certified coffees would help to realise higher returns. GI certification to 'Wayanad Robusta Coffee' obtained in March 2019 will increase the credibility and visibility of Indian coffee in the international market. Value addition through improved technologies, formation of FPOs and direct market access to coffee growers through e-platforms would help in the progress of the

coffee sector both in terms of production as well as marketing (Source: Coffee Board).

Tea

China ranks first in tea production in the world contributing 45.5 per cent of the total world production of 6149.7 million kg (Source: International Tea Community).

India is the second largest producer of tea. The domestic tea production in 2019-20 was 1360.81 million kg which is higher by 10.77 million kg of 2018-19 (Appendix 3.1.17). While North Indian production was higher, South Indian production was lower compared to 2018-19 (Source: Tea Board).

Moderate to severe drought during the early part of 2019 was followed by higher than normal rainfall during southwest monsoon period. Heavy rainfall during August and September and low sunshine affected the tea production during these months.

Tea production has recorded an increase of 40.8 per cent over the past ten years (Appendix 3.1.17). The domestic export in 2019-20 was placed at 240.02 million kg which was lower by 14.48 million kg compared to 2018-19 while the unit value increased from ₹216.38 per kg in 2018-19 to ₹226.14 per kg (Source: Tea Board). The total realisation of tea export in 2019-20 was ₹5427.78 crore which is lower by 1.3 per cent over 2018-19. The first five months of 2020 showed decline in total quantity exported and in value terms.

Kerala accounted for 4.35 per cent of the total domestic production of tea in the country in 2019-20. The area under tea declined by 1.65 per cent in 2019-20 to 35871 ha compared to 2018-19. The production of tea in the State declined by 2.46 per cent at 59.26 million kg compared to 2018-19. (Appendix 3.1.13)

The challenges to the tea sector on account of Covid-19 were direct economic loss due to loss

Table 3.1.4 Commodity and crop-wise consumption of indigenous pesticides, chemical and bio, 2018-19 to 2019-20, in MT, technical grade

Commodity	Crop	Chemical pesticides		Biopesticides		Total	
		2018-19	2019-20	2018-19	2019-20	2018-19	2019-20
Cereals	Paddy	66.24	72.32	94.86	85.64	161.09	157.96
Vegetables		137.58	40.00	201.99	57.01	339.57	97.01
Spices		48.71	32.47	79.71	45.00	128.42	77.46
Coconut	Coconut	113.06	78.05	116.49	81.7	229.54	159.75
Arecanut	Arecanut	15.80	17.2	21.75	19.73	37.55	36.94
Banana	Banana	135.91	50.97	161.97	54.72	297.88	105.69
Total		517.3	291.01	676.76	343.8	1194.06	634.81

Source: Department of Agriculture Development and Farmers Welfare, Kerala

of crop, restriction on the movement of workers leading to shortage of workforce for cultivation especially plucking, delay in streamlining the supply chain, non availability of money for estate operations including payment of wages, accumulation of unsold tea in the warehouses, exports not taking place and transport to and from most ports was not functioning as supply chain was disrupted.

Cardamom

India is the second largest producer of cardamom and plays an important role in the international trade due to the unique aroma and flavour of Indian cardamom. As per the advance estimate, cardamom production in India in 2019-20 is estimated at 11.23 thousand tonnes which is a decline of 1.71 thousand tonnes compared to 2018-19. In 2019-20, the prices of cardamom had increased by ₹1388.19 per kg to reach ₹2908.50 per kg compared to the previous year.

After reaching an all-time high export of 5.68 thousand tonnes in 2017-18, estimates of exports for 2019-20 reveal a decline to 2.09 thousand tonnes, a difference of 0.76 thousand tonnes compared to the previous year. The value realisation was higher by ₹70.04 crore at ₹426.29 crore and in unit value realisation, the increase was ₹789.67 per kg at ₹2,039.67 per kg.

(Source: UPASI Annual report 2020).

Kerala holds the major share in cardamom production contributing to 89.7 per cent of the

total production. The cardamom production in the State has declined by 12.6 per cent in 2019-20 compared to 2018-19 recording 10076 metric tonnes. This decline in production can be attributed to the huge loss incurred due to the floods that hit the State. (Appendix 3.1.13).

Consumption of Fertilisers and Pesticides

The total indigenous pesticide consumption in 2019-20 is 634.81 metric tonnes with chemical pesticides being 291.01 metric tonnes and bio-pesticides being 343.8 metric tonnes. The pesticide usage in total has decreased compared to the previous years. The highest chemical pesticide usage was in coconut and bio pesticide in paddy. Even though the total pesticide usage both chemical and bio decreased in 2019-20, the usage of chemical pesticide in paddy has increased compared to 2018-19. The usage of biopesticides had decreased for all crops. The usage of chemical pesticides in all crops except paddy had also come down compared to 2018-19 (Table 3.1.4).

The consumption of nitrogenous fertilisers remained static in 2019-20 compared to 2018-19 with 28 kg/ha contributing to 44 per cent of the total nitrogen, phosphorus and potassium fertilizers. The consumption of phosphorus and potassium was 14 kg/ha and 21 kg/ha respectively together contributing 55 per cent of total consumption in 2019-20 (Appendix 3.1.18).

Collective Farming through Kudumbasree

Collective farming is an important area of Kudumbasree, which aims at food security both at household and community levels. The major crops cultivated are paddy, vegetables and banana. In 2019-20, the area brought under cultivation of paddy was 8105 ha, vegetables 6575 ha and banana 11,325 ha. Other crops were cultivated in 9673 ha. In comparison with the area covered in 2018-19, the area taken up under all the crops through collective farming has declined. Details of area covered in 2019-20 are given in **Appendix 3.1.19**.

Agricultural Marketing

The market network under the State Department of Agriculture comprising of six wholesale markets in urban and rural areas, one District-level procurement centre, 256 vegetable cluster markets, 37 Block Level Federated Organisations, 466 ecoshops, 398 weekly markets, 369 markets under HORTICORP, and 307 markets under VFPCCK catered to the marketing requirement of agricultural products and reasonable prices to farmers. In addition, 16 Haritha Group markets and 28 markets established under various programmes in the State also facilitated local marketing of produce. The ecoshops catered to marketing of organic as well as Good Agricultural Practices (GAP) certified products and bio inputs to farmers for crop production. *(Source: Department of Agriculture Development and Farmers Welfare)*

The 288 Swasraya Karshaka Samithies established under VFPCCK throughout the State, and retail outlets functioning in franchisee mode or directly under these farmer markets, facilitated marketing of fruits and vegetables thereby ensuring fair price to the farmers. A quantity of 92129 metric tons of fruits and vegetables worth ₹270.084 crore was traded through these SKS in 2019-20. VFPCCK registered 8 markets in the e-NAM portal through the wholesale markets.

VFPCCK entered into a new venture by establishing a market network for fresh fruits and vegetables of Kerala in the brand name Thalir through supermarkets chains, online traders, ecoshop model outlets and milma outlets. The first VFPCCK-MILMA collaborative kiosk for marketing fruits and vegetables was initiated at Edapally, Ernakulam. The State Horticulture Mission provided assistance at the rate of ₹25 lakh/unit under MIDH (Mission for Integrated Development of Horticulture) for establishment of 4 rural markets in 2019-20.

The markets functioning under Local Self Government Institutions also facilitated trade of agricultural produce. Separate market authorities are formed for each market and have prescribed procedures for trading as regards method of sale, handling, market charges, weighment, payment to seller, grading, and packing. The other institutions involved in agricultural marketing include KERAFED, MARKETFED, Kerala Agro Industries Corporation, Plantation Corporation of Kerala, Oil Palm India Limited, RUBBERMARK and the Commodity Boards namely, Spices board, Tea board, Coffee board and Coconut Development Board involved in marketing of specific agricultural commodities.

A comprehensive plan for the strengthening of existing agricultural markets and market related infrastructure and its linkage would facilitate holistic development of agriculture marketing system in the State. The existing market information and market intelligence system needs to be developed to keep abreast with the market developments at national and international level. Public-Private investments in developing marketing infrastructure and cold chain facilities need to be initiated in the State and the auctions in the e-NAM pattern as well as online marketing of vegetables to consumers can be a revolutionary initiative which can be materialised easily at this time.

Box 3.1.1 State Response to Three Farm Laws enacted by the Central Government

The Central Government has enacted three Acts, namely, Farmer's Produce Trade and Commerce (Promotion and Facilitation) Act 2020; The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act 2020; and The Essential Commodities (Amendment) Act 2020.

However, these Acts have evoked severe criticism among farmers and other stakeholders. It has been argued that these Acts violate the basic principles of federalism. Agriculture is exclusively a State subject listed as Entry 14 in List II. As such, everything that is incidental or ancillary to a subject in List II also falls under the legislative purview of the State governments.

The impact of **Farmer's Produce Trade and Commerce (Promotion and Facilitation) Act 2020** on Indian agriculture is expected to be adverse. The Agricultural Produce Marketing Committee (APMC) mandis in India supported the green revolution package, particularly in the northern States of India, and tilted the balance of market power away from the traders in favour of the farmers. It helped in standardizing weights and measures. There is little evidence to show that the weakening of APMC mandis will lead to the inflow of private investment in markets. If APMC mandis are weakened, and if private markets do not replace them, the regulatory system in agricultural markets will collapse and the dominance of anarchic and unregulated traders will return to rural India. On the other hand, if the policies of procurement and Minimum Support Price (MSPs) are less favoured and private markets come to dominate agricultural marketing, the instrument of MSPs will be rendered sterile.

Kerala has never passed an APMC Act. As such, this Act can be argued to have no impact on the marketing of agricultural commodities in Kerala. In fact, at present, no statutory regulations or restrictions exist as to the opening of private markets in the State.

The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act 2020 is assessed to be a poor regulation of contract farming. Contract farming does reduce apparent price risks for the farmer through a pre-determined price, but companies often violate the contract resulting in considerable losses to farmers. Farmers fail to understand the fine print in contracts. Globally, contract farming systems are also associated with increase in labour displacement, intensified casualisation of labour, increased use of low-paid women workers and child labour and a propagation of monoculture in search of quick profits. Peasants should be protected against unfair practices of corporates in these arrangements. Unfortunately, this Act fails to do so.

The amendment of the **Essential Commodities (Amendment) Act** removes all stock limits in trade and export controls for a range of crops. It is unclear that removing all the stock limits would lead to a rise in private investment, since the surplus of agricultural produce in India is scattered and fragmented across space and crops. Significantly higher private investment is unlikely to enter the sector in the near future. At the same time, public investment in storage and warehousing will continue to fall.

Due to these reasons, the Government of Kerala has proposed to formulate alternative legislations at the State-level to protect the interests of the farming community.

Post Harvest Management and Value Addition

Improper post-harvest handling and lack of adequate processing facilities often led to considerable quantity of vegetables and fruits being wasted. Minimising post harvest losses (transportation and marketing) and value addition of produce is one of the means to increase farmers income. In order to address this issue, it is necessary to promote programmes by providing assistance for establishment of pack houses, cold storage facilities, development of cold chain, micro, small and medium value addition units and agribusiness ventures. A packhouse of 740 square metre at Kammana in Wayanad District was established under the Vegetable and Fruit Promotion Council, Kerala in 2019-20.

Small Farmers Agribusiness Consortium (SFAC), in the State served to bring together the entrepreneurs and farm sector and promote agri-business projects thereby generating rural employment and enhancing farmers' income. SFAC Kerala also focuses on promoting agri-business entrepreneurs and Farmer Producer Organisations in Kerala.

In 2019-20, SFAC Kerala provided assistance to 11 new MSME (Micro Small Medium enterprises). Thirty value addition units promoted since 2017-18 are successfully functioning in addition to these 11 units.

As part of promotion of Farmer Producers Organisations in the State, the Kerala Farmer Producer Organisations (FPO) Policy, 2020 was approved as per G.O (Rt) No-431/2020/AGRI dated 15-05-2020 to establish forward and backward linkages for aggregation of inputs, produce, value chain development and better marketing opportunities resulting in higher returns to farmers.

Facilitating sufficient incubators, promoting technology protocol for ready to use packaging for micro level entrepreneurs, disseminating

knowledge and experience in e-commerce and online marketing, quality standardisation of products, common infrastructure for cold storage and community processing centre can strengthen agribusiness ventures in the State. (Source: Department of Agriculture Development and Farmers Welfare)

Impact of Covid-19 Pandemic in Agriculture in the State

Kerala State Planning Board conducted an assessment of losses in the different sectors of the economy in order to understand the extent of damage caused by the pandemic and the consequent lockdown. The total losses in the crop husbandry sector in agriculture, including plantation crops from March to July 2020, are estimated at ₹1731.78 crore. This also includes the losses to the institutions concerned. Losses for agricultural labourers because of loss of wages is estimated at about ₹200.30 crore.

The Covid-19 pandemic has affected Kerala's agricultural sector in multiple ways.

1. Adverse impact on the export-oriented spices and plantation crops grown in Kerala, the prospects of which are influenced by international trade.
2. Domestic prices of most agricultural crops, livestock products, and fish fell sharply after the lockdown began. While the impact on production may not have been as severe as expected, the fall of demand and disruption of supply chains have resulted in major income losses for the farmers in the State.
3. Lack of availability of workers, especially migrant workers, has affected the functioning of several processing units in agriculture. The inability of these units to process agricultural products affected the supply chain and farmers.
4. Large revenue losses for agricultural institutions in the public sector

In rice, the second crop was almost ready to be harvested in the major paddy growing tracts when the lockdown began. It is estimated that

there was a loss of about ₹15 crore in the paddy sector, because of loss of grain and delayed transportation of grain.

The losses in vegetable sector were due to lower prices for the produce and inability to market the harvests as before. There were also losses because of reduced exports of vegetables from Kerala. The estimated loss in the vegetable sector from April 2020 to July 2020 is ₹221.93 crore. These losses were despite commendable efforts made by the Department, VFPC, and HortiCorp to intervene in the marketing of vegetables.

The total loss estimated for bananas and plantains up to July 2020 is about ₹269 crore and for pineapple ₹50 crore mainly due to fall in prices. The losses in cashew sector and tuber crop is estimated as ₹10 crore and ₹30 crore respectively.

Government interventions in vegetable markets

During the lockdown period, farmers' losses were reduced substantially because of the timely intervention of the Department of Agriculture Development and Farmers Welfare, Vegetable and Fruit Promotion Council Kerala and HortiCorp. The Farmers Retail Outlets (FRO) set up locally (one each in every panchayat, two each in municipalities and five each in corporations) enabled farmers to sell their products locally to consumers. The online marketing strategy adopted by the Government agencies helped in the direct sale of products like mango, pineapple, banana, papaya and vegetables to the city dwellers. Moreover, inter-District movement of surplus produce was also organised.

Paddy threshers were arranged by the department (600 numbers) in Palakkad, Kuttanad, and Kole areas. This reduced the loss of paddy because of delayed harvesting and summer rain. From March 23, 2020 till April 15, 2020, HortiCorp procured 1,200 MT of fruits and vegetables from farmers and outside the State.

Online marketing of fruits and vegetables to the consumers was arranged through private online food delivery portals in Thiruvananthapuram, Kottayam, Ernakulam, Thrissur, and Kannur Districts. Supply of fruits and vegetables was also arranged to different community kitchens, residents' associations, guest worker camps and other agencies throughout the State. Marketing of fruits and vegetables to the consumers also took place through the 100 own-stalls and around 200 franchised outlets of HortiCorp.

Plantation and Spices

Rubber prices declined after trading began because of high stocks, projected decline in rubber consumption and low international prices. Natural rubber markets were also affected adversely by low international economic growth.

Tea plantation sector was affected due to (a) loss in harvests because of the absence of labourers as well as closure of processing factories; (b) loss in marketing because of disruptions in the supply chain; (c) lack of cash to pay wages; (d) accumulation of unsold tea in the warehouses; (e) halt in exports; and (f) rise in debt burden with banks. These were despite some important interventions by the Kerala Government through Supplyco, State-owned Civil Supplies Corporation to purchase about 2.5 lakh kg for distribution under Public Distribution System. The loss in the tea sector is estimated as ₹141.2 crore.

Coffee sector was affected due to shortage of trucks, transport restrictions and shortage of port workers and containers/liners. The losses on this account are estimated at ₹92 crore. The total person-days lost in the sector was 66.28 lakh valued at ₹263.82 crore.

The cardamom sector was affected due to price fall and a reduction of arrivals in e-auction platforms and the estimated loss is ₹126 crore. The pepper sector of Kerala was also affected due to price fall and the total loss is estimated at ₹50 crore.

Major Achievements of Department of Agriculture 2019-20

In 2019-20, out of ₹749.42 crore earmarked for the Department of Agriculture under the State Plan, the expenditure incurred was ₹369.62 crore (49.3 per cent). The key achievements of the Department of Agriculture in 2019-2020 were the following:

- For rice development, assistance was given for sustaining rice cultivation in 1.636 lakh ha through group farming and for speciality rice cultivation in 458 ha.
- Under Registered Seed Growers Programme, 3099.905 MT of certified seeds was produced.
- Under Coconut Development, 55 new Keragramams extending to 13750 ha were established and existing 77 Keragramams were provided with 2nd year assistance.
- As part of the rehabilitation and rejuvenation of coconut palm campaign under Coconut Mission constituted in 2018, 2,03759 WCT (West Coast Tall), 32493 dwarf and 95781 hybrid varieties were distributed at the rate of ₹75 per ward in the ratio of 60:20:20 and 412707 seed nuts were procured.
- For vegetable development, homestead cultivation was promoted by distributing 60 lakh seed kits and 15.46 lakh seedlings to households including school students with majority beneficiaries being women. An area of 757.92 ha fallow land was brought under vegetable cultivation. Rain shelter cultivation set up in 1088 units throughout the State yielded 25 to 30 per cent safe to eat quality vegetables more than open cultivation. Besides, assistance was provided for establishment of 685 micro irrigation units
- For pepper development, 45 lakh disease free rooted pepper cuttings were produced for distribution to farmers. Area under pepper was expanded to 853 ha.
- Produced 4.44 lakh coconut seedlings, 70.76 lakh vegetable seedlings, 7467 kg vegetable seeds, 7,15,825 kg paddy seed, 4.3 lakh tissue culture banana, 10803 banana suckers and 101938 ornamental plants in the various

departmental farms.

- To overcome the shortage of vegetables due to the Covid-19 pandemic lockdown, 50 lakh vegetable seed kits were distributed free of cost to households throughout the State.
- 4 new Plant Health Clinics were started under the Crop Health Management scheme.
- 11 new eco-shops were established in addition to the existing eco-shops and also direct marketing at District headquarters, municipalities and corporations to facilitate marketing of organic products from organic clusters.
- As part of Soil Health management, soil ameliorants and micro nutrients were supplied in 35096.72 ha and 36165.6 ha respectively.
- Under Centrally sponsored scheme PM KISAN (Pradhan Manthri Kisan Samman Nidhi), an amount of ₹ 1947.42 crore was transferred to 27,78,001 farmers in 2019-20.

Key Initiatives of the Department of Agriculture 2020-21

The activities of the Agriculture Development and Farmers' Welfare Department focus on crop production schemes, market development and value addition schemes, extension services and Farmer Welfare schemes. Efficient resource management, climate resilient practices, technology-driven developments are given importance in formulating agricultural programmes. With the objective of providing income security to farmers, industry-based development of the agriculture sector through value addition is being promoted. Agricultural credit facilities, crop insurance coverage, market intervention for price stabilisation and farmer pension are the other farmer friendly programmes supported by the State.

Schemes formulated for 2020-21 focus on food crop production for attaining self sufficiency in vegetable production including development of rice, pulses, tubers and location specific crops like millets, sugarcane and sesamum. Holistic development of coconut sector through

Keragramams, production and distribution of quality planting materials, comprehensive fallow land cultivation with people's participation, modernisation of laboratories, institutional mechanism for marketing, strengthening extension activities, Agricultural Technology Management Agency (ATMA) plus model of extension, rejuvenation of spices economy, quality control of agricultural inputs and outputs and effective programs for soil and root health management, crop health management covering pests and disease surveillance, promotion of organic farming and safe food production, crop insurance, formation of Krishisree centres by strengthening of Agro Service Centres (ASCs) and Karshika Karma Senas for improved service delivery and revival package for pepper in Wayanad are the other programmes. The rehabilitation of coconut sector under Coconut Mission, development of agriculture sector in Kuttanad, Arecanut package for promoting arecanut cultivation and strengthening of IT infrastructure of the department is being continued.

The key initiatives of the Department of Agriculture in 2020-21 is the implementation of schemes based on the concept of 5 agroecological zones and 23 Agroecological units across the State. Krishipadashaala for creating awareness among the farmers on the concept of AEU (Agroecological Unit) based cultivation and also on the recent advances in field of agriculture and Royalty to paddy land owners for conserving the paddy lands are the other initiatives in 2020-21.

Development of fruit sector in the State is one of the major thrust area in the Annual Plan 2020-21. This integrated programme phased for a period of 10 years from 2020-21 is implemented by Departments of Agriculture Development and Farmers Welfare, Local Self Government, Kerala Agricultural University and Vegetable and Fruit Promotion Council, Kerala. It is targeted to supply one crore planting material of fruit crops every year starting from 2020-21. The activities focussed are production and distribution of planting materials, area

expansion, crop management, post-harvest processing and value addition and cold chain development of fruits

Subhiksha Keralam

The Covid-19 pandemic affected the agricultural sector of the State by way of shortage of manpower and machinery due to disruption of supply chain and restriction on its movement, lowering of prices of the produce due to demand variation, and increased sense of insecurity among farmers in addition to threatening the availability of food supplies. For the State to be prepared for any eventuality in the future, it needs to be self-sufficient in food crop production.

The State Government in 2020-21 launched Subhiksha Keralam programme with focus on increasing food production by enhancing the area under cultivation and adopting innovative technologies. Fallow land cultivation, homestead cultivation, crop improvement activities for the existing cultivation, improved market facilities, interventions in the post-harvest management and long term interventions are the programmes included. Food crops like paddy, banana, vegetables, tubers, pulses and millets are the crops targeted under the programme. Departments of Agriculture Development and Farmers Welfare, Local Self Government, Animal Husbandry, Co-operation, Irrigation and Kerala Agricultural University are the stakeholder departments/agencies involved in the programme.

Crop Insurance Schemes

In Kerala, majority of the agricultural producers are small farmers and agriculture is heavily dependent on the weather. The uncertainty of the weather makes agriculture a highly risky venture. Thus the uncertainty of crop yields is one of the basic risks that every farmer has to face. As crop production is affected by the vagaries of nature and damages occur due to droughts, floods, attacks of pests and diseases, crop insurance

can play a vital role in sustaining farm income. Total of 25 major agricultural crops namely coconut, banana, rubber, black pepper, arecanut, cardamom, cashew, pineapple, coffee, ginger, tea, tapioca, turmeric, cocoa, groundnut, sesame, vegetables, nutmeg, clove, betel leaf, pulses, tuber crops, sugarcane, tobacco, paddy, mango and millets are covered.

In 2019-20, under the restructured crop insurance scheme, 4,27,739 farmers were enrolled and an amount of ₹5501.83 lakh disbursed to 84716 farmers insured under the scheme.

Under the Restructured Weather Based Crop Insurance Scheme (RWBCIS), in the Kharif 2019 season, 21,447 farmers were insured. Claims of ₹43.36 crore had been settled with respect to 18266 farmers on account of floods. The crops notified were paddy, arecanut, pepper, ginger, sugarcane, turmeric, cardamom, pineapple, banana and nutmeg. In addition to this mango, potato, cabbage, carrot, garlic, french bean, yard long bean, snake gourd and bitter gourd were notified in Rabi season and 20355 farmers were insured. Consequent to the floods new add on covers are now notified under RWBCIS namely inundation (for all crops), landslide (for all crops) and heavy wind cover (for banana, cardamom, nutmeg, arecanut). Automatic Weather Stations are installed in 134 locations linking panchayats facilitating settlement of claims for adverse weather on the basis of weather data of respective weather stations.

In 2019-20, the State Government had notified the scheme Prime Minister's Fasal BimaYojana (PMFBY) covering the crops such as paddy, banana, tapioca and plantain. Under this scheme 8015 farmers were insured and an amount of ₹9.5 crore paid as claims for 5215 farmers in Kharif 2019 season. The major crop loss was on account of 2019 floods. Under Rabi 2019, 9497 farmers were insured and paddy claims worth ₹32.27 crore for 724 farmers was settled (Source: Department of Agriculture Development and Farmers Welfare, GoK).

Other details of the sector are given

in **Appendices 3.1.20, 3.1.21, 3.1.22, 3.1.23 and 3.1.24.**

Vegetable and Fruit Promotion Council, Kerala (VFPCCK)

Vegetable and Fruit Promotion Council, Kerala (VFPCCK) formed in 2001, has been implementing various schemes in the fruit and vegetable sectors with the financial assistance from State and Central Governments. Its mandate is to support commercial fruit and vegetable growers in Kerala in various farm operations from seed to marketing in a sustainable way. The major activities of the council are technology support to farmers, participatory technology trials, formation of self help groups (SHGs), promotion of Participatory Guarantee System (PGS) for organic certification, campaigns/training/capacity building programmes, production of quality seeds and planting materials, participatory credit and insurance support, group marketing and programmes for the promotion of vegetable cultivation in urban areas.

In 2019-20, VFPCCK has inducted 5504 new farmers and formed 215 new SHGs (Self Help Group) thereby increasing the database of farmers to 2,05,798 and SHGs to 10,083. With respect to production of planting material 84.75 metric tonnes of seeds, 13.47 lakh tissue culture plantlets and 78.51 lakh vegetable seedlings were produced and distributed in 2019-20 at the end of August 2020. Council distributed 43.1 lakh vegetable seed packets to farmers, school students and general public through media for promoting homestead cultivation under the scheme of the Department of Agriculture. Credit disbursement to the tune of ₹88 crore under Kisan Credit Card (KCC) at affordable interest rate were extended to farmers in 2019-20 till August 2020. A total of 21.05 lakh banana plants and 253.26 ha of vegetables were covered under crop insurance scheme. VFPCCK covered 5513 vegetable and fruit farmers and settled claims worth ₹204.7 lakh in 2019-20. An amount of ₹480 lakh was distributed to VFPCCK farmers as compensation.

VFPC, designated as the State Nodal Agency for Agri Export Policy has executed MoU (Memorandum of Understanding) with stakeholders and trainings given for ensuring pre and post-harvest practises of banana for meeting export protocol.

State Horticulture Mission (SHM)

The SHM was formed in 2005 to implement the programme of the National Horticulture Mission, a Centrally Sponsored Scheme, which has been restructured as the Mission for Integrated Development of Horticulture from 2014-15 onwards. The main objective of the mission is a holistic development of the horticulture sector covering fruits, mushroom, medicinal plants, spices, flowers, aromatic and plantation crops. The crops identified for development under the mission are mango, banana, pineapple, pepper, ginger, turmeric, nutmeg, cashew, cocoa and flower crops. Bee keeping, vegetable seed production and mushroom cultivation area also included. The important programmes under the mission include production and productivity improvement, post-harvest management and marketing. It has also been implementing the PMKSY-Micro Irrigation component (Pradhan Mantri Krishi Sinchayee Yojana) from 2014-15 onwards. Paramparagat Krishi Vikas Yojana (PKVY) and Rashtriya Krishi Vikas Yojana (RKVY) are the other programmes implemented by SHM.

State Horticulture Mission Kerala is the nodal agency to channelise funds received from MIDH scheme to support individuals and institutions in expanding the area under horticulture crops and providing assistance for infrastructure development for value addition, processing, storage and marketing.

In 2019-20 a total amount of ₹65.11 crore was sanctioned to SHM including State share and central share under MIDH. The components undertaken in this mission are establishment of nurseries for production and distribution of quality seeds and planting material,

establishment of new gardens, rejuvenation of existing plantations, protected cultivation, organic farming, horticulture mechanisation, technology dissemination and bee keeping. The important programmes included under post-harvest management are establishment of integrated packhouses, sorting and grading units, cold storage and market development.

Special package under MIDH scheme for flood mitigation sanctioned in 2018-19 was continued in 2019-20 including area expansion of crops like strawberry, banana, pineapple, mango, jack, hybrid vegetables, spices such as ginger, turmeric, pepper, nutmeg, aromatic plants, cashew and cocoa.

Under PMKSY - Per drop more crop - Micro irrigation component, in 2019-20 assistance was provided for drip irrigation in 48.81 ha with special assistance of ₹5.21 lakh. In addition to area expansion of banana, vegetables and pineapple, Hitech farming was supported through RKVY. Out of the 11 polyhouses established covering an area of 8415 square metre, 7415 square metre is under vegetable cultivation and 1000 square metre is under Orchid cultivation. The Kerala Agricultural University in its study on the structural design of polyhouses and management of hitech horticulture has come out with recommendations for design and maintenance of polyhouse cultivation in Kerala which can be practised and promoted to attain self-sufficiency in vegetable production.

The initiative of the State Horticulture Mission to become part of Sweet Revolution through the Central Sector Scheme National Beekeeping and Honey Mission (NBHM) would pave the path for promoting apiculture sector both in terms of production as well as agribusiness development in the State.

Projects Under Rebuild Kerala Initiative.

The State established Rebuild Kerala Initiative (RKI) after the floods of 2018 to develop a green

and resilient Kerala. Thirteen projects and three studies were sanctioned to the Department of Agriculture Development and Farmers Welfare for ₹432.147 crore under RKI out of which ₹51.20563 crore was allotted. The projects are implemented through Kerala Land Development Corporation, Kerala State Agricultural Mechanisation Mission, Vegetable and Fruit Promotion Council Kerala, Kerala Agricultural University and Kerala Agro Industries Corporation.

The projects sanctioned are Integrated Farm Management for Holistic Development of District Agriculture Farm, Neriya Mangalam (₹10 crore), Project on Strengthening market network in Kerala (₹15 crore), Enhancing Livelihood through Integrated farming with special focus to Idukki and Wayanad (₹50 crore), Sustainable Development of Kuttanad Ecosystem (₹2.91 crore), Development of Kaippad Organic Tidal wetlands of Northern Kerala through Mechanised farming Rice Germplasm Conservation and Biodiversity based farming (₹3 crore), Athirapally Tribal Valley Agricultural project (₹7.917 crore), Comprehensive and sustainable agricultural development for Attapady tribes, Setting up of Centre of Excellence in vegetables and Flowers at Ambalavayal (₹4 crore), Strengthening e-governance of Agriculture Department (₹12.00 crore), Chengannur Samruddhi-Tharisurahitha Padhathi (₹10 crore), Support to Zone wise service delivery by strengthening Agro Service Centres and Karshika Karma Senas (₹5 crore), and Infrastructural development works in Thrissur Ponnani Kole and Pamboorichal padasekharam for ₹298.38 crore and ₹5 crore respectively. An amount of ₹0.95 crore is sanctioned for undertaking studies by Department of Agriculture and VFPC.

Projects sanctioned under KIIFB

Project for establishment of Banana and Honey park and 'Establishment of Vegetable and Agro park' was sanctioned for ₹7.15 crore and ₹15.00 crore respectively under KIIFB.

Agriculture Research and Education

Kerala Agricultural University, the premier agricultural institute in the State mandates excellence in Agricultural Education, Research and Extension for Sustainable Agricultural Development and Livelihood security of farming community through its network of institutions comprising seven colleges, six Regional Agricultural Research Stations, 18 Research Stations and four Instructional Farms spread throughout the length and breadth of the State, besides the thirty one ICAR supported All India Coordinated Research Projects/All India Network Project implemented at various Colleges/research stations. They play a significant role in innovations and technology development for sustainable growth of agriculture including entrepreneurship and agribusiness.

Building climate resilience in Kerala agriculture through development of stress tolerant and short duration varieties of crops, developing technologies promoting input use efficiency, small farm mechanisation, precision farming with the aid of information technology tools, Market intelligence available on a real time basis, availability of quality bio inputs such as bio fertilizers and bio agents, developing alternatives to banned pesticides, Agro ecological unit based package of practices for major crops are some of the technological gaps identified in agriculture sector in the State.

Major Achievements

- Released new crop varieties namely, Rice (2 numbers) KAU Mithila and KAU Manu Varna, Vegetables (5 numbers) one each for ridge gourd (KRH 1), Winged bean (KAU Nithya), Yard Long Bean (KAU Deepika), Amaranthus (KAU Vaika) and Cluster bean (KAU Suruchi), Cashew (1) KAU Nihara, Coconut (1) Kerasulabha, pepper (Panniyur 10), Vettiver (1) (Bhoomika), and Bajra Napier Hybrid (Susthira).
- Development of a medium duration high yielding rice genotype Cul.C-2-08 from the cross between Jyothy X Swarna Prabha with

higher yield and multiple resistances for Kole lands of Kerala.

- IPR Cell-KAU received a National recognition as “special citation” from the Controller General of Patents, Designs and Trademarks on World IP Day for its remarkable achievements in GI related activities.
- Transfer of technology developed for Keradhara – KAU Coconut Milk Extractor, Coconut collector Foldable Nylon Net Type, Coconut collector welded mesh type, Palm Basin Digger, Udhyanamitra (KAU Garden Transplanter) and innovative micronutrient formulation Sampoorana for banana, rice and vegetables and Ayar.
- Developed minimum seed certification standards for Neelamari (*Indigofera tinctoria*), Kaipadavalam (*Trichosanthes cucumerina*) and Orila (*Desmodium gangeticum*).
- Developed standard operating procedure for authentication and adulteration detection in the raw drug of tree turmeric (*Coscinium fenestratum*).
- Formulated crop specific ready to use nutrient based substrates and production package for green roofs in urban agriculture.
- Identified compressed coir pith and FYM in 2:1 ratio as best soil less growth media in terms of physical characteristics.
- Developed treatments for increasing shelf life of Nendran, jackfruit and chilli.
- Developed twenty commercially important valuable anthurium hybrids
- Twenty two accession of Jack fruit are maintained in the field gene bank at Banana Research Station, Kannara
- Designed a mini polyhouse suitable for Kerala along with multi-tier grow bags with composting facility suitable for growing vegetables inside the mini polyhouse.
- A low cost poly house automation system capable of managing temperature and relative humidity separately and performing irrigation and fertigation operations was developed.
- Developed mobile app on cultivation of 100 major crops of Kerala containing information

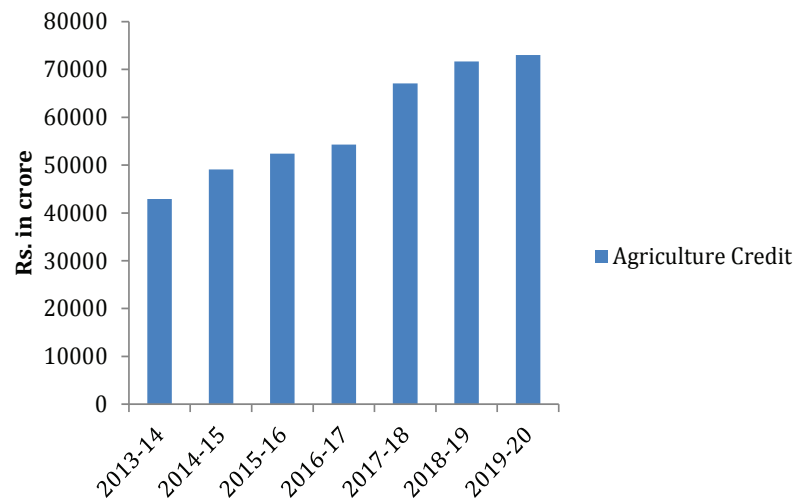
on crop production, plant protection, organic inputs, agro chemicals including contact directory and expert support.

- Developed the website containing information on pest and disease problems of 100 crop plants with photos and fertilizer and credit calculation facility.
- Agri Business Incubator of the Kerala Agricultural University incubated more than 9 startups in agricultural and allied sectors, helped with 4 Technology licenses to entrepreneurs, imparted training to 16 Agripreneurs and 28 Startup-incubatees.
- Innovative interface Mukhamukam enabling direct interaction of the farming community with an interdisciplinary team of scientists conducted 15 programmes with 741 farmers across the State.
- Formation of 7 Farmer Producer Organisations engaged in promoting location specific crop production, value addition and marketing of produce across the State with the involvement of Krishi Vigyan Kendras.
- Human-Wildlife conflict (HWC): An Elephant Intrusion Detection and Early Warning System (beta version) was developed. Changes in land use pattern in the last two decades in the HWC affected villages were analysed using GIS software. Generated baseline data on the HWC for the various Forest Divisions.
- Improving the food resources inside the forests, facilitating access to water for wild animals, fencing of farmlands, providing insurance coverage for crops and livestock and adequate and immediate compensation in decreasing order of priority are suggested as five best mitigation measures.
- Transfer of technology of the process protocol developed for steamed puttu powder, banana flour based ethnic health mix, Osmo-Vac dried intermediate vacuum dried Nendran Banana.

Finance to Agriculture

Credit is an important component for agricultural production. Since independence, credit occupies

Figure 3.1.5 Agriculture advances in Kerala from 2013-14 to 2019-20



Source: State Focus Paper 2020-21

an important place in the policy framework for development of agriculture in India. The banking system has been working closely with the State Government to ensure availability of timely and adequate credit to the needy farmer without any hassles. There is an increasing need to invest in agriculture because of a drastic rise in global population and changing preferences of a growing middle class in emerging markets towards higher value of agricultural products. In terms of RBI's direction on Priority Sector Lending-Targets and Classification, a target of 40 per cent of Adjusted Net Bank Credit (ANBC) or Credit Equivalent amount of Off-Balance Sheet Exposures (OBE), whichever is higher, has been set for lending to the priority sector by domestic scheduled commercial banks and foreign banks with 20 and above branches. Within this, a sub-target of 18 per cent of ANBC or Credit Equivalent amount of OBE, whichever is higher, has been prescribed to all domestic Scheduled Commercial Banks, including Small Finance Banks, for lending to agriculture.

Term loan lending to agriculture is an essential pre-requisite for long term development of agriculture sector as it aids the process of capital formation. In Kerala, advance to agriculture

sector has increased significantly over the last five years. There has been considerable increase in agriculture credit flow from ₹54,270 crore in 2016-17 to ₹67,089 crore in 2017-18 ₹71,632 crore in 2018-19 and ₹ 73,034 crore in 2019-20. In 2018-19, the total agriculture credit disbursed was ₹71,632 crore. Out of the total agriculture credit disbursement in 2018-19, ₹32,613.59 crore was disbursed by Commercial banks, ₹10,233.36 crore by Regional Rural Banks (RRB) and ₹13,476.96 crore by co-operative banks (**Table 3.1.5**). It shows that commercial banks continue to play a predominant role in the advance of credit in agriculture and allied activities (**Figure 3.1.5**).

The achievement in term loan was 140 per cent of the target fixed for 2018-19. The achievement of crop loan lending was only 98 per cent of the target fixed in comparison to the achievement of 113 per cent in 2017-18 and 103 per cent in 2016-17. Cooperatives lagged behind lending to agriculture, achieving only 58 per cent of the lending target in 2018-19. The reason for reduction in crop loan lending to agriculture is the stringent norms being followed in terms of agriculture gold loans thereby streamlining the same for the benefit of genuine farmers.

Table 3.1.5 Credit flow to Agriculture Sector in 2018-19, in ₹ crore

Sl No	Agency Name	Crop Loan			Term Loan			Total Agriculture loan		
		Target	Ach.	% Achievement	Target	Ach.	% Achievement	Target	Ach.	% Achievement
1	Commercial Banks	19073.18	21994.33	115.32	7812.01	10619.26	135.94	26885.19	32613.59	121.31
2	Co-operatives	13065.15	7514.37	58	5458.49	5962.59	109	18523.65	13476.96	73
3	Regional Rural Banks	5253.16	8275.51	158	1489.67	1957.84	131	6742.83	10233.36	152
4	Private sector commercial banks	8171.83	6518.22	79.76	4309.43	7815.85	181.37	12481.21	14334.07	114.84
5	Small Finance banks	70.47	294.70	418	179.28	679.60	379	249.75	974.29	390
	Total	45633.80	44597.12	98	19248.9	27035.15	140	64882.71	71632.27	110

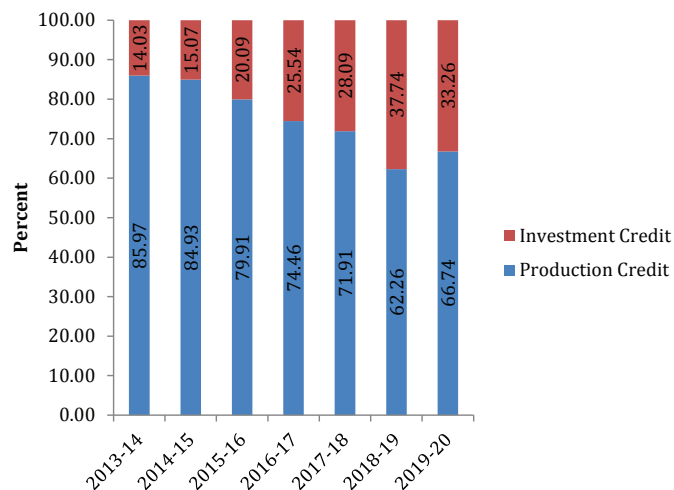
Source: State Focus Paper 2020-21

Investment Credit

As regards the breakup of total agriculture credit to production and investment credit, it can be seen that the share of investment credit has increased to 33.26 per cent of the total credit in 2019-20 from 14.03 per cent in 2013-14 (Figure 3.1.6 and Appendix 3.1.25). However the percentage has declined as compared to 2018-

19. In 2018-19, ₹27,035 lakh was disbursed as investment credit in the State which includes – Commercial banks ₹18,435.11 lakh, Co-operative banks ₹5962.59 lakh and RRBs ₹1957.85 lakh. In 2019-20, ₹73,034 crore was disbursed as total agricultural credit in the State, out of which ₹48743 crore as production credit and ₹24,291 crore was investment credit. Banks need to ensure that agricultural term credit is dispensed

Figure 3.1.6 Share of Production and Investment Credit in Total agriculture Credit in Kerala



Source: State Focus Paper 2020-21

to facilitate capital formation in agricultural sector (**Figure 3.1.6** and **Appendix 3.1.26** and **3.1.27**).

It is noted that there is a significant change in proportion of investment credit in the last few years. In 2006-07 production (short term) credit and investment (long term) credit constituted 81 per cent and 19 per cent of the total GLC (Ground Level Credit) flow to agriculture while in a span of 10 years the proportion of production and investment credit changed to 74 per cent and 26 per cent respectively. Short term credit was issued at a CAGR (Compound Annual Growth Rate) of 13 per cent and long term credit at a CAGR of 20 per cent.

The skewed ratio in favour of short term crop loan or production credit over the last several years has resulted in low investment in capital/productivity enhancing assets. Hence, a segmentation approach could be adopted in credit delivery whereby the segment-/sector-specific credit requirements were assessed and differential rates of interest were enabled through subvention (keeping in view the net income per unit from a particular segment/sector/ activity), to support activities that are critical but not picking up.

(Source: State focus Paper, NABARD-2019-20)

Agency-wise flow of total agricultural credit in 2018-19 shows that, commercial banks have disbursed the largest amount of credit (45.52 per cent) followed by Cooperatives (18.8 per cent) and by RRBs (14.28 per cent).

Agency-wise disbursement of investment credit to agriculture

The share of long term credit had increased from 28 per cent of total GLC to agriculture in 2017-18 to 38 per cent in 2018-19 pointing to increased importance of asset creation in agriculture which enables long term sustainable growth rates in the sector. The agency-wise disbursement of investment credit to agriculture credit in Kerala in 2018-19 is indicated in **Table 3.1.6** and **Figure 3.1.7**. The share of commercial banks stood at 68 per cent in total long term credit whereas the share of cooperatives was only 22 per cent. The share of RRBs and small finance banks in LT credit was 7 per cent and 3 per cent respectively.

Kisan Credit Card (KCC)

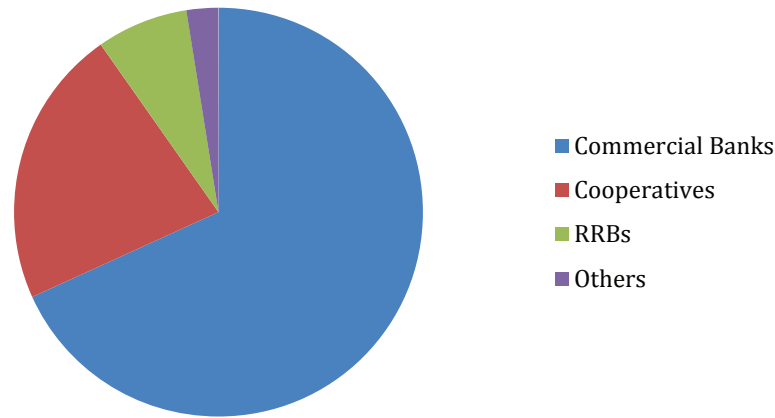
The KCC scheme was introduced in 1998-99 as a step towards providing adequate and timely credit to the farmers from the banking sector. As per the reports available with State Level Bankers Committee (SLBC), 6, 92,750 Kisan Credit Cards (KCCs) with an amount of ₹8386.29 crore has been issued in 2018-19 in the State. As per the revised guidelines for KCC, the KCC should be a smart card cum debit card which could be used in the ATMs/Hand held Swipe Machines. RuPay has come out with its RuPay KCC, which leverages the benefits of both KCC and RuPay. Unlike normal KCC which serves only as an identity card and facilitates recording of transactions on an ongoing basis, RuPay KCC is actually a smart card that can be used at the ATM/PoS for withdrawing cash. At present, issuance of RuPay KCC is on a pilot stage in Kerala (**Appendix 3.1.28**).

Table 3.1.6 Agency-wise disbursement of investment credit to agriculture in 2018-19

Sl No	Agency	Amount (in ₹ lakh)	Percentage
1	Commercial Banks	18435.11	68.19
2	Cooperatives	5962.59	22.05
3	RRBs	1957.85	7.24
4	Others	679.6	2.51
	Total	27035.16	100.00

Source: State Focus Paper 2020-21

Figure 3.1.7 Agency-wise disbursement of investment credit to agriculture in 2018-19



Source: State Focus Paper 2020-21

Long Term Rural Credit Fund (LTRCF)

As the share of long term investment credit in agriculture is declining over the years, hampering asset creation in agriculture activities will have an adverse effect on productivity in agriculture. Government of India has set up a “Long Term Rural Credit Fund” with NABARD for providing long term refinance support for investment credit in agriculture activities exclusively for Cooperative Banks and Regional Rural Banks (RRBs) at a concessional rate of interest. All State Cooperative Banks, State Co-operative Agriculture Development Banks (SCARDBs) and RRBs which are eligible to avail refinance facilities from NABARD, subject to their satisfying the eligibility criteria, are eligible for LTRCF. Automatic Refinance Facility will be extended without any upper ceiling of refinance quantum, bank loan or total financial outlay for all projects under agriculture sector. In 2019-20, NABARD Kerala regional office extended support to the tune of ₹10,701.06 crore to the State in the form of loan/refinance and also as grant support. Short term refinance accounted for 70 per cent of the total refinance disbursed in 2019-20 whereas long term refinance accounted for 30 per cent. The disbursement under ST-SAO (Short Term Seasonal Agricultural Operations) in 2019-20

was ₹2346 crore, ST-OSAO was ₹2050 crore and additional ST-SAO was ₹2400 crore.

Assistance from NABARD

NABARD, since inception, has prioritised its strategies for facilitating credit flow to rural infrastructure sector to fulfill its mission of rural prosperity through credit and related services. From the year 1995 onwards, NABARD is funding rural infrastructure projects through its flagship programme of Rural Infrastructure Development Fund (RIDF). NABARD Infrastructure Development Assistance (NIDA) has been designed to fund State owned institutions/corporations both on budget and off budget, for creation of rural infrastructure outside the ambit of RIDF borrowing. A project for development of 16 roads in four districts of Kerala namely, Kozhikode, Alappuzha, Thiruvananthapuram and Kannur was sanctioned to Kerala Infrastructure Investment Fund Board (KIIFB) in financial year 2016-17. The loan amount sanctioned was to the tune of ₹565 crore. An amount of ₹364.20 crore was disbursed under the project in 2019-20, taking the total disbursement under the project to ₹565 crore. A special fund of ₹2000 crore by the name of Food Processing Fund has been set up in NABARD by the Government of India to provide a fillip to the development

of food processing industry in India. In Kerala one project was sanctioned under Food Processing Fund in 2015-16. The project titled Implementation of Mega Food Park Project was sanctioned to Government of Kerala and is being implemented by M/s Kerala Industrial Infrastructure Development Corporation (KINFRA). The loan amount sanctioned and released to Government of Kerala for the project was to the tune of ₹28.34 crore. The tranche-wise sanction and disbursement under RIDF are shown in **Appendices 3.1.29** and **3.1.30**.

Despite the increase in the credit flow, one of the major issues is the outreach of adequate credit to the needy in time. The credit flow to the sector has been distorted by indiscriminate issue of agriculture gold loans without reckoning the end use of such credit. The ability of credit to induce agricultural growth is limited in the State because of various reasons. Hence, adequate attention should be given to building other capabilities required to promote agricultural growth such as productivity enhancement, expansion of infrastructure, higher public expenditure on agriculture and allied services, effective extension services and export competitiveness. In addition climate change risks also increases the need for higher investments in agriculture sector.

3.2 COOPERATION

The Cooperative sector has been playing a distinct and significant role in the process of socio economic development of the State with special focus on rural population and livelihoods. Cooperatives are powerful tools to mobilise natural, human and financial resources for development and in India it is considered as an instrument of democratic planning also. The cooperative movement accounts for 10 per cent of the world's employed population and there is a resurgence of interest in the cooperative development model as a way to achieve socially inclusive sustainable development. The development strategies of cooperatives in India also coincide with the remodelling of cooperatives globally, as the United Nations and International Labour Organisation have hailed cooperatives as a viable alternative in the wake of growing inequality across the world. The resilience of cooperative enterprises to the recent financial and economic crises has added to the appeal for cooperatives as democratically owned and controlled form of business. At a time when inclusive growth is being promoted for alleviating socio-economic disparities, co-operatives are the best organisations to achieve this objective.

Co-operative Movement in Kerala started even before the formation of Kerala State. After the integration of Travancore and Cochin, Travancore-Cochin Co-operative Societies Act 1951 came into force with effect from 1.9.1952. After the formation of Kerala State, the Kerala Co-operative Societies Act of 1969 came into

force with effect from 15.5.1969 in order to enact a uniform law on co-operation applicable throughout the State. Thereafter Government of Kerala passed the Kerala Co-operative (Amendment) Act 1999 which came into force with effect from January 1, 2000.

The total number of cooperatives is classified according to the area/nature of work, authorities/functions undertaken by them. At present, there are 15,892 co-operative societies in Kerala, functioning under the administrative control of Registrar of Co-operative Societies out of which 12,052 are working satisfactorily. Out of these, majority are consumer co-operatives (3807) followed by credit co-operatives (3369) and women co-operatives (935). In addition, there are marketing, housing, health and SC/ST co-operatives, but nearly half of them are either dormant or in loss. Details of the various types of co-operative societies are given in **Appendices 3.2.1 and 3.2.2.**

Credit Co-operatives

The credit co-operative societies are the most vibrant and viable ones in the State. The co-operative credit structure in the State comprises short term, medium term and long term credit. Upto November 28, 2019, the State had Kerala State Co-operative Bank at the State level and 14 District Co-operative Banks at District level. On November 29, 2019, the Registrar of Co-operative societies issued an order for the amalgamation of

13 District Co-operative Bank with Kerala State Co-operative Bank, based on the resolutions passed by General Bodies of respective District Co-operative Banks as provided under section 14A of KCS Act. With this, the present three tier short term co-operative structure within the State was converted into a two tier structure. From November 29, 2019, the short and medium term agricultural credit structure consists of the Kerala Bank and 1 District Co-operative Bank and 1643 PACS (Primary Agricultural Credit Societies) including FSS at the bottom level.

In the case of long-term credit, Kerala State Cooperative Agricultural and Rural Development Bank Ltd (KSCARDB) is at the apex level while the 78 Primary Co-operative Agricultural Rural Development Banks (PCARDB) form the lower level. KSCARDB is playing an important role in promoting capital formation in agriculture and rural sectors in the State through its long term investment loans. The survival of KSCARDB and affiliated PCARDBs in the long- run depends on their ability to raise funds at reasonable cost that permits financing of farmers and other rural sections at affordable interest rates and in offering a complete range of credit and financial services to them.

The basic features of cooperative banking system are the larger reliance on resources mobilised locally and a lesser and lesser dependence on higher credit institutions. The efficiency of the co-operative credit movement rests with the PACS functioning at the grassroot levels.

In 2019-2020, an assistance of ₹15.35 crore to 104 Primary Agricultural Credit Co-operative Societies was sanctioned. 10 weak PACS which were potentially viable have been rehabilitated by providing financial assistance of ₹170.50 lakh. For strengthening Core Banking facilities ₹389.36 lakh was sanctioned to 41 Primary Agricultural Co-operative Societies. Share capital base of 31 Employees Societies and 1 Urban Bank has been strengthened with an assistance of ₹16 lakh. Self Help Groups were promoted by granting ₹5.35 lakh as assistance through 9 PACS. Selected

indicators and credit operations of PACS are given in **Appendices 3.2.3, 3.2.4 and 3.2.5.**

Consumer Co-operatives

A consumer co-operative is a cooperative business owned by its customers for their mutual benefit. Consumer Co-operatives play an important role in providing consumer goods, medicines, stationery items etc. at subsidised rates to the consumers and shield them from the exploitation of the private retailers. In the State, Consumer Co-operatives act as the principal agencies in the public distribution system by providing essential and consumer articles to the general public at a reasonable rate, than the rate prevailing in the open market. The organisational set up under the consumer co-operative segment consists of the Kerala State Cooperative Consumer Federation (KSCCF) at the State or apex level, with 14 District wholesale stores and 4606 primary consumer stores at base level. The KSCCF makes bulk procurements and supplies these to District wholesale stores, department stores named *Triveni* and primary stores. The District wholesale stores and primary stores cater to the needs of consumers through their own outlets, super markets and department stores. They are also engaged in the retail business through their super markets. As on March 31, 2020, 4626 consumer cooperatives societies are registered in the State of which 3807 cooperatives societies are working.

Kerala State Co-operative Consumers Federation Ltd (Consumerfed) was established in 1965 as an apex body of Consumer Wholesale Co-operatives in Kerala. From the very inception the main role to be performed by Consumerfed has been the efficient distribution of essential commodities at reasonable prices as an agent of distribution. This role is performed by it through undertaking various retail activities such as purchasing, assembling, packing and sale of consumer goods through its own retail outlets and godowns known as *Triveni* Supermarkets. Another important role performed by Consumerfed is that of a price regulator of essential goods in the State.

This role is undertaken by Consumerfed through intervening in essential commodities market with its permanent mechanism (*Triveni* Stores) and through opening a number of temporary stores known as 'Special *Triveni* Markets' during important festival seasons in Kerala.

Triveni super markets are an important segment under consumer co-operatives intended to save the public from the exploitation of middlemen by supplying items such as food and groceries, cosmetics, household goods, electricals and textiles. *Triveni* Supermarkets and Mobile *Triveni* units are working under District level regional offices. There are 182 *Triveni* units and 47 Mobile *Triveni* units in the State. *Triveni* markets sales value increased to ₹355.6 crore in 2019-20 from ₹327.98 crore in 2018-19.

Consumerfed owns 36 foreign liquor shops and 3 beer shops all over Kerala. In 2017-2018, the business was ₹1604 crore and in 2018-2019 business reached to ₹1790 crore and in 2019-2020 it reached to 1821.60 crore.

The *Neethi* Scheme started as per directions of Government of Kerala in 1998 is being successfully implemented through 1,000 odd selected PACS in all the districts of Kerala for the distribution of consumer goods at the lowest prices, especially in rural areas. *Neethi* medical stores were started for providing medicines at subsidised rates. Consumerfed has 12 medical warehouses and 72 medical stores all over Kerala.

Vanitha Co-operatives

The Co-operative Movement has made a significant contribution to women's empowerment. The Kerala Women Co-operative Federation Ltd No.4440 (*Vanithafed*) is an Apex Federation of Primary Women Co-operative Societies. The main objective of the federation is to provide integrated credit and services to the beneficiaries through its member societies in an effective and co-ordinated manner for improving the social and economic conditions of women in the State. As on March 31, 2020, 1221 Women

Co-operative Societies are functioning, of which 935 societies are working, 261 are dormant and 25 are under liquidation.

Housing Cooperative Societies

In Kerala, Housing Co-operative Societies function in a two tier structure. As on March 31, 2020 there are 399 Housing Co-operative Societies. Out of these, 292 societies are working, 85 societies are dormant and 22 societies are under liquidation. The Kerala State Co-operative Housing Federation Ltd No. 4330 (HOUSEFED) is the apex body of the housing cooperatives. State Government and Primary Housing Cooperative societies are its members. In 2019-2020, ₹87 lakh as share capital assistance to 44 Primary Housing Co-operative Societies was distributed.

SC/ ST Co-operative Societies

Scheduled Caste/ Scheduled Tribe Co-operatives are organised and established for the socio economic development of the Scheduled Caste and Scheduled Tribes in the State. The development of SC/ST cooperatives in the State is essential to uplift the poor families of SC/ST categories. As on March 31, 2020, there are 826 Scheduled Caste/ Scheduled Tribe cooperative societies of which 414 are working. An apex institution of primary SC/ST cooperatives known as Kerala State Federation of Scheduled Caste and Scheduled Tribe co-operative is functioning.

Marketing Co-operatives

Marketing cooperatives are mainly engaged in marketing of agriculture products. They have a special importance in Kerala economy because marketing is a major issue faced by farmers. They are organised in two tier structure in Kerala Marketing Federation at the apex level and primary marketing societies at the base level.

Marketing Sector is spearheaded by the Apex institution of primary marketing societies known as Market fed (Kerala State Co-operative Marketing Federation), and the apex body of

primary rubber marketing societies known as Rubber Mark (Kerala State Co-operative Rubber Marketing Federation). Since its inception as an apex body of primary marketing societies in Kerala, Market fed has been striving to provide better marketing facilities, fair prices for their produces even direct purchase of the commodities whenever required, eliminating middlemen and intermediaries, distributing agricultural inputs on easy terms of payment, exploring and establishing export markets for our traditional produces like black pepper, cardamom, turmeric, dry ginger and cloves.

Education, Research and Training

The Co-operative Academy of Professional Education (CAPE), was formed to establish Educational Institutions in various professional fields to provide facilities for Education and Training. The Co-operative Academy of Professional Education is promoted by the Co-operation Department of the Government of Kerala and is an autonomous society under Government of Kerala. Under CAPE, 9 Engineering colleges and an MBA college and a finishing school, at Punnapra are working giving opportunity to above 12000 students to pursue higher studies. Steps have been taken to develop research studies in co-operative sector through the Agricultural Co-operative Staff Training Institute (ACSTI). 1446 department officials have been given training by conducting 62 Training Programmes in 2019-20.

Deposit Mobilisation Campaign by Co-operative Sector

To attract deposits in the co-operative sector and to attract the youth towards the co-operative sector, the Co-operation Department is organising deposit mobilisation campaign every year. 40th Deposit Mobilisation Campaign was conducted from January 1, 2020 to March 2020 with a target of ₹6000 crore. During this campaign, the deposit of co-operative sector increased to ₹2,14,481.63 crore from ₹2,05,039.86 crore in the previous year. An amount of ₹94,41.76

crore was mobilised against the target of ₹6000 crore in Deposit Mobilisation Campaign 2020. Year-wise target and achievement is given in **Appendix 3.2.6**.

Achievements in 2019-2020

Kerala Bank

The Government of Kerala has taken a policy decision to convert the three tier short term co-operative structure within the State into a two tier structure. The Reserve Bank of India had conveyed their consent for the amalgamation of 13 District Co-operative Banks who approved the scheme of amalgamation with Kerala State Co-operative Bank. Accordingly, from November 29, 2019 onwards, Kerala State Co-operative Bank and 13 District Co-operative Banks are functioning as a single entity with Brand Name "Kerala Bank".

The Head Office of the Bank is at Thiruvananthapuram, Corporate Business and Liaison Office at Ernakulam, Seven Regional Offices (each for two adjacent Revenue Districts) at Thiruvananthapuram, Alappuzha, Kottayam, Thrissur, Palakkad, Kozhikode and Kannur, Credit Processing Centres (CPC) at each District Head Quarters and Branch Offices across the State. The bank operates through a network of 769 branches.

Care Kerala

In the wake of devastating flood of August 2018, the co-operative department has formulated a project CARE Kerala (Co-operative Alliance to Rebuild Kerala) to provide relief and rehabilitation to flood affected people. Three schemes were included in the project, CARE Home, CARE loan and CARE Grace. The most important scheme under the project is CARE home. Under this scheme houses are being constructed for the flood affected people who possess suitable land with the cooperation and support of cooperative institutions.

Government gave permission to construct 2092 houses under the scheme, all over the State. Under this scheme each house has to be built at a cost of rupees five lakh, which includes the amount allotted to the beneficiaries from State Disaster Response Fund (SDRF). In addition to this amount, the beneficiaries can utilise their own fund. Voluntary contributions (cash/kind) from cooperatives, general public are also accepted for this construction. Now the Co-operative department has started the second phase of CARE Home project and also implements CARE Grace Project. In the second phase, the aim is to construct 14 collective dwellings (flat) for the landless and homeless people, where the land is allotted by the Government. Under CARE Grace Project it is decided to provide welfare activities to the family members who live in Care home houses. This project is in final stage.

Social Security pension

A consortium has been set up at the State level to provide welfare pension under the Social Security Pension Scheme of the State Government and funds have been raised from the co-operative societies in Kerala. The money is disbursed through collection agents of the co-operative banks. Welfare pensions such as agricultural workers pension, old age pension, disability pension, unmarried women's pension and widow pension are distributed. At present, co-operative societies have invested ₹6803.37 crore in the consortium for the distribution of social security pension. A total of ₹1649.04 crore was distributed in this financial year.

Comprehensive Health care Project to the Attappady Tribal Population

The Pilot project is implemented by Cooperative department along with EMS Cooperative Hospital and Research Centre, Perinthalmanna. It aims to improve the overall health conditions of the tribal people in the Attappady region with the cooperation of Primary Health Centres and OP clinics under the Health Department. Under this free/subsidised rate treatment to

the people of Attappady region along with access to super speciality facilities of the EMS Cooperative hospital and research centre will be given. Also a free early disease detection camp will be undertaken and those who need further treatment will get treatment free of cost. The project has an outlay of ₹12.5 crore with the target span of 5 years. Under this project, 4826 patients had undergone treatment upto March 31, 2020, 4 mega medical camps were organised in Attappady and as many as 1384 persons were treated.

Muttathe Mulla

In order to strengthen the co-operative movement for eliminating the private money lenders who are trying to tighten their grip in the rural areas, a new scheme Muttathe Mulla was introduced in 2018 to protect the common people from private money lenders. The project is implemented through Kudumbasree units. Upto March 31, 2020, ₹541.54 crore was given to Kudumbasree units through co-operative societies.

KRITHI 2020 (Kerala Initiative for Thinking Interactiveness)

To bring the literary lovers across the globe together through an international platform, the 10 day long fest of first edition of the International Book Fair namely KRITHI - 2018 was organised by Department of Co-operation in association with Sahitya Pravarthaka Co-operative Society (SPCS). In 2020, the third edition namely KRITHI- 2020 was held in February 6 - 16, 2020.

New initiatives/schemes

India International Co-operative Trade Fair -2019

India International Co-operative Trade Fair was India's first and the largest International Co-operative trade fair. The main aim of this IICTF was to promote co-operatives to co-operative trade, both domestic and international. The fair

focused on agriculture and allied sector produce by co-operatives which will bring direct benefits to members of co-operative societies. It was an ideal platform to showcase the outstanding achievements of our State to the world by facilitating greater access to the produce from our State.

The main participants in this fair from the State of Kerala were Uralungal Labour Contract Co-operative Society, Market fed, Consumer fed, Hospital fed, Rubber Marketing Federation, State Co-operative Bank, RAIDCO, RUBCO and 27 other co-operative societies. In addition to this Matsyafed and Coirfed controlled by the functional registrars also participated in the fair.

Formation of new co-operative societies

For the welfare of transgenders, the State's first Transgenders Welfare Co-operative Society LTD No.4498 was registered on November 02, 2019. Similarly State's first Pravasi Kshema Vikasana Co-operative Society LTD No.4499 was registered for the welfare of pravasis on December 21, 2019.

Branding of Products produced under co-operatives

The Co-operative Department has proposed to introduce a common branding for co-operative products for ensuring the quality of the co-operative products produced and procured by the societies in Kerala. The Government of Kerala also proposes to establish a testing laboratory to give assured quality mark after testing the product regularly, initiate a common platform for marketing the products of co-operative institutions in national and international markets and provide online marketing facilities. The Government has decided to open 3 outlets for selling co-operative produce in 3 major cities of Kerala.

PAPCOSM (Palakkad Paddy Procurement Processing and Marketing Co-operative Society Ltd No. P.1449)

Palakkad Paddy Procurement Processing and Marketing Co-operative Society Ltd No. P.1449 (PAPCOS) is a co-operative society registered on January 29, 2019 in Palakkad District with an area of operation comprising the entire District. It has 36 Service co-operative banks of Palakkad District as its members. The society has a paid up share capital of ₹1370 lakh. The main objective of the society is to help the farmers in Palakkad District by procuring paddy as soon as it is harvested and making the payment at the time of procurement itself. This enables the farmers in avoiding a distress sale to intermediary sellers. Procured paddy is then processed and marketed as branded in all panchayats through door to door sales.

Support by National Cooperative Development Corporation

National Co-operative Development Corporation (NCDC), a statutory organisation established by the Government of India under an act of Parliament, is given the function of planning and promoting programmes for the production, processing, marketing, storage, export and imports of agricultural produce and notified commodities and for distribution of agricultural production requisites through co-operatives. NCDC has emerged as a developmental and promotional financing institution for the co-operative sector in the country. It has disbursed a cumulative financial assistance of 8302.589 crore for various co-operative development projects as on March 31, 2020. Of this, ₹2012.41 crore is through State Government and ₹6290.18 crore is via direct funding. Also, out of the 8302.58 crore ₹1791.35 crore is long term loan and only ₹73.36 crore is subsidy. The amount given as working capital was ₹6437.88 crore. Types of NCDC Assistance are shown in **Appendix 3.2.7**. Sanctions and release of NCDC funds to Kerala for 2019-20 was ₹450.73 crore and ₹363.89 crore

Box 3.2.1 Covid-19 Related Programmes

CM's Helping Hand Loan Scheme – CMHLS

Hon'ble Chief Minister of Kerala announced a loan scheme named as CM's Helping Hand Loan Scheme (CMHLS) through Neighbourhood Groups from April 2020 onwards. The Registrar of Co-operative Societies has issued directive as per circulars 30/2020 and 37/2020 for the implementation of the scheme through co-operative societies.

The Scheme provides financial assistance as an emergency relief to people directly or indirectly affected by the Covid-19 pandemic. This includes those who have lost their jobs, lost their business and lost their income because of the lockdown. Loans up to a maximum of ₹20,000 per member are given depending on the financial hardship of the Neighbourhood Groups family because of Covid-19 and their financial status.

Special Liquidity Facility (SLF) Loan

In the wake of Covid-19 pandemic, NABARD has made available a Special Liquidity Facility for providing front ended liquidity support with a view to ensure unhindered flow of credit from the banks to carry out their agricultural operations and an amount of ₹1500 crore has been sanctioned to KSCB as financial assistance under the scheme to be distributed to the beneficiaries through member PACS in the State. The Registrar of Co-operative Societies has issued directives through circulars 46/2020 and 43/2020.

The project period is from May to June 2020. The financial assistance provided to various departments under the scheme is in the ratio of Agriculture – (60 per cent), Animal Husbandry- (10 per cent), Dairy Development – (10 per cent), Fisheries-(5 per cent) and industry-(15 per cent).

Loan will be sanctioned for short term agricultural production and agro related activities (for livestock, dairy, fisheries, poultry, paddy, vegetable cultivation) and for MSME units (micro, small and medium enterprises) for working capital requirements, and will be disbursed through all primary agricultural credit co-operative societies having no default in loan repayment.

Subhikshakeralam

Subhikshakeralam is a combined project of Agriculture, Animal husbandary and Dairy Development departments. Through this '*Mathruka krishithottam*' is constructed through Primary Agricultural Co-operative Societies (PACS) by taking minimum of 50 cent land. Financial assistance is given as loan through Co- Operative Societies. Special Liquidity Facility (SLF) loan given from NABARD also can be utilised for this project. Upto September 30, 2020 a total of 848 societies constructed 1838 *krishithottams* in 3189.465 acers.

respectively. Details of NDCD assistance are given in **Appendices 3.2.8** and **3.2.9**.

NCDC assisted Programmes

Integrated Co-operative Development Project (ICDP)

Integrated Co-operative Development Project (ICDP) is a unique scheme assisted by NCDC for

comprehensive and integrated development of selected Districts through co-operative network. The ICDP was introduced by NCDC in the 7th Five-Year Plan for the overall development of selected Districts through co-operative efforts in the sphere of agriculture and allied sectors. The other objectives of the scheme are to develop PACS to viable multipurpose societies by increasing value and range of business,

strengthening the existing co-operative structure by providing vertical and horizontal linkages among revamping the agricultural and credit sector to cater to the needs of small and marginal farmers and weaker sections. Moreover Human Resources Development (HRD) initiative to restore the principle of co-operative Movement is another objective of the scheme. Currently the second phase of ICDP is being implemented in three districts, Idukki, Palakkad and Thrissur.

The co-operative movement in Kerala has a solid foundation and impressive track record in terms of financial stability and sound infrastructure to generate adequate funds. The past few decades have witnessed substantial growth of the cooperative sector in diverse areas of the State's economy. The vibrant cooperative credit structure in the State has withstood the challenges posed by the commercial banks and have carved out a level playing field for themselves in the era of high competition. The wide network of co-operatives are engaged in various promotional activities particularly in agricultural credit, public distribution system, distribution of agricultural commodities, marketing, agro-processing, consumer activities, public health, education, housing, insurance and infrastructure development, SC/ST development, women development, Service, Textiles, Handloom, Coir, Dairy and Industries. They play a vital role in the socio-economic upliftment of the people particularly the weaker and down trodden in rural areas.

3.3 LIVESTOCK

Animal Husbandry is a vital sector for ensuring a more inclusive and sustainable agriculture system and plays a pivotal role in the economic development of the country by enhancing farmers' income. It also provides gainful employment in the rural sector particularly among the landless farmers, small and marginal farmers, women, and weaker sections. It acts as both a supplementary and complementary enterprise.

Contribution to the National and State Economy

The livestock sector contributes substantially to the economy. As per the Paripex-Indian Journal of Research, volume 6, issue 1, "Contribution of Livestock Sector to Indian Economy", about 20.5 million people depend upon livestock for their livelihood. The sector contributes 16 per cent of the income of small farm households as against an average of 14 per cent for all rural households and provides livelihood to two-third of the rural community. It also provides employment to about 8.8 per cent of the population in India and percentage of area used for all types of livestock farming was 1.69 per cent. Our country has vast livestock resources and contributes 4.11 per cent of GDP and 25.6 per cent of total agricultural GDP.

The rural women play a significant role in animal rearing and are involved in operations namely, feeding, breeding, management, and health care. The livestock sector has emerged as one which generates employment and income security

to women through micro enterprises. Women constitute 71 per cent of the labour force in livestock farming. In dairying, 75 million women are engaged as against 15 million men, while in the case of small ruminants, the sharing of work with men is almost equal. The need for technology upgradation, skill enhancement through capacity building programmes is felt across the sector.

In Kerala, the livestock sector is prominent and one of the fastest growing sectors of the rural economy. The share of livestock in Gross State Value Added (GSVA) at constant prices from the agriculture sector shows a marginal decrease from 26.97 per cent in 2018-19 to 26.67 per cent in 2019-20. Though GSVA at constant prices from the sector has increased in absolute numbers, its share in total GSVA of the State has declined marginally from 2.38 per cent in 2018-19 to 2.14 per cent in 2019-20.

Livestock Population – India

India's livestock sector is one of the largest in the world and plays a crucial role in improving the socio-economic conditions of the rural masses. The significance is also evident from the leading position that India enjoys in world milk production. As per 20th Livestock Census (2019), the total livestock population of the country is 535.78 million showing an increase of 4.6 per cent over Livestock Census 2012. It includes 302.79 million bovine population (which includes cattle, buffalo, mithun, and yak) which recorded

Table 3.3.1 Livestock and Poultry Population in India, in lakh

Sl. No.	Species	17th Livestock Census 2003	18th Livestock Census 2007	19th Livestock Census 2012	20th Livestock Census 2019	Growth Rate 2012-19
1	Cattle	185.2	199.1	190.9	192.49	0.83
2	Buffalo	97.9	105.3	108.7	109.85	1.0
3	Yaks	0.1	0.1	0.1	0.058	-24.67
4	Mithuns	0.3	0.3	0.3	0.39	30
	Total Bovines	283.4	304.8	300.0	302.79	0.92
5	Sheep	61.5	71.6	65.07	74.26	14.12
6	Goat	124.4	140.5	135.2	148.88	10.12
7	Pigs	13.5	11.1	10.3	9.06	-12.04
8	Other animals	2.2	1.7	1.48	0.79	-46.62
	Total Livestock	485	529.7	512.05	535.78	4.63
9	Poultry	489	648.8	729.2	851.81	16.81

Source: Annual Report 2018-19, Department of Animal Husbandry, Dairying and Fisheries, GoI, 20th Livestock Census (2019)

an increase of 0.93 per cent over the previous census. The total number of cattle in the country is 192.49 million showing an increase of 0.8 per cent over the previous census.

The species-wise population of animals in livestock and poultry population in the last four Censuses is given in **Table 3.3.1** and distribution of livestock population in the country is shown in **Figure 3.3.1**.

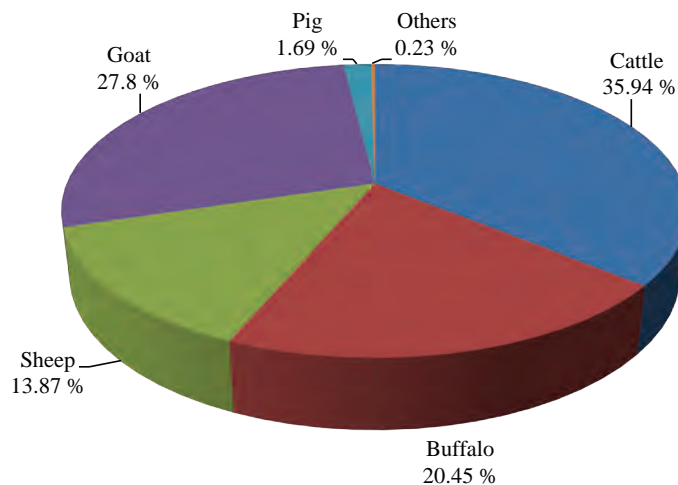
Livestock Population – Kerala

The 20th Livestock Census in Kerala was conducted in February 2019 in Kerala, the

Panchayat wards in rural areas and municipal/corporation wards in urban areas were the basic units of enumeration. Census was conducted in 15,962 rural Panchayat wards and 3527 municipal/corporation wards. As many as 15 types of animals, eight types of fowls, stray dogs, stray cattle etc., are enumerated and breed-wise enumeration carried out in all wards. The details of the slaughter house were also collected. The Fisheries statistics, which was not a feature in the previous census, were incorporated in the 20th Livestock Census.

As per 20th Livestock Census (2019), the livestock population in the State was 38.36 lakh.

Figure 3.3.1 Distribution of Livestock population in the country



Source: 20th Livestock Census (2019)

Table 3.3.2 Livestock and poultry population in Kerala, in lakh population

Species	2012	2019	Percentage variation from 2012 to 2019
Cattle	13.28	13.42	1.02
Buffalo	1.02	1.01	-0.71
Sheep	0.01	0.01	0
Goat	12.46	13.59	9.07
Other animals	12.11	10.33	-14.69
Total Livestock	38.88	38.36	-1.34
Poultry	238.45	298.18	25.05
Total	277.34	336.54	21.35

Source: Livestock Census 2019

It was 1.34 per cent less than the last census 2012. The poultry population was 298.18 lakh, which accounts for 3.5 per cent of the total poultry population in the country. It registered a 25 per cent increase over the 19th Livestock Census. Growth rate of poultry population in Kerala is higher than the growth rate recorded at the national level (16.81 per cent). Kerala ranks 9th among the States in poultry population of the country. Details of species-wise livestock and poultry population in Kerala is shown in the **Table 3.3.2**

Major Department/Agencies under Animal Husbandry and Dairy Development Sector in Kerala

- Animal Husbandry Department
- Dairy Development Department
- Kerala Livestock Development Board (KLDB)
- Kerala Feeds Limited
- Meat Products of India (MPI)
- Kerala State Poultry Development Corporation (KSPDC)
- Kerala Co-operative Milk Marketing Federation Ltd (MILMA)
- Kerala Veterinary and Animal Science University (KVASU)

Financial Performance of Livestock Sector in Kerala is shown in the **Table 3.3.3**.

Major Livestock Products in Kerala

Milk, meat and egg are the major livestock products in the State. The production of these

three livestock products from 2012-13 to 2019-20 is shown in **Figure 3.3.2**.

Milk Production

India continued to be the largest milk producing country in the world. At the national level, the milk production has increased from 17.63 crore tonnes in 2017-18 to 18.77 crore tonnes in 2018-19 registering a growth of 6.5 per cent, sustaining the trend over the past three decades. The per capita availability of milk has been increasing in India over the years and increased to 394 gram in 2018-19. The highest per capita availability is in Punjab (1181 gram per day) followed by Haryana (1087 gram per day). The highest producer of milk is Uttar Pradesh with 16.3 per cent of total milk production in the country, followed by Rajasthan (12.6 per cent). The species-wise milk production shows that nearly 35 per cent of total milk production is contributed by indigenous buffaloes followed by 26 per cent by cross-bred cattle. The indigenous cattle contribute 11 per cent of the total milk production. Goat milk shares a contribution of 3 per cent in the total milk production across the country.

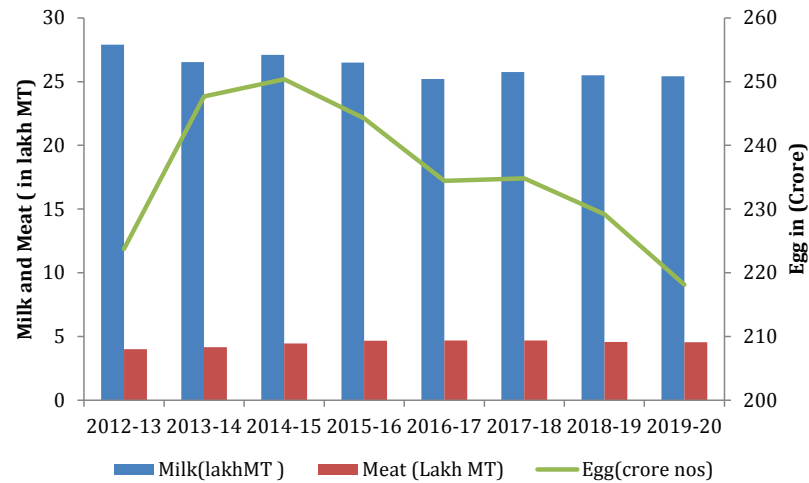
The total requirement of milk in Kerala in 2019-20 was 33.22 lakh MT, but the supply was only 25.42 lakh MT resulting in a deficiency of 4.65 lakh MT milk. This necessitated an import of 3.15 lakh MT. Out of 25.42 lakh MT of milk produced in the State, major share was produced by cross bred cows (93.25 per cent).

Table 3.3.3 Financial Performance (13th Five-Year Plan) – Animal Husbandry Sector, in ₹ lakh

Department/ PSUs	Annual Plan 2017-18			Annual Plan 2018-19			Annual Plan 2019-20			Annual Plan 2020-21		
	Outlay	Expenditure	%	Outlay	Expenditure	%	Outlay	Expenditure	%	Outlay	Expenditure (upto October 10, 2020)	%
Animal Husbandry Department	18528.00	15135.67	82	19036.00	15556.50	82	18193.00	11574.48	64	15570.00	7347.55	47.2
KLD Board	2083.00	2083.00	100	2141.00	2141.00	100	2382.00	1000.00	42	2150.00	1101.11	51.2
Kerala Feeds Limited	700.00	501.00	72	785.00	199.00	25	601.00	0.00	0	1100.00	889.58	80.9
Meat Products of India	917.00	187.91	20.5	1200.00	280.00	24	1200.00	149.7	12.5	963.00	770.00	80
Kerala State Poultry Development Corporation	1757.00	757.00	43.1	1767.00	300.00	17	820.00	573.60	70	750.00	238.64	31.8
KCCMF	743.00	743.00	100	774.00	774.00	100	774.00	774.00	100	750.00	0	0
KVASU	6100.00	4225.00	69.3	7800.00	1500.00	19	7500.00	1500.00	20	5800.00	1100.00	19
Total	30828.00	23632.58	77	33503.00	20750.50	62	31470.00	15571.78	49.5	27083.00	11446.88	42.3

Source: Kerala State Planning Board, Annual Plan 2017-18 to 2020-21

Figure 3.3.2 Production of milk, egg, and meat from 2012-13 to 2019-20

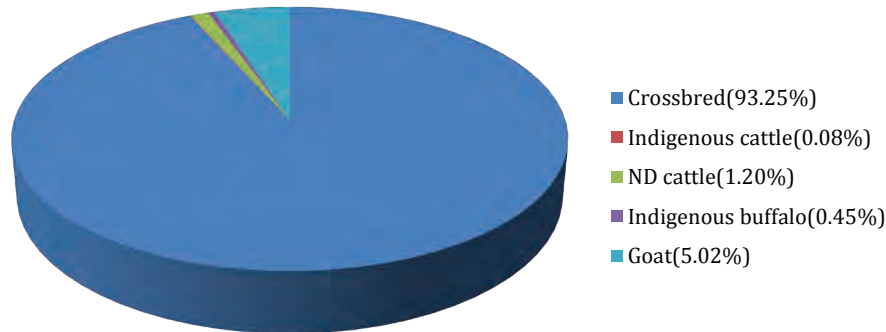


Source: Animal Husbandry Department, GoK 2020

Indigenous cows produced only 1,949 lakh MT of milk (0.08 per cent). The production of milk from goat was 1.28 lakh MT (5.02 per cent). The rest was contributed by non-descript cattle,

indigenous buffalo and non-descript buffalo. Details of species-wise milk production in Kerala in 2019-20 is provided in **Figure 3.3.3**.

Figure 3.3.3 Species-wise milk production in Kerala, 2019-20



Source: Animal Husbandry Department, GoK 2020

Egg Production

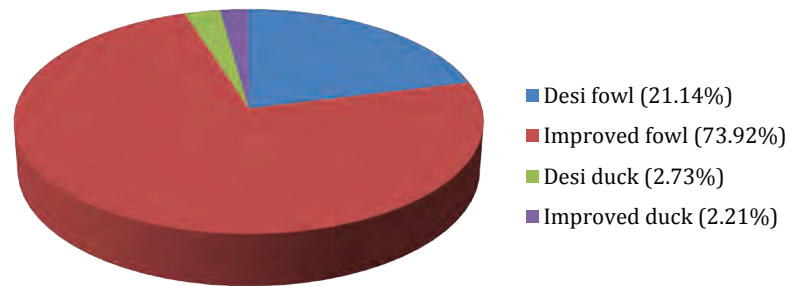
Poultry production in India has taken a quantum leap in the last four decades, emerging from an unscientific farming practice to a commercial production system with State-of-the-art technological interventions. Total egg production in India has increased from 9,520 crore in 2017-18 to 10,332 crore in 2018-19, registering a growth of 8.5 per cent. Similarly, there has been a steady increase in per capita availability of eggs since 2000-01. It has increased to 79 eggs per annum in 2018-19 but the per capita consumption was around 70 eggs per annum. The largest producer of eggs is Andhra Pradesh, which produces 19.1 per cent of total egg production in the country, closely followed by Tamil Nadu (18.2 per cent) and Telangana (13.2 per cent). Other States that contributed more than 5 per cent of the country's egg production were West Bengal (8.3), Haryana (5.9), and Kerala (2.2). The highest per capita availability of egg is in Andhra Pradesh (372 eggs per annum) followed by Tamil Nadu (265), Haryana (224), Punjab (191), Karnataka (95), and West Bengal (88) which are significantly higher than the national average. The improved fowl breeds contribute 87.33 per cent of the production of egg. 11.52 per cent is from indigenous fowls. The indigenous duck and improved duck breeds

contribute 0.89 per cent and 0.26 per cent respectively with respect to total egg production.

Kerala ranks 10th among the States of India in egg production. The production of eggs in Kerala has witnessed drastic changes during the 12th Five-Year Plan period. The total egg production in the State was at 224 crore eggs in the year 2012-13, then continued to rise over the period and reached at 250 crore eggs in the year 2014-15. Since then, it declined to 244 crore in 2015-16 and further to 234 crore in 2016-17. In 2017-18, the total eggs produced had slightly increased to 235 crore but then again declined to 229 crore in 2018-19. In 2019-20 the total eggs produced in the State further declined to 218 crore. The per capita egg availability has fallen from 69 eggs per annum in 2016-17 to 62 eggs per annum in 2019-20. The per capita consumption in 2019-20 was 128 eggs per annum. The annual growth rate of egg production was 8.5 per cent. The total eggs produced in the State were 218.12 lakh eggs, import of egg through rail/road/air was 254.84 but the requirement was 531.58 lakh eggs, resulting in a deficiency of 58.63 lakh eggs.

About 73.9 per cent of the total eggs produced in the State is from improved fowl and around 21.1 per cent is from desi fowl. The contribution

Figure 3.3.4 Species-wise poultry production in Kerala, 2020



Source: Animal Husbandry Department, GoK, 2020

of desi duck and improved duck to the total egg production of the State is 2.7 per cent and 2.2 per cent respectively. 99.7 per cent of eggs produced in the State come from backyard poultry. Commercial poultry contributes a very small share (0.27 per cent), warranting emphasis on backyard poultry in future. For backyard poultry, the average yield per year for desi fowls and desi ducks are 138 eggs and 171 eggs per year. With regard to improved fowls, and improved ducks the average yield is 217 eggs and 167 eggs per year. The details of species-wise poultry production in Kerala is shown in **Figure 3.3.4**.

Prior to lockdown, about 70 lakh eggs were imported on an average per day. As per this trend, during the lockdown, 63 crore eggs were required to be imported to the State. However only 42 crore eggs were imported to the State, showing a reduction of 33 per cent of egg import. The above reduction has not been effected in the market as consumption of eggs has been restricted to the households.

The Animal Husbandry sector in Kerala has to attain a greater degree of self-sufficiency in egg and meat. It is essential to reduce the dependency on outside States on eggs and to produce an additional 75 lakh eggs per day in the State.

Meat Production

Meat production has witnessed a steady increase since 2007-08 in the country. The total meat production in India increased from

77 lakh tonnes in 2017-18 to 81 lakh tonnes in 2018-19 reporting a growth rate of 5.2 per cent. The largest producer of meat in the country is Uttar Pradesh producing 15 per cent of the total meat followed by Maharashtra (12.6 per cent), West Bengal (10.2 per cent), Andhra Pradesh (9.6 per cent), Telangana (9.3 per cent), and Kerala (5.6 per cent), which together contribute 57 per cent of total meat production in the country. Species-wise meat contribution shows that nearly 50 per cent of meat production in the country is contributed by poultry. Maharashtra, Tamil Nadu, and West Bengal are the largest producers of poultry meat in the country. Buffaloes and goats contribute 19 per cent and 14 per cent respectively to the total meat production in India.

In Kerala, meat production shows a stagnant level of 4.69 lakh MT in the previous two years and declined to 4.57 lakh MT in 2018-19 and 4.55 lakh MT in 2019-20 showing a negative growth. Kerala is the 8th largest meat producing State in the country contributing 5.6 per cent of meat produced in India. The total requirement of meat in Kerala was 4.92 lakh MT; the supply was only 4.55 lakh MT and 0.28 lakh MT of processed meat was imported, resulting in a deficiency of 0.09 lakh MT meat.

Meat Production in the State has been drastically affected by Covid-19 as 60 per cent of animals slaughtered in the State are imported from neighbouring States. A scheme to encourage

growing of male calves should also be thought of in this regard. There was a reduction of 0.22 lakh MT in meat production during the lockdown resulting in a loss of ₹600 crore. Given the reduction in meat production, it is also essential to expand the “Kerala Chicken” scheme over the next five years.

Kerala Chicken

‘Kerala chicken’ is a Rebuild Kerala initiative (RKI) of the State at a project cost of ₹63.10 crore intended to supply safe broiler chicken at reasonable price to the consumers and to develop a viable livelihood vocation to the farmers. The project envisages to establish 2600 broiler rearing farms and 240 Kerala chicken sales outlets across the State and also to establish breeder farms, rendering plants for waste management, processing plants, reefer vans, testing facility for meat quality analysis under various stakeholders, namely, Animal Husbandry Department, Kudumbasree, Kerala State Poultry Development Corporation (KSPDC), Meat products of India (MPI), Brahmagiri Development Society (BDS), Kerala Veterinary and Animal Sciences University (KVASU) and Local Self Government Department (LSGD).

Milk Marketing

Kerala is one of the States in the country, which gives the highest price for milk to the farmers. Kerala Co-operative Milk Marketing Federation (KCMMF), the apex body of the three tier dairy co-operatives, implements the Operation Flood Programme in the State. The sale of milk by Kerala Co-operative Milk Marketing Federation (MILMA) shows a decrease in the current year. In 2019-20, a total of 6,789 lakh litres of milk was procured by the dairy co-operative societies in the State, of which 4,516 lakh litres were sent to the dairies and 2,246 lakh litres were marketed locally by the societies. The average milk poured per day by Anand Pattern Co-operative Societies (APCOS) in 2019-20 was 1415 MT against the previous year average of 1528 MT. The procurement/day/society in 2019-20 decreased

to 440 litres from 501 litres in 2018-19. The procurement and sale of milk by Kerala Co-operative Milk Marketing Federation (KCMMF) was 3940.76 lakh litres and 4466.27 lakh litres respectively in 2019-20. Except in Ernakulam, Palakkad and Wayanad, sales of milk exceeded procurement. The shortfall between milk procurement and sales was met by arranging milk mostly from State Milk Federations of Karnataka, Tamil Nadu and purchase of skimmed milk powder. Details on procurement and sale of milk by different dairies of KCMMF, performance of KCMMF, and milk procured by APCOS are shown in **Appendices 3.3.1, 3.3.2 and 3.3.3**. The price revision and price spread of milk from 2010 onwards is given in **Appendices 3.3.4 and 3.3.5**, respectively.

It is essential to undertake a study of the existing marketing and supply chains in the milk, meat and egg sectors of the State, and initiate measures to remove bottlenecks from the producer to the consumer. The use of modern IT infrastructure to develop marketing network of milk, meat and eggs in the State needs to be encouraged. This includes linking up of all dairy cooperatives in the State under a single interconnected software.

Feed and Fodder Base

To support the development of livestock sector, special focus has been given to fodder and feed production considering the wide gap in the availability of the critical inputs. The Dairy Development Department is the nodal agency for fodder development activities in the State. Under the scheme, production and conservation of fodder in farmer fields and dairy co-operatives, commercial and massive fodder production in barren lands and wastelands has been initiated. The lands which are fertile yet remain underutilised under the ownership of progressive farmers, other individuals, LSGDs and PSUs are selected and intensive fodder cultivation activities are taken up. In 2019-20, fodder cultivation was taken up in 1691 ha of land. 3.57 lakh metric tonne of additional production was recorded and 391.7

lakh fodder root slips/stem cuttings were supplied. Besides, assistance was provided to farmers for Azolla cultivation, mechanisation of fodder cultivation and harvesting and irrigation facilities. The total production of cattle feed in 2019-20 was 3.61 lakh metric tonnes as against 3.42 lakh metric tonnes in 2018-19. The details of production of feed and fodder are shown in **Appendices 3.3.6, 3.3.7, and 3.3.8**, respectively.

Kerala Feeds Ltd, a public sector undertaking under the Animal Husbandry Department manufactures and sells compounded cattle feed and feed supplements. The company has three production units in Kallettumkara (Thrissur), Karunagappally (Kollam), and Thiruvangoor (Kozhikode). During the Covid-19 pandemic and subsequent lockdown, the company faced difficulty to obtain raw materials from outside Kerala and there were restrictions on goods traffic across the borders. Hence there was a reduction in the quantum of production and consequent sales to the extent of about 6,110 MT as compared to the normal scenario. This resulted in a loss of production and sales to the company to the tune of ₹14.7 crore.

Kerala urgently needs a fodder and feed plan for its livestock sector. About 15,000 acres of land has to be identified to cultivate fodder in the State over the next two years and domestic capacity of production needs to be expanded. PSUs namely, Kerala Feeds Ltd and MILMA Feeds have to be encouraged and supported to expand their production in the State.

Breeding Support

Breeding is one of the important tools to facilitate production potential and bring about progressive genetic improvement in production on a long term basis in animals. Kerala Livestock Development Board (KLDB) is involved in the production and distribution of frozen semen in the State. The semen production declined in 2019-20 to 18.72 lakh from 19.12 lakh doses in 2018-19. Though distribution inside the State increased to 13.98 lakh doses in the current

year from 13.78 lakh doses in the previous year, the distribution outside the State decreased to 4.74 lakh doses from 5.34 lakh doses during the period. Details of production and distribution of frozen semen in Kerala are shown in **Appendix 3.3.9**. The number of artificial insemination (AI) centres in the State in 2019-20 was 2515. The number of inseminations done was 10.45 lakh and calving recorded was 2.62 lakh. The average number of inseminations needed for producing one calf is four (4). The details of Artificial Inseminations conducted and Recording Calving are shown in **Appendix 3.3.10**. Major activities of KLDB are given in **Appendix 3.3.11**. KLDB is developing a new software application for herd book registration electronically in association with IITM-K, so that the data could be synchronised with similar applications of Animal Husbandry department and Dairy development department.

In Livestock sector, due to the continued focus on exotic germplasm based cross breeding, the number of indigenous breeds with better adaptability, disease-resistance and feed efficiency ratio is declining. Hence it is essential to conserve and improve the productivity of Indian indigenous breeds. The department should focus on cent per cent artificial insemination coverage along with the application of advanced cutting-edge reproductive technology developments.

Cross breeding of cattle with exotic breeds was introduced in Kerala in 1956. The cross bred cattle formed 67.3 per cent of the total cattle population in 1996, increasing to 94 per cent in 2019. The 20th Livestock Census shows an increase in the number of indigenous cattle in Kerala by 7.38 per cent as compared to the previous Census. This increase is to be attributed to the efforts of the implementing agencies in the livestock sector, development and conservation of indigenous breeds in the State with the support of both the Central and State Governments.

The Kerala State Livestock Development Board (KLDB) is engaged in the production and sale of

frozen semen in its three plants at Mattupatti, Dhoni, and Kulathupuzha. There was a decline in production of frozen semen by 1,25,000 doses at Mattupatti, 83,000 doses in Dhoni and 15,000 doses at Kulathupuzha and the total loss of revenue to the KLDB is ₹89.2 lakh during the lockdown.

Special Livestock Breeding Programme (SLBP)

The calf rearing programme by subsidising cattle feed for rearing cattle upto 32 months along with health cover and insurance has been under implementation since 1976. In 2006-07, the scheme was extended to buffalo calves also as a measure to curtail the drastic reduction in the buffalo population. Enrolment of buffalo calves shows a decreasing trend and no buffalo calves were enrolled between 2014-15 and 2019-20. The number of calves enrolled under the programme in 2018-19 was 83,196 as against 35,131 in 2019-20. Year-wise details of calves enrolled under Special Livestock Breeding Programme from 2009-10 onwards are shown in **Appendix 3.3.12**.

Animal Health Care

Animal Husbandry Department provides veterinary care mainly through 14 District Veterinary Centres, 50 Veterinary Polyclinics, 214 Veterinary Hospitals, 869 Veterinary Dispensaries, 38 regional Animal Husbandry Centres, 1340 Veterinary Sub-Centres, 5 Mobile Veterinary Hospitals, 8 Mobile Farm Aid Units, 4 Mobile veterinary Dispensaries, and one Motor Boat Veterinary Hospital. Effective and timely action was taken by the Animal Husbandry Department in liaison with respective administrations and Local Governments to eradicate contagious diseases. Mass campaign vaccination programmes like foot and mouth disease control programme, rabies free Kerala vaccination programme and Assistance to States for Control of Animal Diseases (ASCAD), poultry vaccinations are being conducted regularly. Details of outbreaks, attacks and death of major contagious diseases of animals in Kerala for the

period from 2013-14 to 2019-20 are given in **Appendix 3.3.13**.

Emergency Veterinary Service during Night Hours

The service of a veterinary doctor is available only in the day time and it is difficult to get the service during odd hours of the day. Hence, a project was formulated to provide the expert veterinary care at block level from 6 pm to 6 am. The service of a registered veterinary practitioner is provided on contract basis. The unit is functioning under the direct supervision of one identified veterinary institution of the block area. Medicines are made available to them. Emergency night veterinary service was established in 125 selected blocks of the State upto 2019-20 and to be extended to all blocks in 2021-22.

Gosamrudhi – Comprehensive Livestock Insurance Scheme

A Comprehensive Livestock Insurance Scheme 'Gosamrudhi' was introduced in 2017-18. The objective of the programme is management of risk and uncertainties by providing protection mechanism to the farmers against any eventual loss of their animals due to death or permanent total disability resulting in total loss of production or infertility through insurance coverage. The maximum insured values of animal is ₹ 50,000. The premium rate is around 3 per cent of the cost of the animal and the subsidy rate towards premium is 50 per cent and 70 per cent for SCs/STs. One time insurance of an animal upto a maximum period of three years will be provided. The United Insurance Company was selected for implementing the scheme. In 2019-20, a total number of 37,474 animals were insured under the programme.

Production of Vaccine in Institute of Animal Health and Veterinary Biologicals, Palode

The Institute of Animal Health and Veterinary Biologicals, Palode, is the sole agency engaged

in the production and distribution of animal vaccine in Kerala. The production details of vaccines manufactured in the Institute are given in **Appendix 3.3.14**. In 2019-20, the production of poultry vaccine was 118.24 lakh doses and livestock vaccine was 1.9 lakh doses. Production of poultry vaccine decreased by 40.8 per cent and livestock vaccine by 70 per cent compared to the previous year. Number of vaccinations done in 2019-20 was 8.35 lakh for livestock and 78.35 lakh for poultry. In comparison to previous year, vaccination for cattle decreased by 65 per cent and poultry increased by 18.37 per cent, respectively. Anti-Rabies vaccinations done on dogs decreased from 2.07 lakh in 2018-19 to 1.72 lakh in 2019-20. Details are provided in **Appendix 3.3.15**.

Kerala Veterinary and Animal Science University Pookode, Wayanad

The Kerala Veterinary and Animal Science University has been established in the State with headquarters at Pookode, Wayanad for the development of education, research and extension in the Animal Husbandry and Dairy Development sectors. The Veterinary and Animal Science faculty has been delinked from the Kerala Agricultural University for the establishment of the University. The College of Veterinary and Animal Sciences at Mannuthy and Pookode in Wayanad, and College of Dairy Science and Technology at Mannuthy are the educational institutions of the University. The research stations and farms involved in Animal Husbandry research and support are a part of the University. The major objective of the institution is to promote livestock economy of the State by fostering quality professionals in the areas of veterinary, animal husbandry and dairy and assist in the implementation of research outcomes in field conditions.

Prices

Average price of important inputs and products of the livestock sector for the last six years is presented in **Appendix 3.3.16** and all the products recorded an increase in

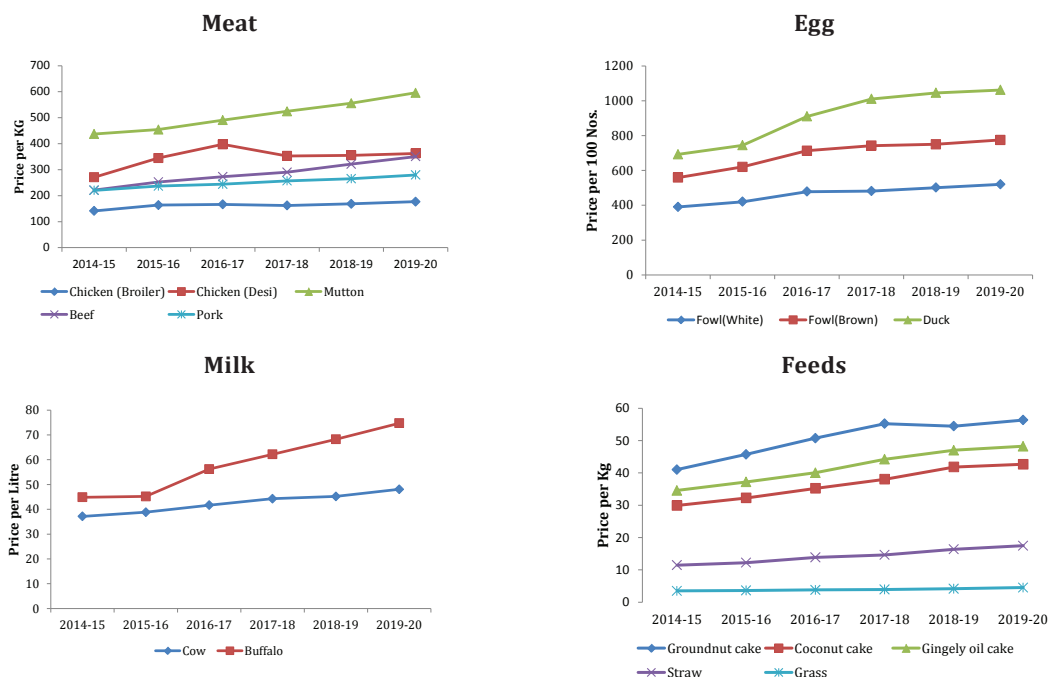
prices during the period. The price of chicken broiler increased by 5 per cent and that of chicken (desi) by two per cent compared to the previous year. The average price of mutton increased by 7.3 per cent and beef by 9 per cent, the rise was highest in the case of beef. Compared to 2018-19, the price of fowl-white egg increased by 3.8 per cent and brown egg by 3.3 per cent and duck egg by 1.63 per cent in 2019-20. The price of cow milk increased by 6.4 per cent and buffalo milk by 9.53 per cent in the same period.

On the input side, in 2019-20, the price of straw increased by 6.6 per cent and grass by 8.65 per cent. Compared to the previous year, the price of ground nut cake increased by 3.45 per cent, coconut cake by 2.03 per cent, and gingelly oil cake by 2.6 per cent in the same period. The increase in the price of inputs is a serious threat to dairy farming and hence the possibility of indigenous source of feeds is to be explored. The trend in average prices of livestock products from 2014-15 to 2019-20 is shown in the **Figure 3.3.5**.

Physical Achievements in 2019-20

- Compared to the last two Censuses (showing a trend of declining population), 20th Livestock Census shows one per cent increase in Cattle population, 9 per cent increase in goat population and 25 per cent increase in poultry population.
- Two laboratories (Avian Disease Diagnostic Laboratory at Thiruvalla and Rinderpest Laboratory Palakkad) were accredited with NABL certification and two new Livestock Management Training Centres were started.
- Emergency veterinary service during night hours at block level service provided in 125 (20 new) blocks of the State.
- Under the Comprehensive Livestock Development Programme, 'Gosamrudhi' 28,225 livestock were insured.
- Enrolled 83,554 new calves under 'Govardhini' and 'SLBP' schemes and second year assistance was given for 35,070 calves enrolled in the previous year. A total of 1,18,624 calves were benefited.

Figure 3.3.5 Trend in average prices of livestock products from 2014-15 to 2019-20



Source : Animal Husbandry Department GoK, 2020

- In the department farms 57.18 lakh eggs, 12.91 lakh litres of milk, 37.2 lakh chicks, 494 calves, 969 number of kids (goats) and 1963 piglets were produced.
- Established 191 commercial goatery units and 353 backyard goat rearing units and established 200 goat artificial insemination centres in association with KLDB.
- Under interest subvention scheme, 3778 farmers were benefited.
- School poultry clubs were established in 1305 schools, five birds each and feed were given to a total of 65,250 students and a total of 3,26,250 layer chicks distributed to students.
- In Alappuzha and Kollam Districts, 995 male calf fattening units were established.
- Through Livestock Management Training Centre 347 numbers of training programmes conducted and benefited 17,463 farmers.
- As per SDRF norms an amount of ₹2467 lakh provided as compensation to 39163 flood affected farmers.

Bhoomika – GIS based mapping as a tool for Animal Resource Management System

Animal Husbandry Department has developed GIS based mapping of farmers, 'Bhoomika' to build a geospatial database of farmers engaged in animal husbandry activities for effective management and monitoring of health, breeding, production, risk and disaster management, and human resource management. The institutions coming under the purview of the Department has been brought under the geo mapping system. It has been estimated that about 25 lakh households are involved in animal husbandry activities in the State and the Department could cover 4.8 lakh farmers involved in cattle/buffalo rearing till November 2019 and the process is continuing. 'Bhoomika' was developed in association with Indian Institute of Information Technology, Kerala (IIITM-K) through which the geographical location of farmers can be captured. The app is available in Google Play store for download.

The data collection was done at farmers' doorstep by the field level livestock Inspectors of Animal Husbandry Department and verified

by local Veterinary Officers. A web portal was also developed simultaneously for analysing and generating different types of reports using the captured data. An Animal Resource Management Portal (ARMS) is also concurrently managed by the Department, which has been integrated with the GIS Portal. The geospatial data base provides a real time method to represent disease information on live maps and helps in disease control and surveillance activities. The tool was effectively utilised for disease surveillance during NIPAH outbreak and also for immediate containment vaccination during outbreak of diseases such as foot and mouth diseases for effective control.

As part of Rebuild Kerala initiative, an amount of ₹2.2 crore sanctioned to establish two Mobile Tele-veterinary units at Ernakulam and Kannur Districts and each comprises advanced diagnostic aids such as portable X ray unit, portable ultrasound scanner, surgical equipment, animal lifting device etc. Centre for Development of Advanced Computing (C-DAC) is the implementing agency for the project and to be completed within a period of 8 months.

Subhiksha Keralam

Under the 'Subhiksha Keralam' project, an amount of ₹382.24 crore (State Plan ₹50.44 crore, RKI - livelihood support package ₹77 crore and ₹254.8 crore LSGI schemes) is included for implementation of Animal husbandry department schemes including the projects namely, Govardhini, rural backyard goat development scheme under CSS National Livestock Mission, commercial goatery, goat satellite unit, and male calf fattening.

The livestock sector has emerged as a vital sector for ensuring a more inclusive and sustainable agriculture system. Animal husbandry and dairying has undergone transformation over the years from traditional to modern skill-intensive technology. The artificial insemination, disease and pest management, diversification of milk and meat products are all skill intensive. In dairying from normal milking to automated milking and

feed management, health and disease control need skill improvement and capacity building.

To attain sustainable growth, it is essential to introduce yield-enhancing and waste-minimising technologies in the sector. While animal nutrition is crucial to maintain and enhance the livestock productivity, vaccination and health care infrastructure and services are equally critical. The health, quarantine and hygienic services assume even greater importance in view of the disease outbreaks and in the context of rearing of high yielding exotic breeds. The infrastructure related to vaccination, veterinary services and others are highly inadequate in the State.

The extension services in livestock sector are very poor and require strengthening. Around 75 per cent of cattle population is concentrated in rain fed areas where the access to feed, fodder and drinking water is becoming increasingly scarce. The fodder base is not strong due to problems in pasture management and shrinking of common properties.

Major challenge of animal husbandry sector is low productivity of milch animals. Breed improvement, better feed and nutrition, animal health and better herd composition are important measures for increasing livestock productivity. While preserving diverse genetic resources, shortage of feed and fodder, effective control of animal diseases and dissemination of technology, skills and quality services to farmers for improving productivity, which need to be addressed on priority basis. Productivity across various livestock species is a major issue especially in case of dairy animals. Therefore it is essential to strengthen the existing breeding farms of small ruminants for ensuring availability of good breeding stock at field level to support the scientific rearing with high quality feed and fodder and other inputs. Genetic improvement of livestock and conservation of indigenous germplasm, adaptable to adverse climatic conditions may also give a boost to Animal Husbandry.

Dairy Development

The dairy sector is a major sector of the Indian economy which provides employment to millions of rural population and contributes to the income of the rural households thereby significantly to national income. Among the livestock products, milk consists of the highest share, accounting for 67.2 per cent of the livestock sector in the economy. The sector plays an important role in achieving food security, reduces poverty, and generates gainful employment opportunities for women. According to the FAO 2018 Report, more than 500 million poor people depend on livestock, and most of them are small and marginal farmers. As per International Dairy Federation Bulletin 2020, 160 million children around the world receive benefits from milk through school feeding programmes.

The dairy sector plays a vital role in achieving Sustainable Development Goals – especially SDG-1, SDG-3, SDG-5, SDG-8 and SDG-10 and thereby plays a significant role in transforming lives of people in the agrarian sector.

India continues to be the largest producer of milk in the world. Our country has the largest bovine population in the world and it contributed 22 per cent of global milk production in 2018. In the early 1970s milk production of India was just one-third that of the US and one-eighth of Europe. At present India's milk production is double that of the US and 25 per cent more than that of Europe. Between 1991 and 2018, the per capita availability of milk increased from 178 (gram/day) to 394 (gram/day). Milk production in India increased from 55.6 million metric tonnes to 188 million metric tonnes, which is around 22 per cent of world milk production and is growing at 4.5 per cent compounded annual growth rate (CAGR) over the last 20 years, meanwhile world's milk production grew by around two per cent only.

India is self-sufficient in milk production because 73 million dairy farmers are engaged in the dairy sector, with a significant gender dimension, 85

per cent are women. Regarding benefits to the farmers, around 60 per cent of the consumer price from milk goes to the farmer, which is the highest among major milk producing countries. The International Farm Comparison Network, Dairy Report 2018, reveals that 10 States in India produce 81 per cent of milk, and the rest of the States and Union Territories produce the balance 19 per cent. Similarly, only nine States have achieved per capita availability of milk at par with the national level.

Dairy co-operatives play a pivotal role to achieve self-sufficiency in milk and dairy products in India. Anand Milk Union Limited (AMUL), a pioneer and successful dairy co-operative, has changed the lives of poverty stricken farmers through the Operation Flood Programme (OFP), which is one of the world's largest rural development programme. AMUL, with its innovative strategy, has helped dairy co-operatives to come together and make India the world's largest producer of milk. The reason for the success of AMUL pattern is its strategy to give benefits both to the farmers and customers namely, farmers in terms of fair price for their milk and for customers high quality milk and milk products. The middleman's profit in the earlier system got absorbed into development projects for primary producer or lower cost for the consumer.

The total production of milk in India is 188 million metric tonnes in 2019-20. Of this, about 48 per cent of milk is either consumed at the producer level or sold to non-producers in the rural areas. The balance 52 per cent of the milk is the marketable surplus available for sale to consumers in urban areas. Out of marketable surplus it is estimated that about 40 per cent of the milk sold is handled by the organised sector (i.e. 20 per cent each by Co-operative and Private Dairies) and the remaining 60 per cent by the unorganised sector.

Based on various parameters, namely, urbanisation, demand for milk and milk products, productivity of milch animals, NITI Aayog

estimates that milk production in India will increase to around 330 million tonnes, and milk supply will exceed milk demand by 38 million tonnes in 2032-33 (NITI Aayog-Working Group 2018 Report). As per National Action Plan on Dairy Development Vision 2022 Report, it is envisioned to increase milk procurement and processing through setting up of village level dairy infrastructure. Under this Plan, organised milk handling is to be increased to 41 per cent by 2022 and to 50 per cent by 2023-24. Milk procurement by co-operatives will increase from 10 per cent in 2020 to 20 per cent in 2023, and milk procurement by the private sector will be increased from 10 per cent in the same period.

Considering the potential of the livestock sector, Government of India has announced a financial package for dairy, especially the creation of Animal Husbandry Infrastructure Development Fund (AHIDF), a stimulus package for incentivising investments in (i) the dairy processing and value addition infrastructure, (ii) meat processing and value addition infrastructure, and (iii) Animal Feed Plant with budget allocation of ₹15,000 crore. The fund is to be channelised through the National Dairy Development Board (NDDB). Beneficiaries of the package are the Farmer Producer Organisations (FPOs), Micro Small and Medium Enterprises (MSMEs), Section 8 Companies, Private Companies and individual entrepreneurs. Under this package, minimum 10 per cent margin money contribution to be done by the beneficiaries and 90 per cent would be the loan component to be made available by the scheduled banks. On timely repayment, the Government also gives 3 per cent interest subvention to eligible beneficiaries. There will be a two-year moratorium period for the principal loan amount and six years repayment period thereafter.

Indian dairy co-operatives and private players could create additional milk processing capacity of 4.5 - 4.8 crore litres per day in the next decade. India's milk processing capacity is to be enhanced from the current 12 crore litres per day to around 17 crore litre per day. It is estimated

that one lakh litres of milk is procured and distributed to organised players, around 6000 people get employment annually, and the AHIDF has the potential to create around 30 lakh job opportunities. Extension of Kisan Credit Card (KCC) scheme to dairy farmers also ensures cash flow to meet the working capital requirement of small farmers. During the lockdown, dairy co-operatives have procured 15-40 per cent more milk than usual. The excess milk procured was converted to skimmed milk powder (SMP) and white butter. The new interest subvention of 2 per cent annually for dairy co-operatives and 2 per cent for timely payment of loans could unlock ₹5,000 crore worth of additional liquidity, benefiting two crore farmers.

The Government needs to devise a suitable dairy development policy for enhancing milk production in potential districts of the States. Therefore dairy promotion among small and landless farmers is necessary to increase the availability of milk and it will also help to reduce nutrition related problems in milk deficit regions of the country.

Dairy Development in Kerala

The objectives of Department of Dairy Development of Kerala are comprehensive and sustainable dairy development of the sector along with well-being of dairy farmers, consumers and other stakeholders. It also acts as the nodal agency for fodder development in the State. The department has 162 dairy extension service units, 14 quality control units, a State dairy lab (NABL accredited) for testing milk and milk products and cattle feed, three Regional Dairy Labs, 14 Mobile Quality Control Units, Five Dairy Training Centres and a State fodder farm. There are 3643 Dairy Co-operative societies and 3.91 lakh registered farmers (2.5 lakh men-64 per cent and 1.41 lakh females-36 per cent). This serves as the backbone of dairy development activities in the State. Around 23 per cent of the milk produced in the State is collected by dairy co-operatives.

Physical Achievements in 2019-20

In 2019-20, the Dairy Cooperative Societies (DCS) produced 6.80 lakh MT milk (18.64 lakh litre per day). The 'ksheera gramam' project implemented by the department aims to transform the grama panchayats as self-sufficient in milk production. The components of the project are herd induction, modernisation/automation of dairy farms, construction of new scientific cattle sheds, renovation of existing cattle sheds, installation of milking machines, measures for minimising environmental stress to milch animals, and providing cattle feed supplements at subsidised rates. Ksheera Gramam Project was implemented in nine selected Panchayats in the State.

Cows of Kerala are one of the high yielding animals of India (productivity of 10.22 litre/day). Average productivity of Indian breed of cattle is 3.85 litre/day and crossbred cattle is 7.85 litre/day. A cost effective feeding practice for productive crossbred animal can be achieved by decreasing the dependence on external input and increasing the internal input system through fodder production at farmers' level for nutrient availability by assisting them in adopting fodder cultivation in their own lands. This necessitated focussed attention to develop feed resources by

improving availability of green fodder. Kerala produces only 60 per cent of roughages required for the cattle. Massive Fodder cultivation was implemented in 55 ha of barren land in selected panchayats and 69 numbers of beneficiaries were selected under the programme. 10 Women Self Help Groups with linkage to dairy co-operatives were assisted for fodder cultivation and marketing and another 53 groups were assisted for distribution of subsidised fodder. Irrigation assistance was extended to 71 numbers of elite farmers for fodder cultivation and 70 numbers were benefited for modernisation and mechanisation of fodder cultivation, cutting and marketing of fodder. Assistance extended for Maize cultivation at 212 ha of land and azolla cultivation to 3500 units and two numbers of Fodder cum Azolla nurseries were established during the period.

Covid-19 Loss Assessment in Dairy Sector

The crisis that developed in the milk production sector during the pandemic was due to lack of post-production infrastructure, to utilise the surplus production achieved by the State during the period. By 2019, Kerala was able to reduce the dependence on milk imports to about 1.5 lakh litres per day. This was due to increased

Box 3.3.1 Crisis Management in Dairy Sector

- As on March 31 2020, the opening stock of milk was 23.88 lakh litres and daily procurement was 13.21 lakh litres per day. But the sales amounted to only 10.94 lakh per day. There was a 27.5 per cent (2.81 lakh litre per day) decline in sales compared to the previous weeks. This necessitated the conversion of surplus milk into milk powder. Nearly 1.2 to 1.25 lakh litres per day of milk was sent for conversion to Tamil Nadu.
- On an emergency basis Tamil Nadu agreed to procure 50,000 litres of milk for conversion per day. The Government distributed milk and milk products through the Anganwadis, guest labour camps, community kitchens, Consumerfed and the Kerala State Civil Supplies Corporation through Milma Dairy to avoid wastage of the surplus milk.
- An amount of ₹60.96 crore has been distributed to 55465 farmers as pension from October 2019 to June 2020 through The Kerala Dairy Farmers Welfare Fund Board
- Under the newly introduced Covid Relief Cattle Feed Subsidy Scheme, an amount of ₹2.95 lakh sacks of cattle feed were distributed to 1.82 lakh dairy farmers with a Government subsidy of ₹400/sack at a total cost of ₹39.68 crore.

Source: Dairy Development Department, GoK

domestic production of milk through dairy cooperatives and other sources. This situation, coupled with the reduction in demand for milk from MILMA, Dairy Cooperatives by 2.5 lakh litres per day caused excess availability of milk in the State. This created a glut in the sector. Prior to the lockdown, MILMA, Dairy Cooperatives and private dairies together used to sell about 25 lakh litres of milk per day. Crisis Management in Dairy sector is shown in **Box 3.3.1**.

Kerala will soon move towards a situation of surplus production of milk. The State needs a modern milk powder plant as well as an evaporator plant to convert and store surplus milk as milk powder and condensed milk. Hence, KCMMF has initiated the preliminary works of establishment of a Milk Powder Factory of 10 MT per day at an estimated cost of ₹54.00 crore in Malappuram district.

Subhiksha Keralam Project

Under the 'Subhiksha Keralam' project, an amount of ₹88.08 crore with a Plan assistance of ₹51.07 crore included for implementation of dairy department schemes consisting of induction of milch animals and heifers, fodder cultivation, milk incentive, subsidised cattle feed bags, cattle shed construction/renovation, farm mechanisation, insurance and revolving fund.

Kisan Credit Card (KCC) Campaign

Dairy Development Department was assigned as the nodal agency for leading the campaign for distribution of Kisan Credit Card to dairy farmers in the State. There are 1.96 lakh active farmers in the dairy sector, of whom 21,386 farmers possess KCC prior to the campaign. Target of the department for enrolment of new KCC was 1.76 lakh, 1.2 lakh farmers have already filled the KCC forms and 1.11 lakh forms are submitted to the banks. KCC credit sanctioned for 29,414 farmers and an amount of ₹198.9 crore sanctioned by banks as total credit. The credit under KCC is being extended to dairy farmers for meeting the recurring expenditure involved in dairy farming.

Credit at nominal interest rate is offered to dairy farmers for purchase of feeds and fodder, dairy farm equipment construction of scientific cattle sheds to counter environmental stress, repair and maintenance of existing cattle shed, insurance and meeting veterinary aid.

Regional Comprehensive Economic Partnership (RCEP)

RCEP is a proposed free trade agreement in the Asia-Pacific region between the ten member countries of the Association of Southeast Asian Nations (ASEAN) (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) and their six FTA partners (Australia, China, India, Japan, New Zealand, and South Korea). The objective of RCEP agreement is to achieve a modern, comprehensive, high quality, and mutually beneficial economic partnership agreement among the ASEAN member countries and its FTA partners.

The RCEP pact covers trade in goods and services, and also investments, economic – technical cooperation, competition and intellectual property rights. It is the biggest free trade agreement with 40 per cent of global commerce and 35 per cent GDP involving 16 countries, home to 3.6 billion people or half the population of the world. The RCEP negotiations were launched by ASEAN and six other countries in the 21st ASEAN summit and India has seen its trade deficit with most countries rising manifold after an FTA was operationalised. India withdrew from the RCEP negotiations citing apprehensions about cheaper imports impacting the domestic dairy sector. India's stand on curbing cheaper imports of dairy products also indicated its commitment towards achieving and sustaining atmanirbharata.

The Government should undertake a study of the existing marketing and supply chains in the milk, meat and egg sectors of the State, and initiate measures to remove bottlenecks from the producer to the consumer. The use of

modern IT infrastructure to develop a marketing network of milk, meat, and eggs in the State is to be encouraged. This includes linking up of all dairy cooperatives in the State under single interconnected software.

3.4 FISHERIES DEVELOPMENT

Fisheries and Aquaculture sector in India continues to demonstrate its instrumental role in economic development, both national and State economies. It contributes not only to GDP and employment but also stimulates growth in a number of subsidiary industries. Being a maritime State, Kerala, by virtue of its geographical location is blessed with rich and varied fisheries resources and marine fisheries play an important role in the coastal economy of Kerala. The coastline of the State bordered by the Arabian Sea runs to a length of about 590 km. having a highly productive continental shelf area of 39139 square km. The Exclusive Economic Zone (EEZ) extends upto 200 nautical miles far beyond the continental shelf and covers an area of 218536 square km.

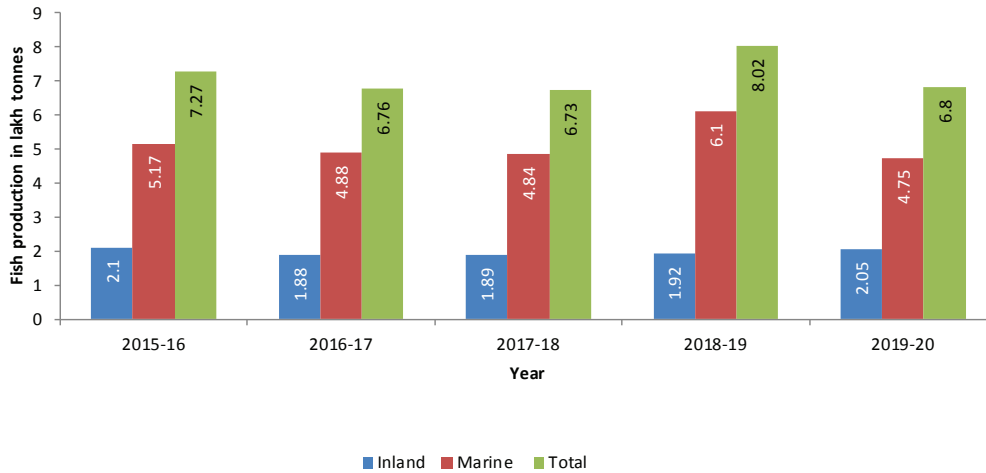
The total fish production in India in 2018-19 was 13.75 Million Metric Tonnes (MMT) with a contribution of 9.58 MMT from inland sector and 4.15 MMT from marine sector. Inland fish production constitutes 70 per cent of the total fish production in the country. In the case of inland capture production, India stands at second position next to China. Among the top ten countries with the largest aquaculture production, India occupies second position next to China (Source: Annual Report 2019-20, Department of Fisheries, Government of India). The sector has been one of the major contributors of foreign exchange. In 2019-20, the export of marine products from India stood at 12,89,651 metric tonnes valued at ₹46,662.85 crore. Fisheries sector has witnessed major administrative and institutional changes

at national level which includes an exclusive department namely Department of Fisheries and a new Ministry, the Ministry of Fisheries, Animal Husbandry and Dairying.

The fisheries sector plays an important role in the State economy. The share of fisheries sector in the total GSVA (at constant price) in 2019-20 constitutes 0.82 per cent and accounts for 0.72 per cent of GSDP. Fisheries and Aquaculture contributes 9.7 percentage of the Gross State Value Added (GSVA at constant prices 2019-20 (Q)) from the primary sector. The GSVA of the State has been growing over the years, but the share of primary sector has been declining. Though the share of other components of primary sector like crops, livestock and forestry in GSVA has declined, the share of fisheries sector has remained around 9.7 per cent of GSVA from primary sector. Details regarding the contribution of fisheries sector in GSVA are given in **Appendix 3.4.1**.

The total fish production of Kerala in 2019-20 is 6.8 lakh metric tonnes with a contribution of 4.75 lakh metric tonne from marine sector and 2.05 lakh metric tonne from inland sector. Total fish production in Kerala, which had been declining since 2015-16, witnessed a significant increase in 2018-19. Increase in marine fish production has been the prime reason for the jump in total fish production in Kerala in 2018-19. However, there is a decline in fish production in 2019-20, mainly due to decline in marine fish production. The marine fish production which

Figure 3.4.1 Fish Production in Kerala (2015-16 to 2019-20)



Source: Department of Fisheries, Government of Kerala (2020)

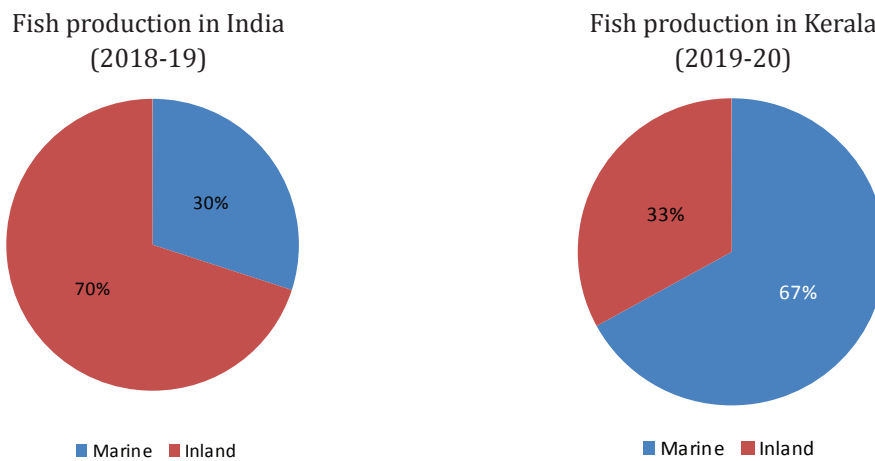
showed a declining trend from 2015-16 to 2017-18, increased in 2018-19. However in 2019-20, there was a sharp reduction in the marine fish production in Kerala. The inland fish production of Kerala has registered a steady growth from the year 2016-17 to 2019-20. The year 2019-20 recorded inland fish production of 2.05 lakh metric tonnes (Handbook on Fisheries Statistics 2019, Department of Fisheries, Government of Kerala). Details are provided in **Appendix 3.4.2**. Year-wise details of fish production in Kerala are provided in **Figure 3.4.1**.

fish production is contributed by the inland sector, however at the State level, the share of inland sector is only 33 per cent. The difference in the composition of total production in India and Kerala is brought out in **Figure 3.4.2**.

The quantity and quality of high value species like Prawn, Ribbon fish and Mackerel among the marine fish catch is crucial in determining the income of the fisherfolk. However, the share of such high value fish is low in marine fish landings in Kerala. The species-wise marine fish landings in Kerala from 2015-16 to 2019-20 are shown in **Appendix 3.4.3**. The species-wise details of

At national level about 70 per cent of the total

Figure 3.4.2 Fish production in India and Kerala, share of marine and inland fishing



Source: Department of Animal Husbandry Dairying and Fisheries, Government of India (2019) and Department of Fisheries, Government of Kerala (2020)

inland fish production in Kerala from 2015-16 to 2019-20 are shown in **Appendix 3.4.4**. Inland fish production had improved during the period 1999-2000 to 2015-16. A fall in production was witnessed in 2016-17. However, inland fish production has increased gradually during the last four years. Though it has increased over the last years the share of Kerala in total inland fish production is very low. States with smaller inland water resource endowment like Assam, Bihar, Haryana, Chhattisgarh and Uttar Pradesh have shown better inland fish production. Kerala has scope to improve the utilisation of its resources in Inland fishing. The State has made conscious efforts in increasing the inland fish production through projects like '*Subhikshakeralam*'.

Kerala has a total population of 334 lakh according to Census 2011 and the fisherfolk population is estimated to be around 3.13 per cent of Census population, which is around 10.44 lakh. They reside in 222 marine fishing villages and 113 inland fishing villages of the State. . Out of the fisherfolk population, 8.04 lakh belong to marine sector while 2.40 lakh belong to inland sector. Alappuzha (1.94 lakh) is the District with the largest fisherfolk population, followed by Thiruvananthapuram (1.73 lakh) and Ernakulam (1.39 lakh). Wayanad is the District with the lowest fisherfolk population. The District-wise details of fisherfolk are given in **Appendix 3.4.5**.

The number of active fish workers registered with Kerala Fishermen Welfare Fund Board in the State in 2019-20 was 2,47,849. Thiruvananthapuram district has the largest number of active fish workers, followed by Alappuzha and Malappuram. Active fish workers are those fish workers who are engaged in fishing for their livelihood and are registered with the Kerala Fishermen's Welfare Fund Board. In 2019-20, the number of allied workers in fisheries in Kerala was 92,124, of which 80 per cent (67,757) were women. Their number was highest in the district of Alappuzha, followed by Kollam and Ernakulam. Allied workers are those engaged in fishery related activities for livelihood and are registered with Kerala Fishermen's

Welfare Fund Board. In addition to this, a total number of 62,712 pensioners are registered with KFWFB as on March 31, 2020.

An analysis of the figures of district-wise fish production in Kerala shows that the district of Ernakulam is the leading producer of marine fish followed by Kollam and Kozhikode. These 3 districts together contribute around 72 per cent of the total marine fish production in the State. Alappuzha and Kottayam are the leading inland fish producing districts, followed by Thrissur and Ernakulam. In the case of total fish production, the leading producer is the district of Ernakulam followed by Kollam and Kozhikode respectively. Details are provided in **Appendix 3.4.6**.

Kerala has made vital contributions in the export of marine products from the country. In 2019-20, export of marine products from Kerala was 148227 tonnes valued at ₹5020.34 crore. Quantity and value of exports of marine products from Kerala has been increasing since 2015-16 but it shows a marginal decline in quantity and value in 2019-20 compared to previous year. Details are provided in **Appendix 3.4.7**.

Major Developmental Programmes

The Plan schemes of State Government under Fisheries sector in 2019-20 is broadly classified into the following -

1. Marine fisheries development
2. Inland fisheries development
3. PMMSY – CSS Scheme
4. Extension, Training and service delivery
5. Modernisation of fish markets and value addition
6. Social Security to fisherfolk
7. NABARD Assisted RIDF
8. Development of Fishing Harbours and management
9. Scheme for Kerala University of Fisheries and Ocean studies
10. Coastal Area Development

Key Initiatives in 2019-20

- Inland fish production is an area which holds promise for future in Kerala and insufficient availability of good quality fish seeds has been identified as a major problem. To increase the production of good quality fish seeds, the department made efforts to strengthen the existing hatcheries, nurseries, fish farms and construct new units with the existing infrastructure. The area utilised for fish farming in ponds has increased from 5325 ha to 5700 ha in the year 2019-20, no. of cage culture units established have increased from 80 to 1800 units, mussel farming units have increased from 2000 to 3500 units, Recirculatory Aquaculture System/ Aquaponics units have increased from 100 to 500 units, one paddy one fish farming area increased from 1620 ha to 2500 ha and zero water exchange shrimp farming was carried out in 200 ha area.
- One paddy one fish farming in Kole lands of Thrissur and Malappuram Districts have increased from 1600 ha to 4500 ha and in Kuttanad area from 2100 ha to 5350 ha.
- New hatcheries were established in Neyyar, Peechi, West Kallada, Kulathupuzha, Kallanodu, Thalipuzha and Karapuzha.
- Cage culture in reservoirs was implemented in Malampuzha, Kannur, Ernakulam and Cage farming initiated in Pothundi reservoir

of Palakkad District and Banasurasagar reservoir.

- To ensure species diversification, two new GIFT hatcheries were established in Pannevelichira-Pathanamthitta and Neyyar-Thiruvananthapuram.
- Commissioned marine ambulance for the 3 zones-Vizhinjam in Thiruvananthapuram, Vypin in Ernakulam and Beypore in Kozhikode Districts. The marine ambulances are equipped with all the modern facilities required for the 'first and emergency medical aid' for 10 persons at a time. The ambulance is designed and built by Cochin Shipyard Limited as per the Indian Register of Shipping Standard (IRS) and its operation and manning is entrusted with Kerala Shipping and Inland Navigation Corporation.
- As part of conservation of inland fishery resources, fish stock enhancement programme was implemented and 217.87 lakh fish seeds have been stocked in various public water bodies. Through aquaculture development project, area of 8300 ha was utilised for shrimp farming and 9800 ha for fish farming. A total of 6.31 crore fish seed production was achieved through Department hatcheries in 2019-20.

Fishing Harbours and management

The Government of Kerala has so far completed construction work of 18 fishing harbours

Box 3.4.1 'Suchitwa Sagaram' – A noble venture in Kerala

To curb the oceanic plastic menace, 'Suchitwa Sagaram' (Clean Sea), an ambitious sanitation campaign was launched with the sole aim to reduce plastic waste buildup in the sea by prohibiting 'plastic waste dumping' into the sea and removing all forms of plastic materials in the sea. The venture is undertaken by the Government of Kerala in association with the Fisheries and Harbour Engineering Department, Society for Assistance to Fisherwomen (SAF), Suchitwa Mission, and Network for Fish Quality Management and Sustainable Fishing (NETFISH). Large-scale campaigns were conducted to spread awareness of keeping the marine environment clean through the initiative 'Suchitwa Sagaram'. The two fishing harbours namely, Neendakara and Sakthikulangara harbours have plastic waste collection points, from where it is transported to the plastic segregation and cleaning unit located at Saktikulangara and plastic shredding unit at Neendakara in Kollam District. So far about 38.37 tonnes of discarded nets, plastic ropes and other plastic items from the sea have been removed by the fisherfolk.

Source: Department of Fisheries, Government of Kerala

Box 3.4.2 Pradhan Mantri Matsya Sampada Yojana

Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a flagship scheme to bring about sustainable and responsible development of Fisheries Sector in India. It has been approved at a total estimated investment of ₹20,050 crore to be implemented over a period of 5 years from FY 2020-21 to FY 2024-25. It includes central share of ₹9407 crore, State share of ₹4880 crore and ₹5763 core as beneficiary contribution. The PMMSY is an umbrella scheme with two separate components namely (a) Central Sector Scheme(CS) and (b) Centrally Sponsored Scheme(CSS).The Centrally sponsored scheme(CSS) component is further segregated into non-beneficiary oriented and beneficiary oriented schemes. The scheme would maintain a final balance between production and productivity activities including technology infusion, post-harvest infrastructure including strengthening and modernisation of value chain and a robust management and Regulatory Framework.

The scheme aims at creating a conducive environment for private sector participation, development of entrepreneurship, business models, promotion of ease of doing business, innovations and innovative project activities including start-ups, and incubators in the Fisheries sector. PMMSY envisages development of Fisheries management Plans, Integrated District Fisheries Development Plans under the leadership of District Collector/Deputy Commissioner through a District Level Committee, which will be consolidated at the State/UT level into State Fisheries Development Plans for effective planning and optimal utilisation of resources. Enhancing exports to ₹1lakh crore by 2024-25, doubling income of fishers and fish farmers and sustained average annual growth rate of 9 per cent over the scheme period are key objectives of PMMSY.

Source: PMMSY Guidelines 2020, Department of Fisheries, GoI

and the works of another 7 are progressing. Muthalapozhy Fishing Harbour Project was commissioned on June 3, 2020. Koyilandi and Manjeshwaram Fishing Harbours commissioned on October 1, 2021. The completed fishing harbours are Vizhinjam, Thankassery, Neendakara, Kayamkulam, Thottappally, Munambam, Chettuva, Ponnani, Muthalapozhy, Koyilandi, Manjeshwaram, Beypore, Puthiyappa, Chombal, Thalai, Moplabay, Azheekal and Cheruvathoor. The on-going fishing harbour works are, Chethi (I and II), Arthungal (II), Chellanam (I and II), Thanur, Parappangadi, Vellayil, and Kasaragod. The location of Fishing Harbours in Kerala and their status are provided in **Figure 3.4.3**.

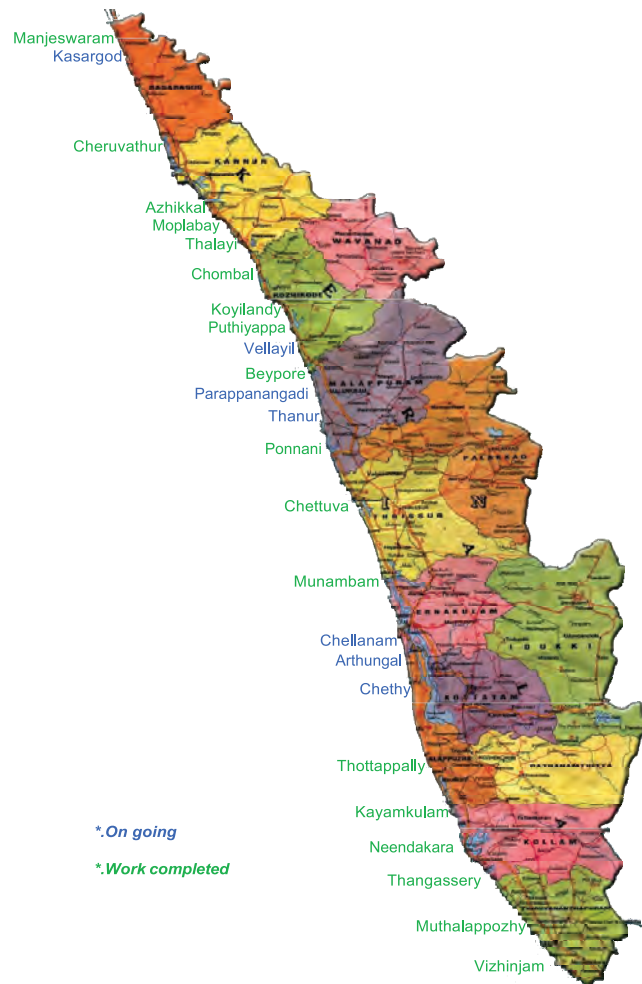
In 2019-20, Plan support was extended for construction of fishing harbours Arthungal, Vellayil, Thanoor, Manjeshwaram and Koyilandi and Munakkakadavu Fish Landing Centre. In addition to these, funds were provided for completion and operationalisation of Chettuva, Cheruvathur and Thalai fishing harbours.

Support was provided for Management of Fishing Harbours. The progress of ongoing fishing harbours is shown in **Appendix 3.4.8**.

Total revenue collected from fishing harbours and fish landing centres had shown a sharp increase from ₹302.54 lakh in 2016-17 to ₹849.08 lakh in 2017-18. However, it has fallen to ₹726.45 lakh in 2019-20. Highest revenue collection has been from Neendakara harbour which has been an important revenue generator since 2012-13. Kayamkulam Fishing harbour stood second in terms of revenue collection. Together, Neendakara, Kayamkulam and Puthiyappa (3rd place) contributed about 62 per cent of the total revenue collection from fishing harbours and fish landing centres in Kerala. The details of earnings from fishing harbours are given in **Appendix 3.4.9**.

Apart from the construction of new fishing harbours, NABARD funds have been used for works like modernisation of existing fishing harbours, construction of fish landing centres,

Figure 3.4.3 Fishing Harbours in Kerala – Location and status



Source: Department of Fisheries, Government of Kerala (2020)

roads, bridges, locker rooms and walkways. The works sanctioned under NABARD XXIII was progressing. The expenditure of the project till March 31, 2020 was ₹4134.93 lakh. Central share received upto March 31, 2019 is ₹1750 lakh. In RIDF XXIII, 4 projects amounting to ₹2540 lakh were sanctioned for additional infrastructure development of Vellayil Fishing Harbour, Chellanam Fishing Harbour, Thangassery Fishing Harbour and Puthiyappa Fishing Harbour. Koyilandy Fishing Harbour and Manjeshwaram Fishing Harbour project were completed and commissioned this financial year.

Kerala State Coastal Area Development Corporation (KSCADC)

Kerala State Coastal Area Development Corporation (KSCADC), is a fully owned State Government Company formed with the aim of integrating the development activities in the coastal area of the State and undertaking projects in coastal infrastructure development, fisheries infrastructure development, technology acquisition, commercial operation and consultancy. In 2019-20, shore protection works worth ₹112.00 crore, construction of fishing harbour at Parappanangadi worth ₹112.21 crore and at Chethy worth ₹97.43 crore were

sanctioned under the KIIFB funding. KSCADC has completed 99 projects worth ₹68.36 crore. In 2019-20, the major projects initiated by KSCADC includes 8 shore protection works, 2 harbour projects, 56 educational infrastructure projects, 6 fish market construction for strengthening of fish marketing infrastructure. Establishment of fish processing centre at Vizhinjam, Thiruvananthapuram and installation of artificial reefs off the coast of Kollemkode, Paruthiyoor and Valiyathura are other major works in 2019-20.

Social Security and Livelihood support to Fishing Community

The Government has given adequate attention to various schemes implemented to ensure social security and livelihood support to fisherfolk community. Apart from the Fisheries department, Kerala Fisherman's Welfare Fund Board and MATSYAFED also implements Social Security and Livelihood support schemes. The schemes include those for housing, insurance and pension apart from those which enable fisherfolk to earn livelihood on a continuous basis. 2,42,478 fisherfolk benefited from Group Accident Insurance Scheme. Additionally, 85,543 allied workers also benefited from this Scheme. Old age pension was provided to 46,444 fisherfolk. Number of beneficiaries under the scheme 'Pension for wives of deceased fisherfolk' was 9,215. A total of 1,55,990 fisherfolk in marine fisheries and 22,065 fisherfolk in inland fisheries were provided support under the 'Saving cum Relief Scheme'. Details of such schemes implemented by the Fisheries department and KFWFB are provided in **Appendices 3.4.10** and **3.4.11** respectively.

MATSYAFED

MATSYAFED is an apex federation of 657 primary level Fishermen Development Welfare Co-operative Societies, of which 336 are in marine sector, 199 are in inland sector and 122 are women co-operative societies. The total membership in these societies is more than 4.71 lakh. The authorised share capital

of the federation is ₹150 crore. Matsyafed has organised self-help groups (SHGs) within the fishing community and has developed among them, the habit of savings. By providing micro finance and interest free loans, Matsyafed has made an impact in the area of micro credit. In 2019-20, an amount of ₹6272.45 lakh was distributed as micro finance support to SHGs which have benefitted 25570 beneficiaries. In 2019-20, interest free loans to the tune of ₹1345.8 lakh were given to 7179 women fish vendors. The achievement of various programmes implemented by Matsyafed is given in **Appendix 3.4.12**.

Society for Assistance to Fisherwomen (SAF) and Women Empowerment

Society for Assistance to Fisherwomen (SAF) is an agency established to enable the overall development and empowerment of fisherwomen in the State. It extends financial, technological and managerial support to fisherwomen to organise group activity, start micro enterprises and run the businesses in a sustainable manner. In order to promote alternative livelihood activities especially for development of micro enterprises among fisherwomen, assistance was given to 400 fisherwomen beneficiaries (100 groups) to start micro-enterprises. An Apparel Park consortium was established at Kundara, Kollam through the setting up of 12 microenterprise units covering 48 fisherwomen beneficiaries. 447 Theeramythri activity groups have been assisted with interest free Working Capital Revolving Fund during the period 2019-20. Capacity building training was provided to 3031 beneficiaries. Support was provided to 40 groups for technology improvement in their units. The achievement of various programmes implemented by SAF is given in **Appendix 3.4.13**.

The role of fisheries sector in the country's economic development is amply evident as it generates large scale employment opportunities, raises nutritional standards and earns foreign exchange. The 13th Five Year Plan places emphasis on a) nutritional security through

enhancing fish production, and b) poverty reduction among fisher folk by ensuring distribution of production benefits to the community on a sustainable and equitable basis.

Many of the United Nation's Sustainable Development Goals are directly linked with the blue economy and marine sector activities. The sustainable management of fish resources and wellbeing of the fisherfolk community is a necessity to attain the food and nutritional security and to improve the economic and social well-being of fisherfolk community in Kerala. Climate change and degradation of environment pose significant challenges to the sector. Moreover, fisheries in Kerala is recovering from two natural disasters, namely cyclone Ockhi and two consecutive floods (August 2018, 2019) which had adversely affected the sector during the recent past. The State has started reaping the benefits of conservation and management measures initiated during the past several years. Aquaculture especially in the inland waters offers new opportunities for the future and an active role and contribution from LSGIs can bring a revolutionary change in this direction. Kerala, as a major fish producing State in India, has been proactive towards sustainable fisheries management through technologies, institutions, policies and coordination of various stakeholder activities.

3.5 WATER RESOURCES

Good quality water is essential to human health, social and economic development, and the ecosystem. The 2020 edition of the United Nations World Water Development Report (UNWWDR 2020) entitled 'Water and Climate Change' aims at helping the water community to tackle the challenges of climate change. The report focuses on the challenges, opportunities, and potential responses to climate change, in terms of adaptation, mitigation, and improved resilience that can be addressed through improving water management.

National Water Mission aims at integrated water resources management to conserve water, minimise wastage, and ensure more equitable distribution both across and within states. The Mission will seek to develop new regulatory structures and also to optimise the efficiency of existing irrigation systems, including rehabilitation of systems, and also expand irrigation, where feasible, with a special effort to increase storage capacity.

Storage Position of the Reservoirs

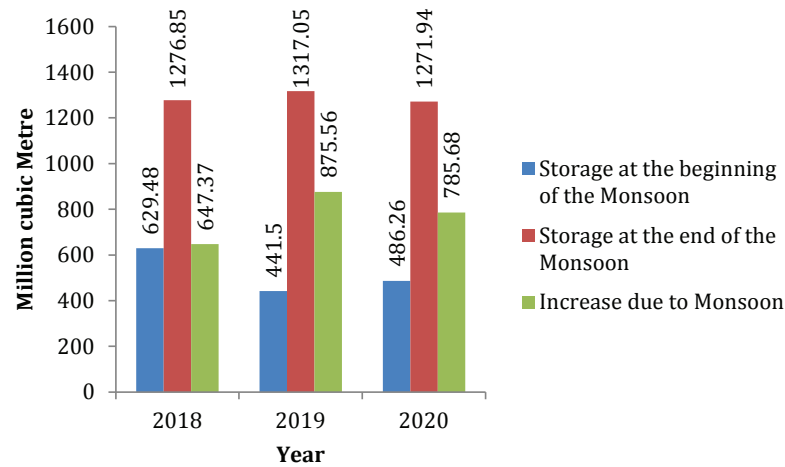
The total storage capacity of sixteen dams under Water Resources Department is 1556.08 Million Cubic Metre (MCM). Bathymetric studies on selected reservoirs reveal sedimentation level of 28 to 30 per cent, mainly from run off sediments, clay, and silt. Excessive sedimentation reduces reservoir viability and accelerates flood risk since Full Reservoir Level (FRL) will be achieved at an accelerated rate. Reservoir spillage/overtopping

experienced due to excessive rain in 2018 and 2019 highlighted the necessity to de-silt/de-sediment the reservoirs under the Water Resources Department. This would assure dam safety and environmental integrity.

Standard Operating Procedure was issued during 2017 for de-silting Mangalam and Chulliyar reservoirs, as a pilot initiative, through turnkey and work contract method. De-siltation process of Mangalam dam is under progress. As per the study done in 2019-20, by Kerala Engineering Research Institute (KERI), on the sedimentation levels of Kanjirapuzha, Malampuzha, Vazhani, and Neyyar reservoirs, there was a huge reduction in the reservoir capacity of Kanjirapuzha and Neyyar because of the landslides that occurred in the catchment area during the floods of 2018 and 2019. Similar reduction in capacity was observed for Malampuzha reservoir also. On the contrary, the capacity of Vazhani reservoir showed an increase. It is observed that major part of the sediment load (because of floods) might have been carried away because of high inflow rate and velocity at the time of floods. Hence, the net volume of sediment trapped from the inflow and landslide inside the reservoir was less than the volume of soil mass lost by landslide, thereby leading to increase in the reservoir capacity.

Appendix 3.5.1 shows the dam storage status (pre-monsoon and post-monsoon) for the period 2018 to 2020. Data for these years cover the period from June 1 to September 30. During these years, storage level at the end of

Figure 3.5.1 Storage position of irrigation reservoirs 2018-20



Source: Water Resources Department

the monsoon was marked at 1276.85 million cubic metre, 1317.05 million cubic metre, and 1271.94 million cubic metre for 2018, 2019, and 2020, respectively. Change in the storage level post monsoon showed an increase from 647.37 million cubic metre (2018) to 875.56 million cubic metre (2019) but got reduced to 785.68 million cubic metre during 2020. The level of pre-monsoon storage will also have its effect on such variations. A comparison on the storage position of reservoirs pre- and post-monsoon stages is shown in **Figure 3.5.1**.

Major and Medium Irrigation Projects

Irrigation schemes with ayacut area greater than 10,000 ha are major irrigation schemes and those schemes which serve ayacut area between 2000 ha to 10,000 ha come under medium irrigation. The status of implementation of the four major and medium irrigation projects is given in **Appendix 3.5.2**.

Achievements of four Major and Medium Irrigation Projects during the Thirteenth Five-Year Plan Period

Muvattupuzha Valley, Idamalayar, Karapuzha, and Banasarasagar were the four major and medium irrigation projects that continued during the first

four years of the Thirteenth Five-Year Plan. These four projects were continuing for decades with time and cost overrun. Of the above said four projects, Muvattupuzha Valley Irrigation Project (MVIP) was commissioned during the Thirteenth Five-Year Plan period. The progress achieved by these irrigation projects during the first four years of Thirteenth Five-Year Plan are detailed below:

1. Idamalayar Irrigation Project (IIP)

Idamalayar Irrigation Project, which commenced in 1981 with an estimated cost of ₹ 17.85 crore, aims at irrigating 14,394 ha of cultivable lands in Periyar and Chalakudy basins. Main canal works were completed for the full length of 32.278 km. The length of the Low level Canal is limited to 15 kilometers, wherein there were two bottlenecks – MC road crossing and Railway crossing.

Some of the notable achievements of the project during the first four years of Thirteenth Five-Year Plan:

- In 2019-20, *Push Through* mechanism was carried out for clearing the bottleneck at the MC road crossing portion in the Low Level

2. Muvattupuzha Valley Irrigation Project (MVIP)

Box 3.5.1 Commissioning of Muvattupuzha Valley Irrigation Project (MVIP)

Muvattupuzha Valley Irrigation project was commissioned on July 10, 2020, by completing the works of main canal, branch canals, and distributaries except Edayar distributary and few reaches of Karikode Distributary. This Irrigation Project, started with an initial estimate cost of ₹20.86 crore, has a Right Bank Main Canal (RBMC-28.339 km) and a Left Bank Main Canal (LBMC-37.1 km). The branches of RBMC and LBMC have a total length of 57.154 km, while the distributaries have a total length of 213 km.

Progress of the project during the Thirteenth Five-Year Plan Period

- Achieved 490 ha ayacut by completing the railway crossing section between Ch.782m and 891 m in the Manjoor Distributary in 2017-18.
- Completion of aqueduct at the railway crossing portion in Ezhuthonippadam in 2018-19 (between Ch.18238m and 18261 m) created an ayacut of 796 ha, out of which 11 ha was benefited through Ettumanoor branch canal and 785 ha through Kurumulloor Distributary
- Completion of Elanji distributary from Ch.0 – 3415 m helped to achieve an ayacut of 298 ha in 2019-20.
- By the completion of Madakkathanam Minor Distributary (Ch.0-690m and 1522-3765 m) (except Painkulam aqueduct), an ayacut of 126 ha was achieved in 2019-20
- By the commissioning of Koothattukulam Lift Irrigation in 2020-21, the entire ayacut of Koothattukulam distributary could be achieved, i.e., 1080 ha.
- By completing Anicadu East (Nadukkara) Minor Distributary, in 2020-21, for a length of 1620 m, the benefitted ayacut was 196 ha.
- In 2020-21, Painkulam aqueduct (between Ch.690 and 1522 m) could be completed providing an ayacut of 561 ha.
- First reach of Karikode Distributary (0- 1210 m) provided an ayacut of 250 ha.

As on date of commissioning, the total ayacut achieved from this project is 33670 ha (Gross) and 17,179 ha (Net). The cumulative expenditure incurred for the project as on July 10, 2020 is ₹1083.64 crore.

Project Benefits

Main crops irrigated include paddy (3925 ha), banana (2126 ha), pulses (930 ha), Tapioca (448 ha), Ginger (14 ha), Pineapple (790 ha), Coconut (6354 ha), arecanut (597 ha), Rubber (3868 ha), pepper (541 ha), Vegetable (1765 ha), Coffee (16 ha), Nutmeg (1001 ha), Turmeric (35 ha), Cocoa (40 ha), miscellaneous trees (380 ha), and tubers (520 ha). This project also helps in desalination of low-level paddy fields in Kottayam District and benefits the drinking water supply schemes of Idukki, Ernakulam, and Kottayam Districts. It helps in enhancing the ground water levels of nearby wells. Hindustan News Print Factory is having industrial benefits out of this project. It also helps in the generation of hydel power of 10.5 MW.

Source: Water Resources Department, GoK

Canal, the first of its kind in the history of Water Resources Department. The innovative *Push Through* mechanism was used for the tunnel construction of 35 m without creating hurdles to the MC road traffic. Besides this,

66 m cut and cover canal construction was also done. These helped in augmenting the water table and agricultural benefits of the irrigation project to more areas. Several lift irrigation schemes depending on Angamaly

Manjali Thodu were also benefitted. An additional ayacut of 1035 ha was achieved subsequent to the *Push Through* construction. It is worth mentioning that the execution was done in a time bound manner with an expenditure of ₹316.37 lakh.

- 99.5 per cent of Low Level Canal (LLC) has been completed. The construction of LLC from Ch.10599 m to Ch.12000 m was completed during this period. Completion of MC road crossing and the above said stretch of the canal facilitated water distribution up to Ch.12540 m, thereby meeting the water needs of Nedumbassery Panchayath.
- The length of the Kanjoor Thekkumbhagom branch canal was modified to 4.547 km from the initial proposed length of 7 km. Land acquisition process for the branch canal is in progress, for which ₹4.89 crore has been remitted to the Revenue Department.
- Land acquisition process for the flush at Ch.14623 is progressing, the completion of which will enable water distribution till the tail end of LLC.
- 128 ha of ayacut was achieved from Manappattuchira and 396 ha from the completed portion of Link Canal.
- For the works in the Railway crossing portion of LLC, ₹306 lakh has been deposited to railways in 2019-20. Railways having tendered the work, preliminary site work have already started.

The financial expenditure up to March 2020 was ₹493.00 crore and the gross physical achievement was 4429 ha.

3. Karapuzha Irrigation Project (KIP)

Karapuzha Irrigation Project, a medium irrigation project in Kabini sub-basin of Cauvery river, was awarded 2.80 TMC of Cauvery water. The project was approved by Planning Commission in 1978 for ₹7.60 crore and was partially commissioned on June 20, 2010. The project has a Right Bank Main Canal (RBMC) with a length of 8805 m and

Left Bank Main Canal (LBMC) with a length of 16740 m.

Milestones during Thirteenth Five-Year Plan

- Seepage rectification works were completed in the existing canals, thereby enabling water distribution up to Ch.15300m of Left Bank Main Canal (LBMC) during February 2017, for the first time in the history of Karapuzha Irrigation Project.
- Breach at Ch.4800 m of LBMC, because of the floods of 2018, reduced the ayacut area from 245.17 ha to 71.29 ha. Rectification of the breach which is underway is expected to be completed by February 2021. By completing these works, the entire LBMC up to the tail end, that is, Ch.16740 m could be made functional, thereby irrigating a total ayacut of 245.17 ha.
- Rectification works of a major breach in RBMC (between Ch.7673 m and 7888 m) was completed based on the design by IDR. Thus, from this season (2020-2021) onwards water distribution through the canal would be possible till the tail end of RBMC, that is, Ch.8805 m. This will help to irrigate an additional ayacut of 44.47 ha, thereby making the total ayacut of RBMC to 331 ha.
- Thus, by the end of 2020-21, the entire main canal – Left and Right, could be made functional, thereby making it possible to achieve a total ayacut of 636.48 ha.(including 60.31 ha ayacut of Arimunda distributary).
- The five distributaries that off take from the Right Bank Canal system are Ponginithodi, Arimula, Vallipetta, Cheekkallur, and Manivayal. The required land for the construction of these distributaries is in possession of the department. The alignment survey using the smart station was carried out by KERI Peechi.

The financial expenditure up to March 2020 was ₹334.2 crore and the total CCA created was 601 ha.

4. Banasurasagar Irrigation Project (BSP)

Banasurasagar Irrigation Project, in the Karamanthodu river basin, envisages irrigating an area of 2800 ha (net) agriculture land for the second and third crops in two taluks of Wayanad District. It consists of a main canal having a length of 2.73 km and two branch canals – Padinjarathara (9.030 km) and Venniyode (5.390 km).

- The long pending work in the main canal (from Ch.1130 m to 1500 m) of BSP was re-rendered by terminating the initial contractor at risk and cost. Work is now re-arranged and submitted to the Government for sanction.
- Works of Kappumkunnu distributary from Ch.3005 m to Ch.3205 m were completed.
- In the Venniyode branch canal, around 10 per cent works in the stretch (Ch.20m to Ch. 520m) and 35 per cent works in the stretch (Ch.4325 m to Ch.4620 m) were completed. For the works in Ch.570 m to Ch.1715 m, site has been handed over for preliminary works.
- The damaged portions in the main canal (Ch.1130 m), Venniyode branch canal (Ch.340 m) and distributary (Ch. 2300 m and Ch.2350 m) which were damaged during the flood of 2018 as well as the damages to the boundary wall and staff quarters were rectified.
- The financial expenditure up to March 2020 was ₹64.17 crore.

Flood Management Programmes in Kuttanad

Major flood management works in Kuttanad include strengthening and raising the outer bunds of *padasekharams* and allied works such as construction of motor floor, shed, sluice, pipe, and box culvert. A number of significant achievements could be attained in flood control activities through Government of India approved schemes viz, KEL I, KEL II, KEL III and KEL IV thereby protecting 574.83 ha, 3262.91 ha, 2818 ha and 5834 ha, respectively.

Works in the Kuttanad region faced several bottlenecks in the form of unexpected climatic variations, heavy rainfall resulting in floods (2018, 2019, and 2020) and the Covid-19 pandemic induced lockdown. A package for comprehensive development of Kuttanad region (Kuttanad Package II) has been announced by the Hon. Chief Minister which consists of various measures to be implemented through inter departmental coordination. The package is being implemented through State Plan, RKI and KIIFB.

Major flood management activities carried out in the region during Thirteenth FYP are detailed below.

1. Reconstruction of bund at Puthenarayiram Padasekharam in D block:

This polder in Pulinkunnu Grama Panchayat of Kuttanad Taluk, having an area of 211 ha, experienced a breach in the western bund during 2015 and 2016 because of high tides. Latest technology of precast pile and slab was adopted at the breached portion. Three layers of precast piles were driven in to the ground and connected by Tie Beams. Precast slabs were inserted in between precast piles and the bund was made by filling *kayal* clay in between piles. To reinforce this, 120 metre long new bund and extra berm was constructed using three rows of coconut piles. *Kayal* clay was used to fill the berm along the inside and outside of the breached portion. Coir geotextile was also used in several phases of bund construction. This work commenced during 2018 could be completed by September 2019 by expending ₹3.18 crore. In 2019-20, cultivation was done successfully in this polder thereby benefiting more than 200 farmers.

2. Construction of earthen bund at Kanakassery Padasekharam:

In 2019, a breach occurred in the eastern bund on the side of Meenappally *kayal* destroying 48.90 ha of paddy cultivation in Kanakassery polder, 58.7 ha in Meenappally polder, and 100.8 ha in Valiyakari polder. Temporary bund construction done by Water Resources

Department, for a length of 60 m, was further strengthened with *pilla* bunds. The work was completed with an expenditure of ₹71.18 lakh.

3. Modernisation of Thanneermukkom Regulator cum Bridge (RCB):

The third stage of Thanneermukkom RCB was completed and opened to public on July 31, 2018. Construction of bridge was completed with 28 stainless steel shutters and allied lifting mechanisms. Radial gates and hydraulic system of 46 feet lock (14 m) have been erected. 62 numbers of old shutters in 1st and 2nd phase were replaced with stainless steel shutters and the works related to hoisting mechanism of these shutters were also completed. Renovation of 20 feet and 30 feet locks were also done. 95 per cent of the project is completed, now the work is on standstill because of a pending case regarding the ownership of soil removed from coffer dam.

4. Removal of mineral sand from Thottappally Spillway:

The actual design capacity of Thottappally spillway is 1800 cubic metre per second, but it got reduced to 600 cubic metre per second because of the reduced width of estuary from 380 m to 150 m. This reduction in the width of estuary was because of the formation of sand bars and casuarina plantation. The reduced width at the mouth, having decreased the efficiency of draining out flood waters into sea, became a crucial factor for the floods during 2018. Therefore, to reinstate the width of 360 m at the estuary mouth, 2,42,831.25 cubic metre of sand and obstructions were completely removed before July 23, 2020.

Irrigation Status

Details on net irrigated area (source-wise) in 2019-20 is shown in **Appendices 3.5.3** and **3.5.4**. The net irrigated area showed an increase over the period from 2017-18 to 2019-20, from 3.92 lakh ha (2017-18) to 4.04 lakh ha (2018-19) which further increased to 4.09 lakh ha (2019-20). But the gross irrigated area after having

declined from 5.398 lakh ha (17-18) to 5.153 lakh ha (18-19), did not fluctuate much with the area remaining at 5.156 lakh ha in 2019-20. Details of gross irrigated area and the crops benefited are shown in **Appendices 3.5.5** and **3.5.6**.

Though coconut and paddy continued to be the major benefited crops even in 2019-20, the irrigated area of both these crops has declined than the previous year. Gross irrigated area under paddy declined from 1.54 lakh ha (2018-19) to 1.50 lakh ha (2019-20) and the irrigated area of coconut fell from 1.59 lakh ha (2018-19) to 1.58 lakh ha (2019-20). The reduction in area under wetland paddy from 1.98 lakh ha (2018-19) to 1.91 lakh ha (2019-20) needs to be mentioned in this context. In 2019-20, the area under banana cultivation as well as the irrigated area showed an increase. While the area under banana increased from 0.52 lakh ha (2018-19) to 0.60 lakh ha (2019-20), the irrigated area of banana increased from 0.44 lakh ha (2018-19) to 0.52 lakh ha (2019-20). Vegetables also had a nominal increase in their irrigated area from 0.30 lakh ha (2018-19) to 0.31 lakh ha (2019-20). There is no change in the percentage of gross irrigated area to gross cropped area (20 per cent) in 2018-19 and 2019-20.

Minor Irrigation (MI)

Rationalisation of Minor Irrigation Statistics (RMIS) scheme

Rationalisation of Minor Irrigation Statistics, a Central assisted scheme, aims to build a comprehensive database in minor irrigation sector for effective planning and policy making. A major activity under the scheme is to conduct Minor Irrigation Census in the States/UTs covering ground and surface water schemes having Cultivable Command Area up to 2000 ha. The census throws light on important aspects like irrigation potential created and utilised through minor irrigation structures (ground and surface water), water distribution practices and sources used for energisation of these schemes.

The 6th census with reference year 2017-18 is in progress. The first water body census is also being done along with 6th MI census. All natural or man-made units bounded on all sides with some or no masonry work used for storing water for irrigation or other purposes (example industrial, drinking, recreation, religious, groundwater recharge) will be treated as water bodies in this census. Even though the field enumeration works of the census started in June 2019, it was held up because of the floods and landslides of August 2019 followed by the lockdown due to Covid-19 pandemic. Till August 2020, 67 per cent of the field work could be completed covering field enumeration works of 697 local bodies. Works of remaining 337 local bodies are in progress. Pending field works, schedule scrutiny, data entry, validation and report publishing will be done during the current financial year (2020-21) itself. As first instalment, ₹46,37,812 (40 per cent of the total estimated amount) was released by GoI in 2018-19 for census works. Out of this, ₹13,14,704 was for 6th MI census and ₹33,23,108 for water body census.

MI schemes during Thirteenth Five-Year Plan

One of the key emphasis of Thirteenth Five-Year Plan was to focus more on Minor Irrigation to expand the ayacut benefited through MI structures. With a view to enhance irrigation efficiency to accelerate crop productivity, Micro irrigation techniques were also adopted during the period. Water Resources Department has initiated measures for implementing community micro irrigation across the State.

Despite all these, the ayacut benefited through MI structures show a fluctuating trend during the first three years of Thirteenth Five-Year Plan – from 8006.64 ha (2017-18) the ayacut declined drastically to 3388.05 ha (2018-19). The succeeding year had a slight increase to 4474.86 ha (2019-20). For the current year (2020-21), till the month of August, 1526.26 ha could be achieved. The damages caused to the MI

structures by the floods of 2018 and 2019 and the delay in timely rectification of these damages has reduced the ayacut. Details of physical achievements of Minor Irrigation schemes from 2017-18 to 2019-20 is given in **Appendix 3.5.7**.

NABARD has been providing loan assistance under Rural Infrastructure Development Fund (RIDF) through Phase I to XXV since 1995-96. RIDF I to XVIII have been closed and the works under RIDF XIX to XXV are in progress. Under various tranches, 1343 projects had been completed. Details are given in **Appendix 3.5.8**.

Ground Water Development

Groundwater Conservation and recharge aims at sustainable development of groundwater resources. These recharge schemes are being implemented as a long term measure to overcome the drought situation in the State. The project component includes roof top rain water harvesting for ground water recharge through dug wells, recharge pits, bore wells, subsurface dykes, and small check dams. Groundwater recharge through roof top rain water harvesting is done in public buildings and government schools. During the Thirteenth Five-Year Plan period, Department has successfully implemented roof top rain water harvesting through recharge pits to enhance ground water levels of dug wells for “Jala Samrudhi” project in Kattakada constituency in Thiruvananthapuram District. Kattakada constituency was declared as the first assembly constituency in Kerala to implement artificial groundwater recharging structures in all Government schools and offices. Details of physical achievement under groundwater development schemes are given in **Appendix 3.5.9**. Details on the total annual ground water recharge, net annual ground water availability and stages of ground water development in our State is given in **Appendix 3.5.10**.

Performance of Irrigation sector during the first four years of Thirteenth Five-Year Plan

The major highlights of the Thirteenth Five-Year Plan approach paper were (1) shift the focus from Major and Medium Irrigation to Minor Irrigation projects (2) Special focus on the modernisation of canals and the expansion of irrigation in acutely water deficient areas (3) Drought management involving short term, medium term, and long term steps (4) Completion of on-going irrigation projects in the State in a time bound manner. Outlay and expenditure details of the sector during the first three years of Thirteenth Five-Year Plan are shown in **Appendix 3.5.11**.

3.6 FORESTRY AND WILDLIFE

Global Forest Resources Assessment (GFRA) done by Food and Agricultural Organisation provides information about the world's forest resources. To quote GFRA report 2020, the rate of net forest loss decreased substantially over the period 1990-2020 because of reduction in deforestation in some countries, plus increase in forest area in others through afforestation and the natural expansion of forests. Asia had the highest net gain of forest area in 2010-2020.

Forest Survey of India undertakes assessment of country's forest resources, every two years, the results of which are presented as India State of Forest Report (ISFR). ISFR 2019 reports the total forest cover of the country as 7,12,249 square km which is 21.67 per cent of the geographical area of the country. This shows an increase of 3976 square km of forest cover at the national level as compared to the previous assessment of ISFR 2017. The top five States in terms of increase in forest cover are Karnataka (1025 square km), Andhra Pradesh (990 square km), Kerala (823 square km), Jammu and Kashmir (371 square km), and Himachal Pradesh (334 square km). Forest cover gives information about the forest canopy area covered on the ground irrespective of the legal status of land whereas Recorded Forest Area gives extent of forests in terms of legal status or definition of land as "Forest" irrespective of the actual forest canopy cover on the ground. The recorded forest area of the State is 11,520.06 square km. Forest conservation and afforestation campaign in Kerala have shown results. There is an increase in forest cover of the

State during the second consecutive assessment period too, thereby enabling the State to occupy third position in terms of increase in forest cover, as per India State of Forest Report 2019. As per the report, the total area under forests, including plantations is 21,144 square km which shows that the forest cover of Kerala has increased by 2.12 per cent from the previous assessment in 2017. The extent of very dense forest is 1,935 square km whereas moderate dense and open forest covers 9,508 square km and 9,701 square km, respectively, making the total area to 21,144 square km. District-wise forest cover details is given in **Appendix 3.6.1**. Among the Districts, Idukki leads with 3,151 square km followed by Palakkad with 2,084 square km, and Malappuram with 1,981 square km. Districts with the least forest cover are Kasaragod and Alappuzha.

Initiatives /Achievements of the Department during the Thirteenth Five-Year Plan

Apart from the regular activities, Kerala Forest Department had undertaken certain Special Projects during these years.

- 1. Project Green Grass:** Kerala Forest Department has launched "Project Green Grass" in the State in a move to keep our forests clean. Sanction was issued in 2019 to implement this project over a period of three years (2019-20 to 2021-22). The project aims at clearing the solid waste from forest areas (by involving VSS/EDC/Voluntary

organisations), create awareness among the tourists, impose spot fining and other legal measures, adoption of technology to monitor waste dumping and so on. 125 waste dumping spots were identified and cleaned. Since Munnar Forest Division faces a major issue of waste dumping, a separate plan was developed for the region, thereby removing 1808 tonnes of waste from that area alone.

2. Forest Plus 2.0: Kerala's Thiruvananthapuram landscape is one among the three areas in India identified for implementing the project by the Ministry of Environment, Forest and Climate Change (MoEF&CC). This project, started in 2018, with the technical support of United States Agency for International Development (USAID), aims at developing tools and techniques to strengthen ecosystem-based management by including ecosystem services in forest landscape management, and to bring in a larger area under improved management and improve the livelihood of forest dependent communities. As part of implementation of this project, the supply chain analysis of major non-timber forest produce and ecotourism activities in the forest fringe villages of Thiruvananthapuram Forest Division is in progress. Baseline studies of ecosystem services provided by the forests of Thiruvananthapuram landscape is also nearing completion.

3. Measures to Reduce Human Animal Conflict: As part of reducing human-wildlife conflict, during the past four years, 204 Jana Jagratha Samithis have been formed in the State. For better coordination mechanism, SMS alert systems were implemented in sixty-five forest fringe areas with control rooms in five locations. "Crash Guard Steel Rope Fencing", the first of its kind in the country, was adopted by the Department to reduce human-wildlife conflict. In this innovative model, flexible steel ropes are used. The ends of the rope are anchored on heavy concrete block so that the whole

component will act as a single unit and the animals will find it difficult to push down. As a pilot project, "Crash Guard Steel Rope Fencing" was installed for a length of 1.3 km in Mankulam Forest Division for an approximate cost of ₹50 lakh/km.

4. Projects under Kerala Infrastructure Investment Fund Board (KIIFB): To reduce Human-Animal Conflict, various activities were initiated under KIIFB in two phases. The activities under Phase I, which will be completed shortly, includes solar fencing, elephant-proof wall and rail fencing, thereby covering 111.91 km for a sanctioned cost of ₹17.40 crore. The works initiated under Phase 2 are in progress. Apart from solar fence and elephant proof wall, crash guard steel rope fencing (42 km) and relocation of 497 families are also undertaken under Phase 2 for a sanctioned cost of ₹73.61 crore.

5. Projects under Rebuild Kerala Development Programme (RKDP): Activities such as voluntary relocation of private settlements from forests, acquisition of private estates within forests and consolidation of mangroves received approval under RKDP for ₹800 crore. For these purposes, ₹130.41 crore was sanctioned in 2019-20.

6. E-Database for Captive Elephant: By preparing a comprehensive information system of all the registered captive elephants, based on DNA data bank profiling, Kerala became the first State in India to have a detailed database of 519 captive elephants. This was prepared with the technical support of Rajiv Gandhi Centre for Biotechnology.

7. State Butterfly: "Budha Mayoore" is proclaimed as the official butterfly of Kerala State, thereby being the fourth State in the country to have a State Butterfly.

Box 3.6.1 Vanika

An online initiative of Kerala Forest Department to support tribal livelihood during lockdown period

Thiruvananthapuram Wildlife Division under Kerala Forest and Wildlife Department took the lead to develop an online platform to ensure market access of non-wood forest produces (*kasthoorimanjal*, honey, handicrafts/bamboo products) and agricultural produces (tapioca, long beans, yam, plantain) from tribal hamlets in all the three forest ranges namely, Agasthyavanam Biological Park (A.B.P), Neyyar, and Peppara under the division. Agriculture and NWFP collection being the main source of income of traditional forest dwellers in these areas, the tribal people located in tough terrains lost their access to local markets after the lockdown.

VANIKA, the new online initiative, replaced the traditional '*KANICHANDHA*', wherein auction of forest produces were conducted twice a week under the direct supervision of forest officials, thereby ensuring protection to the tribes from the exploitation of intermediaries and a fair market price.

The forest produce procured directly from tribal hamlets at market rates were delivered at the doorstep of prospective consumers on first come first serve basis from different parts of the city through the WhatsApp group *VANIKA*. *VANIKA* has completed its two successful rounds of procurement and distribution.

The greatest advantage of such a timely intervention by Kerala Forest Department is that the people living inside forest areas who would have otherwise lost their products (all of them being perishable) could find their market and the tribals, who were getting regular income earlier through these products, are not deprived of it during this period.

Source: Forest and Wildlife Department, GoK (2020)

Management of Natural Forests

Major activities taken up in 2019-20 were survey of forest boundaries, forest protection and regeneration of denuded forests. Boundary demarcation was done by construction of cairns and kayyalas along the boundary of the forests. Degraded forest areas were rehabilitated by planting in gaps with the local species. Protection of forests from fire was carried out mainly by undertaking fire lines and engaging fire protection watchers. In 2019-20, 2177.86 km of fire lines were created and 1,54,794 fire protection watchers were engaged.

The total length of boundary which requires demarcation as on March 31, 2019 was 2012.68 km. In 2019-20, 600 km of forest boundary was consolidated by constructing 11,779 numbers of permanent cairns. During the past four years,

53,635 cairns (jundas) were constructed as part of boundary consolidation.

Improving productivity of plantations

Department is having around 1,50,000 ha of forest plantations of various species of which teak covers approximately 77,000 ha. The annual revenue of the department comes mainly from the thinning and final felling of these plantations. In 2019-20, hardwood species were newly planted in 95.78 ha and maintenance of plantations were carried out in 505.67 ha. Plantations used for Industrial raw materials were newly raised in 153.53 ha and maintained in 343.97 ha whereas it was 6 ha and 822.01 ha, respectively, for non-wood forest species. In 2019-20, plantation activities under hardwood species, industrial raw materials, and non-wood

forest species show a decline from the previous year. Under hardwood species, focus was mainly given for fire protection of old plantations than for raising nursery for public distribution of seedlings. Since mature plantations falling under the category of industrial raw materials were not felled, it hampered raising of new plantations in the area and their subsequent maintenance. Species-wise area under forest plantation is given in **Appendix 3.6.2**.

Human-Animal Conflict Resolution

To mitigate the increasing problem of human-animal conflict along the forest fringes, several proactive measures are being adopted by the Forest Department. These include physical barriers like solar fencing, digging of elephant-proof trenches, construction of elephant-proof walls, and crash guard rope fencing along the forest boundary. Apart from this, activities such as construction of check dams, maintenance of vayals and ponds in forest area to ensure the availability of sufficient water, planting fodder species inside forests to ensure food for wild animals, voluntary relocation of tribes from settlements and awareness creation among the farmers to abstain from cultivating palatable crop along the forest fringes are also practiced. Major

preventive structures constructed in 2019-20 include 360.39 km of solar fencing, 32.73 km of elephant proof trench, and 3.5 km of elephant-proof wall.

In 2019-20, 6662 incidents of human-animal conflicts were reported, elephant attack leading with 2895 cases. Incidents reported in 2017-18 and 2018-19 being 7229 and 7890, respectively, the decline in incidents in 2019-20 is a positive sign. The Forest Department had taken proactive steps towards preventing the human-animal conflict which has resulted in combating the conflicts to a considerable extent. Consequently, the amount paid as compensation to the victims was also lesser in 2019-20, with ₹9,30,06,454 against the previous year compensation amount of ₹11,15,03,154. Details are given in **Table 3.6.1**. For addressing the steadily increasing incidents of Human Animal Conflicts, Government has setup Rapid Response Teams in 8 locations, namely Kannur, Kozhikode, Nilambur, Palakkad, Mannarkkad, Ranni, Peppara, and Wayanad.

Major Forest Produce and Revenue from Forests

Production of major forest produce in 2018-19 and 2019-20 is given in **Appendix 3.6.3**.

Table 3.6.1 Details of incidents of Human-animal Conflict reported and compensation paid in 2019-20

Incidents	Snake Bite (in nos)	Elephant attack (in nos)	Wild Boar attack (in nos)	Wild Gaur attack (in nos)	Tiger Attack (in nos)	Leopard Attack (in nos)	Others (in nos)	Total Incidents (in nos)	Compensation paid (in ₹)
Human Death	71	13	3	0	2	0	3	92	2,21,70,000
Human Injured	548	34	97	3	0	1	16	699	2,15,82,486
Cattle Death	23	0	3	0	84	96	115	321	71,73,576
Crop Damage and Property Loss	2	2848	1250	47	0	17	1386	5550	4,20,80,392
Total	644	2895	1353	50	86	114	1520	6662	9,30,06,454

Source: Forest and Wildlife Department, GoK

Data shows the decline in production of almost all the major produce in 2019-20 as compared to the previous year. In 2019-20, even though sandalwood production topped with 69,692 kg, there was 29 per cent decline compared to the previous year production level of 98,834.3 kg. The production of honey also declined from 39,021.25 kg (2018-19) to 25,661.10 kg (2019-20).

Marayoor is the only sandal production division in the State. Due to heavy winds in August 2019, several branches of sandalwood trees were broken and these were collected and transported to sandal depot for further actions. The quantity of sandal obtained from branches was much lesser than from whole trees. The major buyers of sandal being from other States, levying of CGST and SGST from purchasers outside the State resulted in non participation of major stake holders in e-auction leading to reduction in the revenue.

Trends in revenue from timber and other forest products from the period 2017-18 to 2019-20 is given in **Appendix 3.6.4**. The revenue from forest products and other receipts which was ₹245.41 crore in 2017-18 increased to ₹287.20 crore in 2018-19. But, revenue receipts

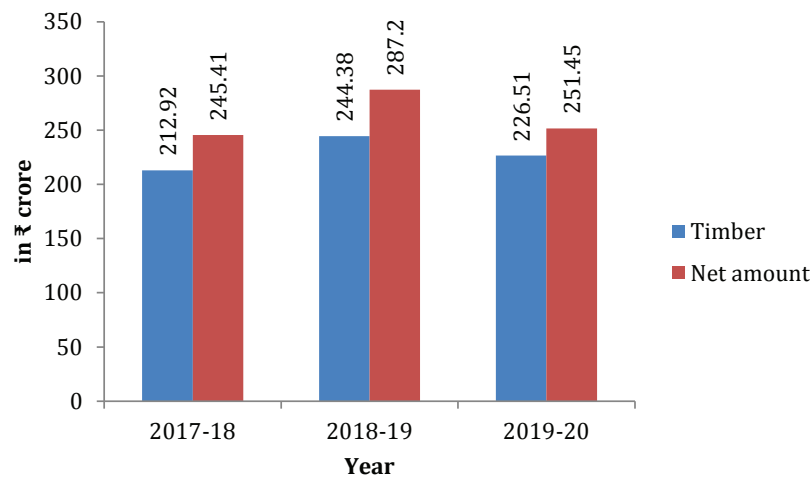
declined to ₹251.45 crore in 2019-20. Revenue from timber also showed a fluctuating trend by increasing from ₹212.92 crore (2017-18) to ₹244.38 crore (2018-19) and then falling to ₹226.51 crore in 2019-20. There was a decline in teak production in the State in 2019-20. Felling of teak plantations were not undertaken in Malayattoor and Thenmala divisions in 2019-20, leading to decline in forest revenue. **Figure 3.6.1** shows the trends in forest revenue.

The share of forestry and logging in total GSVA at basic prices was 0.79 per cent in 2019-20, whereas it was 0.87 per cent in 2018-19. Similarly, the share of primary sector in GSDP which was 8.36 per cent in 2018-19 has decreased to 7.45 per cent in 2019-20. Contribution of forestry sector in GSVA is shown in **Appendix 3.6.5**.

Biodiversity conservation and Protected Area Management

Conservation of wildlife and biodiversity is gaining more importance these days. The Wildlife Wing manages 3437.027 square km of forests under its protected area network which includes National Parks, Wildlife Sanctuaries, and Community Reserve. Details given in

Figure 3.6.1 Trends in forest revenue 2017-18 to 2019-20



Source: Forest and Wildlife Department, GoK

Appendix 3.6.6. Wildlife wing also looks after the conservation and management of high value biodiversity areas outside protected areas. Habitat improvement works such as fire protection, water source development, eradication of invasive weeds, infrastructure facilities including construction and maintenance of trek paths, provision for communication and so on are included in protection and conservation.

Apart from the general wildlife census being conducted in the forest area, separate population estimation is conducted for Tiger, Elephant and *Nilgiri Tahr*. As per the report published by MoEF&CC, the tiger population has increased from 136 in 2014 to 190 in 2018. *Nilgiri Tahr*, an endemic species, was included in the IUCN Red Data Book (International Union for Conservation of Nature) under the status “Endangered” because of the low population status and also because of their restricted/discontinuous distribution in the mountain landscapes of Southern Western Ghats of Kerala and Tamil Nadu. The estimated population of *Nilgiri Tahr* in Kerala was 575 in 2017. It was 643 and 526 in 2018 and 2019, respectively.

Social Forestry

Through the *Haritha Keralam* Scheme, seedlings were distributed free of cost to schools and higher educational institutions. The scheme also includes production and supply of seedlings at subsidised rate to local bodies, media, public, and other organisations. Phase XI of the scheme was carried out in 2019-20, through which 63.18 lakh seedlings were distributed. Through eleven phases of this scheme, starting from 2009-10, 771.36 lakh seedlings were distributed. For distributing seedlings for the planting season of 2020-21 as part of next phase of *Haritha Keralam*, 57.70 lakh seedlings were raised in 2019-20. Details of seedlings distributed through social forestry are given in **Appendix 3.6.7.**

The objective of the scheme “Incentivisation of Private Forestry” is to encourage farmers to grow more trees and produce timber in private

lands. Those who are planting minimum of 50 seedlings in their land are eligible for incentives. In 2019-20, ₹10.08 lakh was given as incentives to farmers. Under *Vazhiyora Thanal* Programme, in 2019-20, Social Forestry wing had planted 1,58,794 seedlings in the land owned by various institutions, land under CRPF, Panchayat land and at the road sides. This has resulted in expanding the green cover to additional area.

Performance of the sector in Thirteenth Five-Year Plan

The emphasis of Thirteenth Plan was on forest protection and management, demarcation of forest survey land using modern surveying facilities, reduce human animal conflicts and support to water management within forests. Outlay and expenditure details of the sector during the first three years of Thirteenth Five-Year Plan is shown in **Appendix 3.6.8.**

3.7 ENVIRONMENT

Kerala is one of the States of India where the development-environment connection thrusts itself on life, society and governance in inescapable fashion. The landscapes and ecosystems of the State are unique in many ways due to the particular features of its geography and climatic conditions. Kerala is one of the country's and world's distinctive biodiversity hotspots. It has all the three maximally productive and biodiversity rich ecosystems in the world, namely tropical rainforests, freshwater and brackish water wetlands, and the marine coral reefs. There has been progressively rising pressure on the environment and the natural resources of Kerala over the years from the high density of population as well as the State's developmental needs. The serious consequences of this pressure are becoming increasingly evident. Development in Kerala has to ensure, utilising the best of ongoing scientific and technological development, that the demands on the environment do not exceed its carrying capacity for the present as well as future generations.

The State of Kerala may be justifiably proud of the high level of popular awareness of environmental issues. Environmental consciousness is all pervasive in Kerala society, and related issues are debated intensely in the public sphere, extending well beyond the narrow confines of an intellectual elite. However, it is not always evident that such consciousness or awareness is matched by an adequate scientific and technological appreciation of the issues involved

and the recourse to science to solve these issues. In the absence of adequate scientific inputs, there will be an inevitable slide into conservation privileging or even over-riding developmental efforts. It needs to be emphasised that even the notion of carrying capacity is not a static one and that science and technology can actively develop and enhance the carrying capacity, including the biocapacity, of any given landscape or ecosystem.

Science is also the indispensable ally and foundation on which to build further beyond traditional knowledge, from which there is much to learn. But science is indispensable to separate the grain of valid experiential knowledge from the chaff of hearsay, prejudice or plain obscurantism. Without science as a guide, popular enthusiasm for environmental protection may also slip into an alarmist mode that cannot but have a retrogressive impact not only on development, but on society as a whole. Sustainable development would be an empty slogan without the effort to resolve the environment-development conundrum through the application of science and technology.

The importance of science has been recently re-emphasised by the Covid-19 pandemic and the discussions that have ensued over its origins, the means to contain its impact and the need to monitor and, to the extent possible, guard against such zoonotic outbreaks. On another front, the impact of the recurrent floods and landslides over the previous two years, preceded by an unprecedented drought, have also brought

home the need for science-based study and intervention, to build resilience to climate extremes in the era of climate change.

With a scientific outlook guiding all activities in the environmental sphere, many of the decentralised institutions envisaged and set up for environmental governance, such as Biodiversity Management Committees, may be provided specific and concrete agendas of work, in monitoring various specific aspects of the environment. This would be a valuable way in which popular enthusiasm can be used to promote scientific information gathering and data collection, with appropriate training. To date, all over India, it has proven difficult to provide focused and active work to the Biodiversity Management Committee (BMCs) beyond the initial effort to list and catalogue various environmental assets at the local level in the preparation of the People's Biodiversity Registers (PBR).

At the level of governance, the Environment (Protection) Act was enacted in 1986 with the objective of providing for the protection and improvement of the environment. It empowers the Central Government to establish authorities charged with the mandate of preventing environmental pollution in all its forms and to tackle specific environmental problems that are peculiar to different parts of the country. The Act was last amended in 1991. This necessitated a State Policy Statement with the objective of complementing and supplementing the National Strategy and Policy. Kerala Environment Policy came into existence in 2009. This Policy document provides a framework within which conservation and development can be achieved simultaneously with a view to maximising the quality of life for all in the State, optimising the ecological load on the natural systems as well as building up the State's economy while minimising environmental degradation.

Climate Change

Climate change poses an emerging challenge

to sustainability of social and economic development, livelihoods, and environmental management across the globe. The rise in Green House Gases (GHGs) in the atmosphere causes rise in temperature which in turn leads to unpredictable weather including flash floods and drought, and rise in sea level. So far as India is considered, the country is highly vulnerable to climate change because of high physical exposure to climate related disasters (65 per cent is drought prone, 12 per cent is flood prone, 8 per cent susceptible to cyclones) and also India's economy and population depends on climate sensitive sectors like agriculture, forests, tourism and fisheries. India had started its work on action plan in 2007 and the National Action Plan for Climate Change (NAPCC) was released in October 2008. The National Action Plan for Climate Change (NAPCC) sets eight National Missions to respond to climate change; these include National Mission on Solar Energy, Enhanced Energy Efficiency, Sustainable Agriculture, Sustainable Habitat, Water, Sustaining Himalayan Eco-System, Green India Mission and Strategic Knowledge for climate change covering range of actions including adaptation and mitigations. The principles adopted for the National Action Plan for Climate Change (NAPCC) include achieving sustainable development path while advancing economic and environmental objectives.

Subsequent to the introduction of National Action Plan on Climate Change (NAPCC) in 2008, State Governments were also encouraged to prepare their own State Action Plan on Climate Change (SAPCC) consistent with strategies in the National Action Plan for Climate Change (NAPCC). The first Kerala State Action Plan on Climate Change was drafted by the Directorate of Environment and Climate Change (DoECC) with inputs from relevant Departments, Agencies and Research Institutions. This was endorsed by the Government of India in 2014. It is proposed to identify specific vulnerabilities and plan appropriate responses keeping those in focus. As the foremost impact of the changing climatic pattern relates to the land and water resources, a system for monitoring will be the

Box 3.7.1 Ban on Single Use Plastic

As per the Government order (MS) NO 7/2019/Env dt 17.12.2019, ban on single-use plastic came into force from January 1, 2020. Right after the inception of Plastic Waste management Rules, 2016 the State Government has imposed strict restriction on the use and sale of plastic carry bags less than 50 microns to facilitate collection and recycle of such plastic. State Government has already taken all possible steps with regard to setting up of facilities for collection, segregation and disposal of all kinds of wastes including Plastic Waste. But the uncontrolled and irresponsible usage of plastic has been posing environmental as well as health hazards. The plastic items are mostly ending up in rivers and water bodies making even recycling impossible. The ecological system and specifically the marine ecology are affected. The grim situation was never been more evident than the after flood situation in Kerala witnessing heap of plastic bottles/debris reaching shores from sea and lakes. The alarming situation has reached a level where the trans generational equality is threatened. Government then appointed an Expert Technical Committee to list out the plastic items to be banned and to find substitutes for them. The Expert Technical Committee submitted its report to the Government recommending partial ban on some items like PVC, flags and regulation in case of majority of items and to establish a return and earn scheme.

Source: Directorate of Environment and Climate Change, GoK

first imperative. Thus the SAPCC will build on the existing policies of the State Government by taking into consideration the ongoing programmes and schemes being implemented at the State level as well as the National Action Plan for Climate Change (NAPCC). The State Action Plan on Climate Change (SAPCC) will have to be integrated into the State level planning process so that the resource allocation of the implementation of identified adaptation measures can be made with the objective to achieve the development goals of the State Government. Adaptation is a key part of Kerala State Action Plan on Climate Change and it is about taking action now to protect State from the challenges caused by a changing climate. The Kerala State Action Plan on Climate Change developed by the Department of Environment and Climate Change, Government of Kerala aims to address negative consequences of climate change and thus reduce risk associated with it. It also envisaged that climate change strategies need to be integrated into the development planning process in the State.

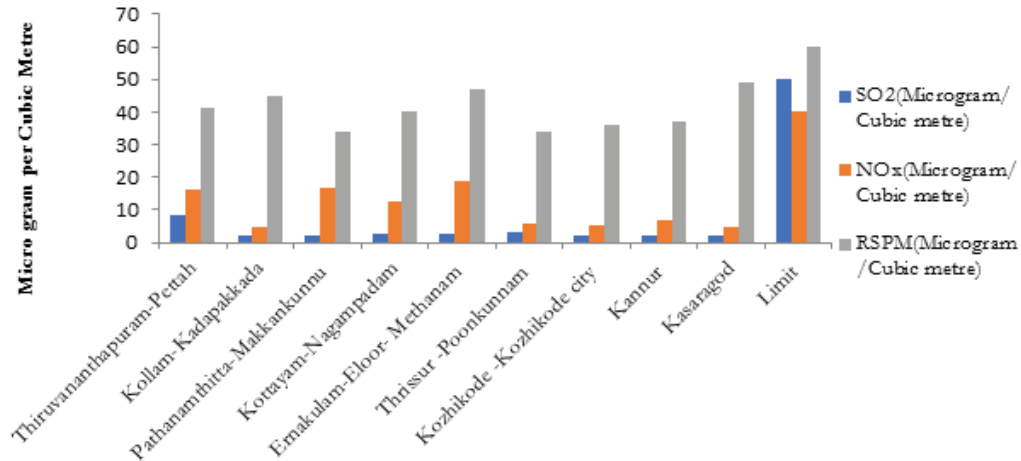
Air Quality Monitoring

The Kerala State Pollution Control Board is monitoring ambient air quality at 35 stations in the State. Of the 35 stations, 28 stations

come under the National Ambient Air Quality Monitoring Programme (NAMP). It includes 4 new stations established in 2019-Thiruvalla (Pathanamthitta), Kuttipadam (Ernakulam), Perinjadoor (Thrissur) and Kalpetta (Wayanad). State Ambient Air Quality Monitoring Programme (SAMP) implemented at 7 stations, including new station established in 2019 in Moovattupuzha. PM 2.5 sampler was installed at 19 Air Quality Monitoring stations in 2018-19. 17 numbers of RDS and PM 2.5 samplers for ambient air quality monitoring were purchased in 2019-20. Eight numbers of Microbalance also purchased and distributed one each for district offices at Thiruvananthapuram, Alappuzha, Ernakulam, Wayanad, Kannur, Perumbavoor, Kollam and Thrissur.

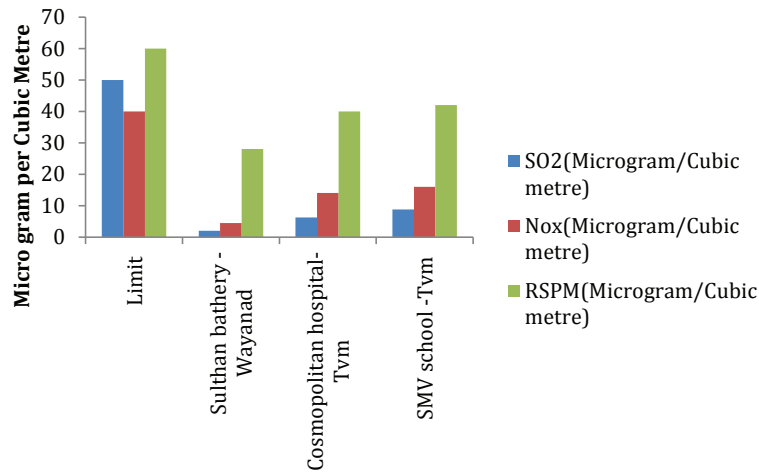
Kerala State Pollution Control Board established and commissioned Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at Kozhikode (1 station) and Ernakulam (2 stations). In 2019-20, the Board established and commissioned Continuous Ambient Air Quality Monitoring Stations (CAAQMS) each at Kollam, Thrissur and Kannur. Various ambient air Quality parameters are monitored continuously and displayed to the public (**Figure 3.7.1, 3.7.2 and 3.7.3**).

Figure 3.7.1 Annual average values of air pollutants at 10 monitoring stations in the “Residential” areas of Kerala, 2019



Source: Water and Air Quality Directory 2019, Kerala State Pollution Control Board

Figure 3.7.2 Annual average values of air pollutants at 3 monitoring stations in the “Sensitive” area of Kerala, 2019



Source: Water and Air Quality Directory 2019, Kerala State Pollution Control Board

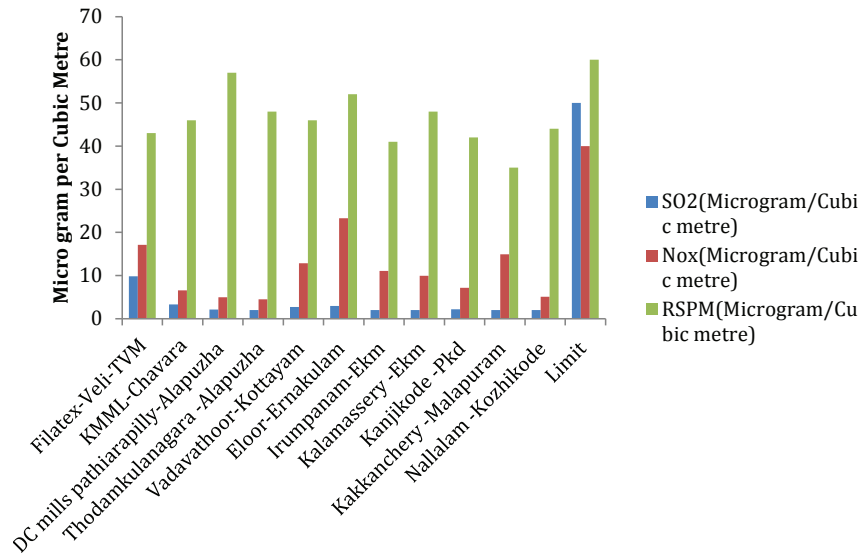
Water Quality Monitoring

A total of 128 water Quality Monitoring Stations are under National Water Quality Monitoring Programme (NWMP). It includes 72 stations in 48 rivers (major, medium and minor rivers), six in reservoirs, three in fresh water lakes, eight in estuarine lakes, three in canals, two in ponds and 34 stations in ground water under

this programme. State Water Quality Monitoring Programme (SWMP) operates at 115 stations in 23 rivers and 23 stations in four lakes.

Some of the rivers having high BOD values are River Pamba during Sabarimala festive seasons and downstream of River Karamana, Periyar, Bharathapuzha, Vamanapuram and Kadalundi. Coliform counts at Munnattumukku in Karamana

Figure 3.7.3 Annual average values of air pollutants at 11 monitoring stations in “Industrial” area of Kerala 2019



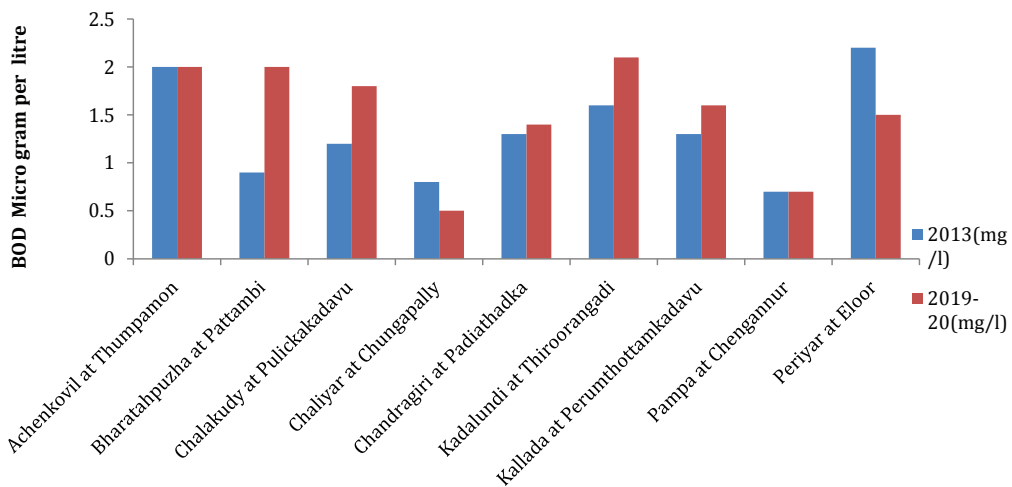
Source: Water and Air Quality Directory 2019, Kerala State Pollution Control Board

River, Kallayi bridge in Kallayi River, Pamba River, Purakatteri in Korapuzha river, Thodupuzha river and Munnar river are reported very high.

Though Bharathapuzha, Chalakudy and Kadalundi showed an increase in BOD levels with respect to that in 2013. Chaliyar and Periyar show a drop in BOD levels as compared to 2013 level.

With regard to rivers, the BOD is plotted in **Figure 3.7.4**. It shows that BOD is highest for Periyar and also is higher than 2013 levels.

Figure 3.7.4 BOD levels at selected river stations for 2013 and 2019



Source: Water and Air Quality Directory 2019, Kerala State Pollution Control Board

Box 3.7.2 Surveillance of Sabarimala during pilgrimage season

During Sabarimala pilgrimage season, Board has to ensure quality of drinking water supply in the pilgrimage area. For this purpose laboratory is provided at Pamba. Besides continuous river water quality monitoring at different locations, sampling from effluent treatment plants are also done for ensuring good environmental conditions. Ambient Air Monitoring and noise monitoring are also done during the years and Camp offices have been setup at Sannidhanam, Pamba and Erumeli with sufficient sampling as well as laboratory staff for this purpose. Board has conducted various awareness programmes among the public. The Board has banned plastic carry bags, canned food and bottled water in the pilgrimage area during the season. Necessary instructions in this regard were issued to concerned departments for implementation.

Source: Directorate of Environment and Climate Change, GoK

Biodiversity of Kerala

India has done well in raising awareness about biodiversity, which is an important thrust area in several programmes of the Government. As a megadiverse country harbouring nearly 7-8 per cent of globally recorded species while supporting 18 per cent of the global human population on a mere 2.4 per cent of the world's land area, India's quest for inclusive economic development while maintaining integrity of its natural capital is being pursued through various programmes and strategies. Measures have been adopted for sustainable management of agriculture, fisheries and forests, with a view to provide food and nutritional security to all without destroying the natural resource base while ensuring intergenerational environmental equity. Programmes are in place to maintain genetic diversity of cultivated plants, farms livestock and their wild relatives, towards minimising genetic erosion and safeguarding their genetic diversity. Mechanisms and enabling environment are being created for recognising and protecting the vast heritage of coded and oral traditional knowledge relating to biodiversity for larger human welfare while safeguarding the interests and rights of the local communities as creators and holders of this knowledge.

India has been investing a huge amount on biodiversity directly or indirectly through several development schemes of the Central and State Governments, to the tune of ₹70,000 crore per annum as against the estimated

annual requirement of nearly ₹1,09,000 crore. India has nearly two third of the population of wild tigers in the world. The population of lion has risen from 177 in 1968 to over 520 in 2015, and elephants from 12,000 in 1970s to 30,000 in 2015. One-horned Indian Rhino which was on the brink of extinction during the early 20th century, now number 2400. Further, while globally over 0.3 per cent of total recorded species are critically endangered, in India only 0.08 per cent of the species recorded are in this category. India is committed to protecting its rich heritage of biodiversity which are so vital to our economic and social development.

Public education and awareness about biodiversity is one of the thrust areas of the Government. Biodiversity touches every human being and contribution of every person is required for its conservation and sustainable use. For a meaningful contribution, people need to understand the concept, the significance of and the threats to biodiversity, as also the role they can and must play to adopt direct and indirect measures for its restoration, conservation and sustainable use. Students and youth need to be incepted in the process right from their formative years with special attention to the youth which constitute nearly 35 per cent of the total population in India today.

Degradation of natural habitats affects the entire population adversely; but the effect of the impairment of ecosystem services on the people with meagre means and dependent on land and

natural resources for livelihoods is deleterious. A little more than two-thirds of India's geographical area is arid, semi-arid or dry sub-humid on which depend a vast majority of rural and semi urban poor for their livelihoods. Studies have repeatedly emphasised that the rural poor and particularly women are severely impacted by the effect of environmental degradation on soil fertility, quantity and quality of water, air quality, forests, wildlife and fisheries.

Biodiversity Management Committee (BMC) for Conservation

Kerala State Biodiversity Board had constituted Biodiversity Management Committees (BMCs) in all Panchayats, Municipalities and Corporations in 2012. After the local body elections, Biodiversity Management Committee (BMCs) was reconstituted in 2015-16. In 2019-20, KSBB initiated constitution of Biodiversity Management Committee (BMCs) in the remaining upper two tiers of Panchayati Raj systems in the State namely, Block Panchayats and District Panchayats. The process of Biodiversity Management Committee (BMC) constitution in 152 Block and 14 district Panchayats were completed in December 2019. During the Thirteenth Five-Year Plan, it was aimed to strengthen the BMC through capacity development and policy support to sustainably manage the natural resources at local level. In 2017-18, twenty Biodiversity Management Committee (BMC) were selected and during the reporting period 28 model Biodiversity Management Committee (BMCs) were selected (two from each district) and they are being empowered and provided financial support for focused projects.

Implementation of People's Biodiversity Register (PBR)

The PBR is a comprehensive document on Biodiversity prepared with the support of Kerala State Biodiversity Board and Technical Support Groups (TSG). In 2019-20, a total of 75 PBRs has been prepared. The process of People's

Biodiversity Register (PBR) of the locality along with associated traditional knowledge prepared by BMCs with technical preparation was completed in entire 1034 local bodies at grassroot level namely, 941 Gram Panchayats, 87 Municipalities and 6 Corporations.

Impact of flood and natural disasters on Biodiversity

Kerala State Biodiversity Board had conducted a rapid assessment of the impact of flood on Biodiversity-community perspectives through BMC in 2018 which has recorded that about 771 different landscapes including riverine, forest, plantations and agricultural fields were affected. About 287 varieties of agricultural crops, 1053 Flora and 695 Fauna were affected. Major causes of disaster according to community include land use change in wetlands, removal of river bank vegetation, construction activities in hill slopes and unsustainable quarrying. As a follow-up to this, areas requiring attention was prioritised and 28 studies related to assessment of impact of floods/ landslides on Biodiversity and ecosystem with special emphasis on Riverine rejuvenation were awarded to R & D institutions and Universities in Kerala. The outcome of this study are that Periyar, Pamba, Bharathapuzha, Chalakudy river areas are prioritised for recovery measures, management and control of soil erosion at selected areas of Pamba have been taken up, vulnerable areas to landslides have been identified and Riparian vegetation prioritised for recovery process.

Major initiatives and activities of the departments

The Indian constitution is one of the first in the world to recognise the importance of environmental conservation. The Constitution directs the "State to take measures to protect and improve the environment and to safeguard the environmental quality". It also makes it a fundamental duty of every citizen to protect and improve the natural environment including forests, lakes, rivers and wildlife.

The Directorate of Environment and Climate Change provides environmental education and awareness through their programmes like *Paristhithikam* and *Bhoomitrasena* Clubs. *Paristhithikam* focuses on conducting awareness and activity oriented programmes under the theme “Fight against Air Pollution”. Presently there are 369 BMCs functioning in various Higher Secondary Schools/ Colleges all over Kerala to create and promote environmental awareness among the students.

The major initiatives of Directorate of Environment and Climate Change in 2019-20 are a) Water quality monitoring programmes were conducted in different water bodies, including drinking water sources in the flood affected regions and ascertained its potability and/or suitability of use, by selected BMCs; b) Conducted environmental awareness and action oriented environmental conservation programme in different parts of the State under the title “*Paaristhithikam*” based on the theme “Combating Air Pollution”; c) A project titled ‘Grid connected solar powered charging station for electric vehicles’ for the promotion of sustainable energy in the automobile sector was initiated; d) Brief documents on wetlands namely (i) Kavvayi, (ii) Kattampally, (iii) Kadalundy, (iv) Kottuli, (v) Pookode (vi) Ponnani estuary/Purathur (vii) Chetuvai kayal (viii) Paravur (ix) Vellayani was prepared by Centre for Water Resources Development and Management (CWRDM) for State Wet Land Authority Kerala.

The Kerala State Biodiversity Board established a Biodiversity museum in Vallakkadavu, Thiruvananthapuram to create awareness among the people on the importance of Biodiversity and Biodiversity conservation. Biodiversity clubs play a great role in furthering biodiversity education and experiences related to the nature and environment outside the class room. 150 Biodiversity clubs were newly registered during the year. Altogether there are 1715 registered biodiversity clubs in Kerala. Kerala State Pollution Control Board has taken initiatives

for the implementation of Kerala Antimicrobial Resistance Strategic Action Plan (KARSAP) in the State.

Haritha Keralam Mission

Haritha Keralam Mission was set up in the State in December, 2016 with the objective of ensuring hygiene, water abundance, water security, and the production of safe food items. It has three sub-missions namely, (i) Sanitation and Waste Management, (ii) Water Conservation and (iii) Agriculture Development. The activities of Haritha Keralam Mission are being carried out with the coordination of various departments and Local Governments with the participation of the people. The main focus areas of the Haritha Keralam Mission are:

- To formulate methods for various levels of coordination of Plans of Local Governments and other departments to address the major issues in each District.
- To ensure scientific, efficient and technical advice to Local Governments in order to attain practical and effective technical facilities.
- Provide leadership and to conduct activities that ensure peoples participation and social inclusion for creating ‘Haritha Keralam’.

Some of the major interventions under the sub-missions are detailed below.

The ‘Freedom from Waste’ campaign laid a strong foundation for activities in *Sanitation and Waste Management* by the Local Governments (LGs). By providing basic requirements for source level treatment of waste such as Material Collection Facility (MCF), Resource Recovery Facility (RRF), Haritha Karma Sena, household source level treatment plants and community composting units, waste processing has got the importance it deserves so that sustainable and clean environment is created and maintained. Haritha Karmasena, formed for the collection of non-degradable waste in 1,033 local governments with the participation of 28,632

members is now active in 805 LSGs. This project is also generating income as they earn between ₹3,000 and ₹15,000 per month.

The 1141 Material Collection Facility (MCF) Centres for collection and storage of non-degradable waste and 150 Resource Recovery Facility centres for its segregation, recycling and subsequent activities are fully operational in the LGs. About, 45 percentage of the bio-waste generated daily in the State is being treated scientifically through the source level waste treatment system. 1,320 industrial enterprise level biogas plants and 97 community level biogas plants were set up. 2023.34 km of road was tarred by local bodies with powdered plastic. 1554 Million Tonne of e-waste was collected from the State and delivered to e-waste recyclers.

Significant role has been played by Haritha Keralam Mission to make the Green Protocol a part of the social life and is being implemented in festivals and celebrations and also being implemented in 10,010 offices and institutions in the State, District and Block level. State-wide green law literacy awareness campaign has been made available to over two million people, in the light of the decision of the Government, leading to severe penalties for dumping waste into water bodies and a ban on single-use plastics. Took successful initial steps to implement the Green Protocol in the 2019 Parliament Election held in Kerala. Even in the context of the Covid-19 pandemic, efforts are being made by the local bodies to achieve cleanliness status. Cleanliness status is the first step towards complete sanitation status given to local bodies which have demonstrated excellence in solid waste management and created the infrastructure for it.

Haritha Keralam Mission has done efficacious activities in the sector of *water conservation* and *water preservation* during the last four years in the form of river rejuvenation and cleaning activities at the water source. A total of 390 km of rivers and 41,529 km of streams were rejuvenated. 1,013 LSGs prepared the watershed plans. 105 blockhead watershed

master plans were prepared. 60,116 acre of the watershed area was maintained. The revival and rejuvenation of the Varattar river was made possible. Kuttamperur river, Killiyar, Kolarayar, Vadakkepuzha, Chalamkode torrent, MuttamParappa torrent, Kamprayar, Perumthodu, Poonur river, Kottarakkara Pandivayal torrent and other polluted water sources were cleaned and made free water flow possible. The Meenachilaar-Meenantharayarkodoorar reunion was also made possible. Through this, cultivation was resumed on more than 4000 acre. 54,362 wells have been recharged in the last four years; 23,158 wells newly constructed; 13,942 wells upgraded; 18,203 ponds were constructed and 23,628 ponds were upgraded. Through these activities, 1,21,81,650 cubic metres of water storage were ensured. These activities were led by the Employment Guarantee Scheme (MGNREGS) and with the support of local bodies.

Organised a wide public campaign named *ini njanozhukatte* (Now, let me flow) for recovery of water streams in the State. Through this 7,291 km of water streams in the State were cleaned to ensure free flow of water. This helped to reduce the severity of water logging caused by heavy rains in various districts of the State including Kottayam and Alappuzha during the monsoon.

Work has been started to measure water availability by installing scales in ponds. It was implemented in 100 ponds in the Kattakada constituency. Water budgeting activities have been started in each block in all the districts. It is being operated on a pilot basis at Kalpetta in Wayanad district as per the guidelines prepared and approved by the Government. Work has been commenced on the construction of Bandara type summer reservoirs in four water-deficient districts of the State. In the Taliparamba constituency, construction of Bandara has been completed and water storage has been made possible. Through KIIFB, permission was granted for 34 Bandaras at Bhavanipuzha, 6 at Thoothupuzha, 9 at Chandragiri, and 6 at Achankovilar.

Work has been started to set up labs for testing the quality of drinking water for the locals in conjunction with the Chemistry lab of a Higher Secondary School in each Local Self Government area. It is being implemented in 426 schools with MLASDF of 57 MLAs and local bodies concerned. Also, started 10 such labs in Chittoor constituency. With the establishment of labs locally, it has become possible to extend drinking water testing and ensure water quality.

Significant achievements have been attained by Haritha Keralam Mission in the *agricultural sector* through its activities with the support of local bodies and the Agriculture department. 988 wards in 208 Gram Panchayats have been made *Harithasamrudhi* wards. Steps taken to make all ITI campuses in the State green campuses which is in progress and 11 campuses have already been declared as green campuses.

A novel project has been started by Haritha Keralam Mission on June 5, 2019, with the objective of creating 1000 green islets (*Pachathuruth*) to preserve local biodiversity and has already completed 1261 green shoots at various places in the State. Tree saplings were planted on 454 acre in 590 local bodies. In addition, numerous shrubs, vines, and bio-fences were planted.

As part of the *Subhiksha Keralam* project, the Department of Agriculture and the Local Self Government Department in collaboration with the Haritha Keralam Mission have started agricultural activity in the land of public sector undertakings under the Industries Department. Cultivation has been started in 34 establishments, so far, in 9 districts. Harvesting also took place in some locations.

Under the Travancore Devaswom Board, a project has been started to cultivate vegetables, kernels, fruit trees, herbs and flowers for temple purposes in the fallow lands of 1428 temples. The project named '*Devaritham*' is being implemented on 3,000 acre of land of Devaswom Board and has been started in some temples in North Kerala.

Production of fruit saplings is being popularised in various districts as part of the Pachathuruthu project. One lakh saplings are being prepared in a manner of 10 each in all the houses of Padiyoor-Kallyad Gram Panchayat in Kannur district. Various activities are being carried out in Thiruvananthapuram, Kollam, Pathanamthitta, Kottayam, and Thrissur districts in this regard. In short, the activities of Haritha Keralam Mission have been able to create motivation to make environmental protection a part of life.

3.8 FOOD SECURITY AND PUBLIC DISTRIBUTION SYSTEM

According to UN Committee on World Food Security, food security is said to exist when all people, at all times, have physical, social, and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. In order to achieve zero hunger, the United Nations Organisation has declared its aim to end all forms of hunger and malnutrition by 2030, making sure all people – especially children – have sufficient and nutritious food.

As per the report of State of Food Security and Nutrition in the World 2020, 9.7 per cent of the world population (slightly less than 750 million people) was exposed to severe levels of food insecurity in 2019. In all regions of the world except Northern America and Europe, the prevalence of severe food insecurity has increased. While the 746 million people facing severe food insecurity are of utmost concern, an additional 16 per cent of the world population, or more than 1.25 billion people, have experienced food insecurity at moderate levels.

National Food Security Act, 2013

The National Food Security Act (NFSA), 2013 was introduced by the Government of India to ensure food security for the vast majority of the population belonging to middle and lower classes of the society. The objective of the Act is “to provide food and nutritional security in human life cycle approach by ensuring access to

adequate quantity of quality food at affordable prices to people”. Under the NFSA 2013, the State Government shall be responsible for implementation and monitoring of the schemes of various ministries and departments of the Central Government in accordance with the guidelines issued by the latter for ensuring food security to the targeted beneficiaries of the State. In pursuance of the National Food Security Act 2013, Government of Kerala decided to implement NFSA in the State with effect from November 1, 2016 and Kerala State Civil Supplies Corporation (Supplyco) is entrusted with the task of door step delivery of PDS articles. Keeping in line with the NFSA, the Government of Kerala took measures to identify eligible households. In Kerala, the process of renewal of existing ration cards coincided with the statutory provisions of the NFSA. As mandated in the NFSA, “priority” and “non-priority” ration cards have replaced the BPL and APL cards respectively. A State-wise ranking of the beneficiaries was also conducted. Kerala has successfully implemented NFSA 2013 as per the norms suggested by Government of India.

The entire scenario of public distribution system has undergone a radical transformation with the introduction of NFSA 2013 in the State. As per the Act, the responsibilities of both the Central Government as well as the State Government are delineated which is one of the salient features of the Act. Under the NFSA, end to end computerisation of the entire chain of

the PDS has been planned with the objectives of reducing leakages, improving targeting and reducing cost of distribution. It also involves introduction of electronic point of sale (e-POS) at the Authorised Retail Distributors (ARD), supply chain management from the FCI to the ARD level, biometric authentication for retail and wholesale transactions, providing decision support systems in a GIS-based graphics interface to ensure an effective, responsive, transparent, efficient and corruption-free PDS. The entire ration card data are digitalised and Aadhaar seeding of beneficiaries in the State is nearing completion. The State has also started Grievance Redressal Portal wherein people can submit their grievances online. Installation of e-POS machines in ARDs which is a part of NFSA operations are complete. Vehicles used for transporting food grains have been installed with GPS. Inter State portability of ration card is in force in the State as a part of the implementation of 'One Nation One Ration card Programme'.

As stated earlier, Supplyco has been entrusted with the implementation of the doorstep delivery of rationed articles under the PDS in Kerala. The food grains allocated to the State either through Food Corporation of India (FCI) or from Compact Multi Roller (CMR) mills have to be lifted from respective godowns and delivered at the doorstep of the Fair Price Shops (FPS) after storage at interim godowns. At present, the Corporation has started NFSA intermediary godowns in all 75 Taluks in the State for storage of food grains lifted from FCI depots/CMR Mills. The Corporation has also hired 223 godowns with 15.0 lakh square feet area which can store about 2.5 lakh MT of food grains. Due to switching over to NFSA operations, the operations in the existing 11 sub depots have been converted as NFSA godowns.

The Essential Commodities (Amendment) Act 2020

The objective of this Act is to liberalise the regulatory system to increase competitiveness in the agriculture sector and enhance the income of the farmers. By this amendment, a new sub

section 1 A is inserted after the sub section (1) in Section 3 of the Essential Commodities Act 1955. It is stipulated that the supply of food stuffs including cereals, pulses, potato, onions, edible oil seeds and oils may be regulated only under extraordinary circumstances including war, famine, extraordinary price rise and natural calamity of grave nature. The Sub section 3(1A) shall not be applicable to any order relating to Public distribution system or the Targeted Public Distribution System made by the Government under the Essential Commodities Act 1955 or under any other law for the time being in force. This may lead to hoarding and black marketing of essential commodities.

Hunger Free Kerala

The State Government has launched a new project 'Subhiksha' under Hunger Free Kerala project to give at least one meal a day for the needy free of cost. During the initial stage of the implementation of the project in Alappuzha Municipality, 130 bedridden patients were given free food at their door steps. In the next phase of the project, 'Subhiksha' hotel was started in the District.

In the first phase of this project, a committee presided by District Collector was formed for organising the distribution of food to bed ridden patients and dependence at their door steps, with the help of ICDS workers, palliative care centre, voluntary organisation and Asha workers. As decided by the Government ₹25 per meal and ₹5 as handling charges and reasonable transportation charges were given to the food distributing agency with the approval of the committee.

Subhiksha restaurants have been started in Alappuzha, Thrissur and Kottayam districts in the second phase of the project and the restaurants are operated under the supervision of the respective Taluk Supply Officers. Kudumbashree/ Voluntary Organisation and Co-operatives have entered in to an agreement to cook and distribute lunch at Subhiksha, and the cost is ₹20 per meal.

For cooking and distribution, an amount of ₹ 5 per meal is given by the Government as subsidy. On an average, 500 to 1500 people in a day are using this facility. The project is expected to be extended to the whole of Kerala in coming years.

Distribution of Ration Cards

Government of Kerala started the Public Distribution System (PDS) in 1965. The timely lifting of commodities allocated from the central pool and ensuring the effective distribution of the same through 14,034 ration shops in the State is the major responsibility of the PDS. Kerala made pioneering achievements in the implementation of a universal rationing system, much before NFSA 2013 was enacted.

The number of ration cardholders in the State increased from 87.1 lakh in 2019-20 to 87.9 lakh in 2020-21 (as on August 2020). Out of this, 37.2 lakh cards come under NFSA and 50.7 lakh come under non NFSA. The NFSA section includes 5.6 lakh AAY cards and 31.6 lakh priority cards. The non-NFSA section includes 24.7 lakh non priority subsidy group and 26.0 lakh non-priority non subsidy group. In Kerala, with the introduction of NFSA, four types of ration cards with different colour codes for households came into existence. The yellow colour code represents the AAY card,

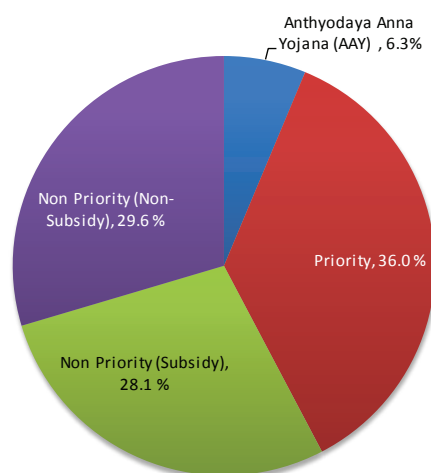
the Priority card comes in pink colour, the non-priority subsidy card is blue in colour and the white colour cards are the non-priority non subsidy ones (**Figure 3.8.1**). In addition to this, there were 816 ration permits for institutions in 2019-20. These permits are issued to institutions/organisations which work in the area of humanitarian aid and charity. They get food grains at subsidised rates.

There are 1.5 crore beneficiaries under NFSA and 2.0 crore beneficiaries under Non -NFSA in the State. Details of the number of cardholders and quantity of food grains available to each category are given in **Table 3.8.1**. Category-wise card holders and subsidy amount spent by Government of Kerala for distribution of food grains in 2019-20 are given in **Appendix 3.8.1**.

Subsidy Spent by Government of Kerala for Various Card Holders

An amount of ₹ 200.0 crore was spent on various card holders as subsidy in 2019-20 as against ₹327.2 crore spent in 2018-19. Details are shown in **Table 3.8.2**. A total of 27.7 per cent of subsidy was spent for priority card holders and 40.6 per cent to non-priority card holders. The subsidy amount for AAY card holders decreased by (-)11.2 per cent, priority card holders by (-)51.5

Figure 3.8.1 Category-wise card holders in Kerala as on August, 2020, in per cent



Source: : Civil Supplies Department, GoK

Table 3.8.1 Category-wise distribution of food grains under NFSA, as on August 2020

Sl No	Category	No. of Ration Cards	Rice	Wheat	Fortified Atta
1	AAY	5,57,303	30 kg/Month (@ free of Cost)	5kg/Month (@ free of cost)	
2	Priority	31,64,161	4 kg/ Member/ Month (@ ₹ 2.00/kg)	1 kg/ Member/ Month (@ ₹ 2.00/kg)	
3	Non Priority (Subsidy)	24,68,520	2 kg/ Member/ Month (@ ₹4.00/kg)		2 or 3 kg/ Month (@ ₹17.00/kg)
4	Non Priority (Non-Subsidy)	25,97,858	₹10.90/kg as per the availability of Stock		2 or 3 kg/ Month (@ ₹17.00/kg)
5	Annapoorna	1,088	10 kg/month (@ free of cost)		

Source: Civil Supplies Department, GoK

Table 3.8.2 Subsidy spent by Government of Kerala for various card holders, in ₹ lakh

Sl. No.	Category	Amount (in ₹ lakh)		Percentage of total		% change in 2019-20 over previous year
		2018-19	2019-20	2018-19	2019-20	
1	Annapoorna	19.4	0.0	0.1	0.00	100.0
2	AAY	7131.9	6,336.3	21.8	31.7	-11.2
3	Priority	11417.3	5,538.2	34.9	27.7	-51.5
4	Non-Priority	14149.2	8,128.0	43.2	40.6	-42.6
	Total	32717.8	20,002.5	100.0	100.0	-38.9

Source: Civil Supplies Department, GoK

percent and non-priority card holders by (-)42.6 per cent (**Table 3.8.2**).

Allotment of Food Grains

The total rice distribution through the PDS in State has decreased from 10,59,392 MT in 2018-19 to 10,11,556 MT in 2019-20 registering a decline of (-)4.5 per cent. In 2019-20, 1,86,353 MT of wheat, 75,000 kl of kerosene and 6430 MT of sugar were distributed through PDS in State as against 1,82,239 MT, 52,045 kl, and 8,041 MT registering an increase of 2.5 per cent, 44.1 per cent and a negative growth of (-)20 per cent respectively. In 2020-21 (upto August 2020), a total quantity of 9,17,800 MT of rice, 86,651 MT of wheat, 27,718 kl of kerosene and 3,915 MT of sugar were distributed through the PDS in the State. Details of the distribution of commodities through the PDS are given in **Appendix 3.8.2**.

Anthyodaya Anna Yojana (AAY) and Annapoorna Scheme (ANP)

Under AAY scheme, 30 kg of rice and 5 kg of wheat per month are provided to the poorest of the poor families under NFSA. There were 5.9 lakh Anthyodaya Anna Yojana (AAY) card holders in 2019-20 (as on March 2020). In 2019-20, the off-take of rice under AAY was 2.1 lakh MT. The Government of India supplies food grains under AAY to the State @ ₹3/kg and the State Government, in turn, provides it to the beneficiaries free of cost (**Appendix 3.8.1 and 3.8.3**).

The Annapoorna scheme provides 10 kg of rice per month free of cost to destitute people aged 65 years and above who are not in receipt of any of the pensions from the Government. The targeted number of beneficiaries approved by the

Government of India is 44,980. But the number of beneficiaries identified in the States is decreasing over the years, from 23,322 in 2015-16 to 5,726 in 2019-20. Details of distribution of food grains under AAY and ANP schemes in 2019-20 are given in Appendix 3.8.3. Details upto August 31, 2020 are given in **Appendix 3.8.4**.

Central Allotment of Sugar and Kerosene

The Government of India has dispensed with the scheme of the issue of sugar through PDS to BPL category with effect from March 1, 2017. From 2018-19 onwards, AAY beneficiaries are entitled to get sugar at 1 kg per card @ ₹21.00 per kg. In 2019-20, a total of 6,430 MT of Sugar was distributed in the State as against 8,041 MT in 2018-19 registering a negative growth of (-)20 per cent. As on August 2020, a total of 3,915 MT of sugar has been distributed.

Kerosene allotment to the State shows a fluctuating trend. It was 75,000 kl in 2019-20 as against 52,045 kl in 2018-19. Up to August 2020-21, 27,717 kl of kerosene was distributed in the State.

District-Wise Distribution of Food Grains

In 2019-20, the off take of AAY rice was highest in Thiruvananthapuram District with 21,915.1 MT followed by Malappuram with 18,846 MT. Off take of rice to Priority Household (PHH) was highest in Malappuram District with 88,688 MT followed by Thiruvananthapuram with 64,491 MT in 2019-20. In the case of PHH, Malappuram had the highest off take of wheat with 22,245 MT followed by Thiruvananthapuram with 16140 MT. Details are given in **Appendices 3.8.5 and 3.8.6**.

Kerala State Civil Supplies Corporation (Supplyco)

The Kerala State Civil Supplies Corporation, popularly known as 'Supplyco', is a fully-owned Government of Kerala undertaking established

in 1974. In addition to the public distribution system through ration shops, the State ensures market intervention through Supplyco, second line of the PDS in the State. The system ensures the distribution of essential items through FPS and Supplyco outlets in the State. Supplyco is mandated to control the prices of 13 essential commodities by distributing it at subsidised prices.

Supplyco has its headquarters in Kochi and operates through 5 regional offices, 56 depots and around 1,200 retail outlets. Details of the outlets opened from 2014-15 to 2019-20 are given in **Appendix 3.8.10**. Its remit includes retailing of Fast Moving Consumer Goods (FMCG) which includes more than 6,000 items. The consumers get a price benefit ranging from 5.0 per cent to 30.0 per cent from MRP and on an average 10.0 per cent less than open market price. Supplyco conducts special fairs for controlling undue rises in prices in the open market during festival seasons. Consumer gets on an average of 15 per cent discount on medicines through 95 State-run medical stores and 5 wholesale divisions. Supplyco is also engaged in the procurement of paddy, processing and distribution of wheat and its products, is a dealer of petroleum products like kerosene, petrol, diesel and LPG and is a nodal agency in implementing the programmes of the Government of India in the State such as starting of Microbiology Laboratory and Food Processing Units. In 2019-20, 3 Maveli stores, 5 supermarkets, and 14 Maveli super stores were opened by the Supplyco (**Appendix 3.8.10**).

Supplyco has been entrusted with the implementation of doorstep delivery of rationed articles under PDS in the State. At present the Corporation has started NFSA intermediary godowns in all 75 Taluks in the State for storage of food grains lifted from FCI depots/ CMR Mills. All the Fair Price Shops in the State have been equipped with e-POS machines for ensuring that food grains are delivered to the beneficiaries only and is not diverted elsewhere. During the pandemic period, Government is providing

Box 3.8.1 Measures taken by Civil Supplies Department towards Covid-19

The nation-wide lockdown imposed to contain the Covid-19 outbreak brought the national as well as State economy to a grinding halt. Being a consumer State, Kerala depends for its essentials and other materials on other States. In the wake of the Covid-19 pandemic, Civil Supplies Department, Government of Kerala was in forefront in implementing various measures for providing relief to the society and in ensuring that no one is deprived of essential commodities in this pandemic period.

In April 2020, all families under NPS and NPNS were given 15 kg rice free of cost. Subsequently, to ensure essential food items during the lockdown period, the State Government provided essential articles kit costing ₹972 per kit to 87.9 lakh families in the State at free of cost. The essential articles kit named 'Athijeevana Kit' had 17 items that included cooking oil, sugar, pulses, spices, cereals, and soap and the distribution of the kit was done through Kerala State Civil Supplies Corporation Ltd. The details of District-wise distribution of Covid kit is shown in **Appendix 3.8.7**. In addition to this, free ration to the tune of ₹300 crore was distributed to all categories of families such as AAY, PHH, NPS, and NPNS.

Even in the midst of Covid-19 pandemic, the State took extraordinary steps and provided Onam Food Kits to ration card holders which includes 11 grocery items. 83,711,76 families were benefited by this distribution. The kits were distributed through ration shops. In addition, 10 kg of rice per card was given in August at ₹15 per kg rate to non-priority sections. Along with this, rice and other essential items were supplied at subsidised price by the Supplyco, Consumerfed and Horticrop. The District-wise beneficiary list of Onam kit is given in the **Appendix 3.8.8**.

To tide over the difficulties caused by Covid-19 induced pandemic, Government decided to extend the supply of essential articles free kit which includes eight essential items to all ration card holders. This was distributed through Kerala State Civil Supplies Corporation Ltd. from September 2020 to December 2020. This is in addition to regular supply of free ration through PDS shops for eligible beneficiaries.

A quantity of 5 kg rice or 4 kg Atta/person was distributed to migrant or guest workers at free of cost. Labourers who were not covered under the National Food Security Act and State Public Distribution System (PDS) were only eligible for this benefit. As part of the Centre's 'Atma Nirbhar Bharat and PM Cares' fund, food kits containing 5 kg of White Rice and 1 kg of Black Chickpeas were given to the registered migrant labourers for two months.

In addition to these measures, students, upto primary level, who are covered in mid-day-meal scheme, were given provisions and rice kit. Around 26,26,110 students in Government and aided schools across the State benefited from the scheme. This is expected to cost an estimated amount of ₹81.37 crore. Students were given 10 grocery items including rice and atta. 1.2 kg rice was given to each pre-primary student, 4 kg rice to Lower Primary student and 6 kg rice to Upper Primary student.

Fisherfolk community affected by pandemic as well as the trawling ban were provided with food kits. The status of kit distribution to fisherfolk family as on October 16, 2020 is given in the **Appendix 3.8.9**.

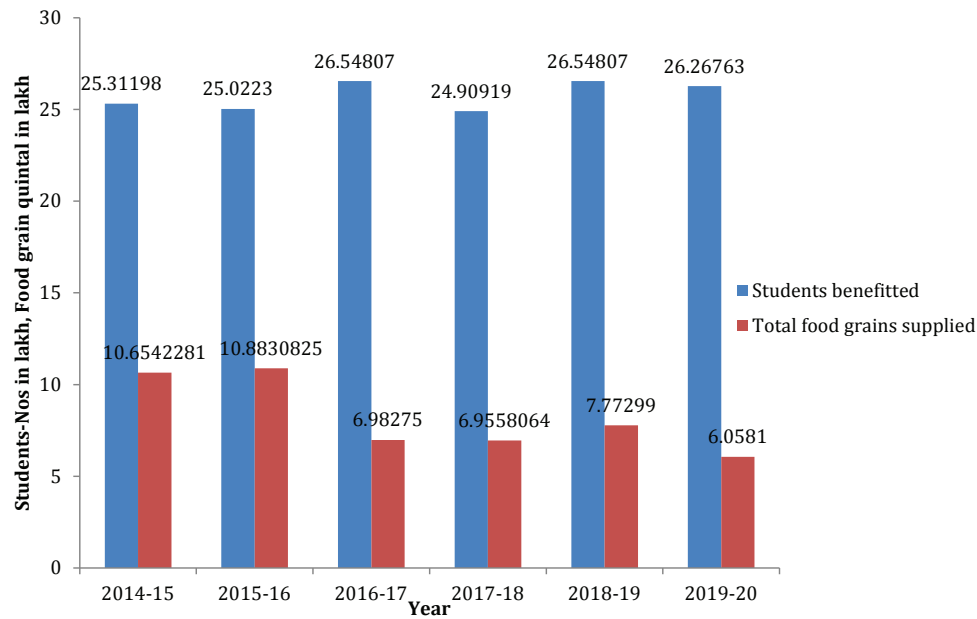
Source: Civil Supplies Department, GoK

subsistence food kits to the ration card holders of the State, for which Supplyco is the executing agency. Supplyco has also started the sale of Home Appliances in selected outlets throughout Kerala.

Mid-Day Meal Programme

The Mid-day Meal Programme in schools is implemented in the State with the financial support of the State Government and Central assistance. The programme was introduced in 1995 by the Ministry of Human Resources

Figure 3.8.2 Mid-day meal programme from 2014-15 to 2019-20



Source: : Civil Supplies Department, GoK

Development (MoHRD), Government of India, to provide nutritional support to primary school going children and to boost universalisation of primary education by increasing enrolment, retention and attendance.

Supplyco is entrusted with the responsibility of providing commodities to the Mid-Day Meal Programme in the State. The required quantity of rice is taken from the FCI. The Corporation supplied 4.8 lakh quintal of rice and 1.3 lakh quintal of special rice benefiting 26.3 lakh students in 2019-20 as against 5.0 lakh quintal of rice and 2.7 lakh quintal of special rice supplied in 2018-19. The total food grains supplied to Mid-Day Meal Programme has decreased from 7.7 lakh quintal in 2018-19 to 6.1 lakh quintal in 2019-20 and the number of students benefitted also has decreased from 26.6 lakh to 26.3 lakh.

The number of students benefiting from the Mid-Day Meal Programme is given in **Figure 3.8.2** and the details of the supply of food grains from 2014-15 to 2019-20 are shown in **Appendix 3.8.11**.

CHAPTER

04

MANUFACTURING
SECTOR

MANUFACTURING SECTOR

4.1 KERALA'S INDUSTRIALISATION

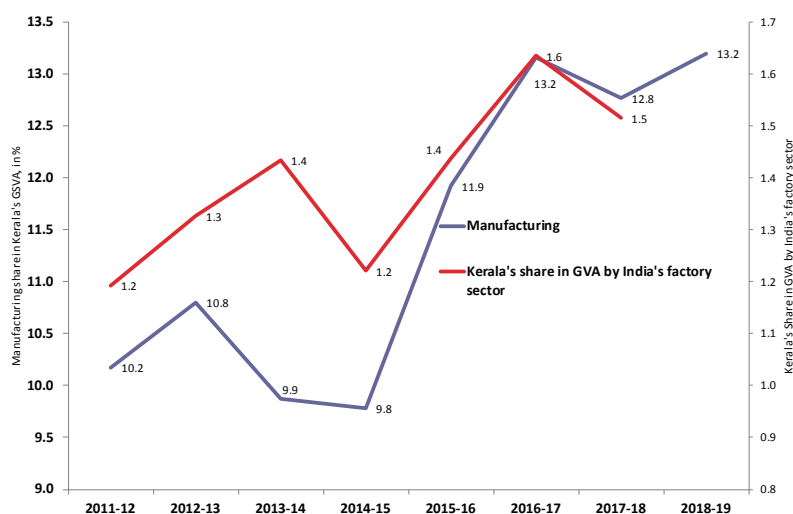
A strong and diversified manufacturing sector is a crucial pillar for the economy, for domestic production, exports and employment growth. Increase in the share of manufacturing in Gross Domestic Product (GDP) is a key feature of modern economic growth.

The manufacturing sector in Kerala is relatively small in size. The manufacturing sector accounted for a share of only 12.5 per cent of Kerala's Gross State Value Added (GSVA) (at constant 2011-12 prices) in 2019-20. In comparison, the manufacturing sector accounted for 17.4 per cent of India's GDP in 2019-20.

A Revival in Manufacturing in Kerala

At the same time, it needs to be highlighted that there has been a steady increase in the size of Kerala's manufacturing sector, in value terms, especially so over the last four years. The share of manufacturing in Kerala's GSVA increased from 9.8 per cent in 2014-15 to 12.5 per cent in 2019-20. According to data from Annual Survey of Industries, Kerala's share in gross value added by India's factory sector increased from 1.2 per cent in 2014-15 to 1.5 per cent in 2017-18 (Figure 4.1.1).

Figure 4.1.1 Manufacturing's share in Kerala's GSVA and Kerala's share in GVA by India's factory sector



Source: Central Statistics Office

According to PLFS data, the manufacturing sector in Kerala employed 15 lakh workers (which comprised 12.8 per cent of the State's total workforce of 127 lakh) in 2017-18. They include workers in the factory sector numbering 3.1 lakh in 2017-18. The factory sector is almost identical with the organised manufacturing sector. The factory sector comprises factories that employ more than 10 workers and operate with the aid of electric power (as well as factories that

employ more than 20 workers without the aid of electric power). Annual Survey of Industries (ASI) published by the Government of India's Ministry of Statistics and Programme Implementation (MOSPI) is the main source of data on the factory sector.

Workers in traditional industries, importantly coir, cashew and handloom, form a substantial share of Kerala's manufacturing workforce. A few

Table 4.1.1 Structure and relative size with respect to employment and value added: Shares of industries in total factory sector of Kerala and shares of Kerala's industries in total by the respective industries in India, 2016-17

Industries	Shares in Kerala's total factory sector		Kerala's Shares in India	
	Employment	Value added	Employment	Value added
Food Products and beverages (10, 11)	30.5	11.9	5.3	1.4
Tobacco products (12)	4.8	0.3	3.3	0.2
Textiles (13)	6.9	2.9	1.4	0.6
Garments (14)	2.6	1.5	0.7	0.7
Footwear (15)	2.7	1.6	2.2	2.0
Wood and wood products (16)	2.6	0.9	9.0	2.8
Paper and paper products (17)	1.1	0.4	1.4	0.3
Printing and reproduction of recorded media(18)	1.9	4.8	3.8	5.9
Refined petroleum products (19)	4.2	12.1	8.7	1.0
Chemical products and pharmaceuticals (20, 21)	6.6	19.2	1.4	1.2
Rubber and plastics products (22)	7.2	10.5	3.3	2.7
Other non-metallic mineral products (23)	6.0	4.7	1.8	1.0
Basic metals (24)	1.5	1.2	0.5	0.2
Fabricated metal products (25)	1.5	0.7	0.7	0.2
Electronic, computer and optical Products (26)	4.2	5.2	6.0	2.3
Electrical Equipment (27)	1.6	1.6	1.0	0.4
Machinery and equipment (28)	0.8	0.7	0.3	0.1
Motor vehicles (29)	0.1	0.1	0.0	0.0
Other transport equipment (ships and boats (30)	1.6	3.5	1.6	1.5
Furniture, jewellery, medical and dental instruments, toys (31, 32)	2.4	10.0	1.8	5.6
All Industries	100	100	2.1	1.0

Source: Annual Survey of Industries data on persons engaged and gross value added.

Note: Figures in brackets refer to the divisions (in two digits) to which each of these industries belong according to National Industrial Classification (NIC)-2008

resources-based industries accounted for 42.3 per cent or 1.35 lakh workers out of the 3.1 lakh workers in Kerala's factory sector (in 2016-17). These industries are food products and beverages (cashew processing is a major component of this), beedi manufacturing, and textiles (which include coir processing and handlooms) (Table 4.1.1).

There has been a substantial reduction over the years in the size of the workforce engaged in traditional industries in Kerala. This is because of structural problems faced by some of these industries (such as cashew) as well as the withdrawal of younger generation of educated workers from the traditional industries.

At the same time, it is notable that a new set of modern industries are growing in size in Kerala. The top industries in Kerala with respect to value added are chemicals, refined petroleum products, rubber and plastic products, electronic products, and pharmaceuticals and medicinal botanical products. Bharat Petroleum Corporation Limited's (BPCL)-Kochi Refinery has been undergoing a major expansion of its refining and petrochemical production capabilities and this holds great promise for the chemical and allied industries in Kerala. Between 2011-12 and 2016-17, value added by refined petroleum products increased by eight times in Kerala. In fact, growth of value added by the manufacturing sector as a whole as well as a number of industries including chemicals, garments, pharmaceuticals, furniture, jewellery and medical instruments was much faster in Kerala compared to the corresponding national averages.

Turnaround in Performance of Public Sector Units

Kerala has a number of State and Central public sector units engaged in diverse areas of manufacturing, mainly chemicals, engineering, and electronics. Some of the PSUs in the State, such as Travancore Cochin Chemicals (TCC) and Keltron, have been pioneers in the country in their respective fields of production (caustic

soda and electronics, respectively). However, the performance of many of the PSUs in Kerala has been rather lacklustre during the recent times. A major highlight of the improved performance of Kerala's manufacturing sector from 2016-17 onwards is a turnaround in the performance of some of these PSUs, engaged mainly in the production of chemicals and electrical machinery.

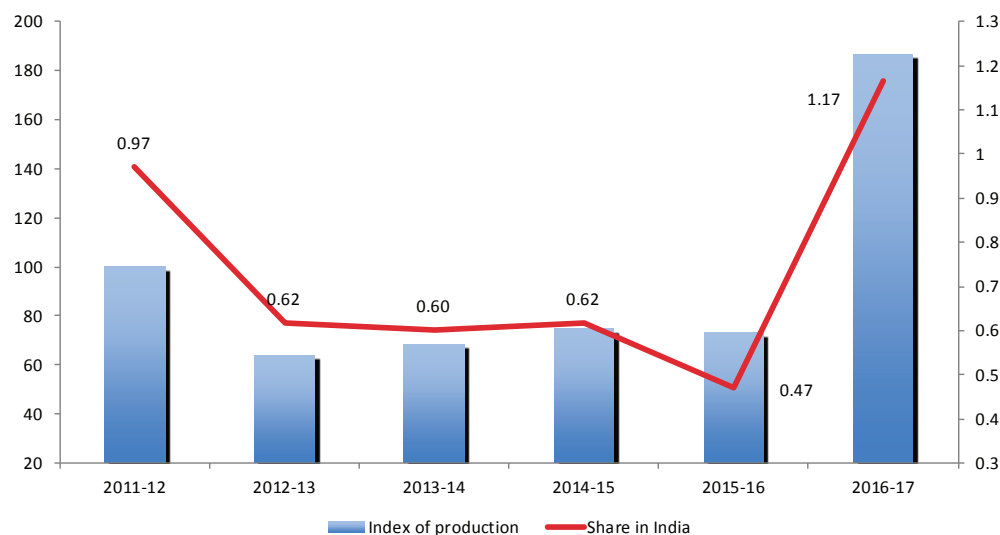
Kerala Minerals and Metals Limited (KMML), Travancore Titanium Products Limited (TTPL), Travancore-Cochin Chemicals Limited (TCC) and Transformers and Electricals Kerala (TELK) Limited were some of the major PSUs, which sharply improved their performance from 2016-17 onwards. All the above-referred PSUs except KMML had registered losses in 2015-16, but all the four PSUs made substantial profits in 2016-17. Kerala State Drugs and Pharmaceuticals (KSDP) Limited, which turned profitable by 2017-18, has been going through a significant phase of modernisation and capacity expansion. Figure 4.1.2 shows that, by 2015-16, value added in chemicals and pharmaceutical industries in Kerala had declined to 73 per cent only of the corresponding value in 2011-12. However, in 2016-17, value added by these industries improved sharply to 187 per cent of the 2011-12 level.

New Opportunities in Modern Industries

Another positive aspect is the emergence of a few new set of modern industries in the State. The number of workers engaged in the manufacture of electronic components in Kerala rose from 2930 only in 2012-13 to 10263 by 2016-17. Workers engaged in the manufacture of medical and dental instruments and supplies increased from 1023 only in 2012-13 to 3207 in 2016-17 (Table 4.1.2).

After its expansion, BPCL-Kochi Refinery's refining capacity is expected to increase from the current 9.5 million metric tonnes per annum (MMTPA) to 15 MMTPA. Some of the products of BPCL-Kochi Refinery, such as propylene

Figure 4.1.2 Chemicals and pharmaceutical industries in Kerala: Index of production (gross value added), with index for 2011-12=100, and share of Kerala in value added by these industries in India



Source: Annual Survey of Industries

Table 4.1.2 Employment in selected major industries, Kerala and India, 2016-17, in number

Industries	Kerala	India	Kerala's share in India
Rubber products (221)	15506	210679	7.4
Refined petroleum products (192)	13203	130938	10.1
Chemical products (201, 202)	11036	761630	1.4
Manufacture of electronic components (261)	10263	83890	12.2
Pharmaceuticals, medicinal chemical and botanical products (210)	10154	679891	1.5
Footwear (152)	8498	265036	3.2
Garments (141)	8384	778319	1.1
Plastic products (222)	7450	489824	1.5
Printing and services related to printing (181)	6177	160407	3.9
Ships and boats (301)	4320	17967	24.0
Electric motors, transformers and generators (271)	3548	200804	1.8
Medical and dental instruments and supplies (325)	3207	60762	5.3
Furniture (310)	3151	70189	4.5

and ethylene, are key ingredients for a wide range of downstream industries in the areas of petrochemicals and specialty chemicals, including plastics, polymers, fibres, and personal and home care products. The State Government has taken steps to set up a petrochemical complex at Kochi, which is likely to attract large private investments in the above-referred areas.

There is great potential in Kerala for the growth of pharmaceuticals, biotechnology, life sciences, and medical-equipment manufacturing industries. This is partly on account of the large demand within the State for medicines and healthcare products. These industries will also have much to gain from the large numbers of hospitals, doctors and nurses in Kerala.

Kerala has the potential to build a large electronics hardware manufacturing sector. The State should build on the unique advantages of the IT sector in the State and also make good use of the skill sets of its professionally qualified workforce. Globally, there is now a growing integration between the IT and electronic sectors and between software and hardware production. With the IT sector itself going through fundamental changes, it is important that Kerala turn its attention to diversifying into hardware manufacturing as well.

Modernising the Traditional Sectors

The Government is taking steps to modernise the traditional industries in the State, including coir, cashew and handloom. As already noted, these industries continue to employ a substantial part of the State's total workforce. Modernisation of traditional industries will include (but not limited to) mechanisation of production processes in these industries. Moreover, with modernisation, Kerala's traditional industries will strive to diversify into new products (such as geo-textiles in the coir sector), and evolve effective marketing and distribution strategies. Rather than displacing workers (a strategy involving mechanisation alone may result in this), modernisation will lead to overall expansion of the industry and the creation of greater value addition per worker.

The State Government has engaged handloom cooperative societies in Kerala to supply cloth for the School Uniform Scheme of the Government. Handloom workers and leaders of cooperative societies have agreed that the School Uniform Scheme has helped to revive the sector to some extent. Many workers who had left handloom weaving because of lack of opportunities have returned to work in this sector.

It is clear that in handlooms and other traditional sectors, both technological and organisational innovations are needed to increase productivity, improve wages, and at the same time, avoid job losses. The promotion of handlooms should be

done along with measures for improvement of value added per worker. Handlooms should be encouraged to work on products/areas where it can create a niche market (such as high design furnishings or sarees). Handloom cooperatives should work with design institutions so that they can come up with innovative designs and marketing strategies. Another option would be a tie up between handloom weaving societies and the tourism sector.

In Kerala, there is very high potential for growth in the garment sector. Kerala has a large and sophisticated market for all types of garments. In addition to the large home market, garment firms in Kerala can also take advantage of the demand for Kerala-specific designs from a sizeable export market comprising non-resident Keralites. The other advantage is the large availability in Kerala of skilled workers and professionals in the garment and fashion sector. The industry should work closely with fashion and design institutes in Kerala. The garment sector should take good advantage of online marketing strategies.

Kerala is yet to take advantage of its huge potential in the food and beverages sectors. There are enormous possibilities in the State in the storage, processing, and value addition of vegetables, fruits, fish, and meat. There exists huge potential, in particular, for the processing of coconut, jackfruit, banana, pineapple, and tapioca. Wood and bamboo based industries can also be developed in selected regions of the State. A relatively large market for food and agro-based products exists within Kerala. However, a good part of this domestic demand is met by imports from other Indian States and countries. Kerala's industries, especially food and agro-based industries, can tap into this domestic market. The growth of traditional, food and agro-based industries and of tourism can go hand in hand in Kerala, feeding on each other to create a globally recognised niche for the State in these sectors. Kerala can learn lessons from countries such as Thailand, Malaysia, and Vietnam in successfully combining agriculture, agro-based industries and tourism.

Industrial Promotion and Investment Facilitation Activities

The State Government has decided to make business friendly amendments to the relevant laws and regulations. In order to strengthen the sector, the Government of Kerala has come up with the Kerala Investment Promotion and Facilitation Act, 2018 which envisages mandatory approval within a period of 30 days if applications are submitted with necessary documents. The Act seeks to avoid delays in granting various licenses, permissions, approvals, and clearances required under the various enactments and make the State investor friendly.

Kerala Micro Small Medium Enterprises Facilitation Act, 2019 and the rules made there in, under Section 14 of the Act, dated January 6, 2020 vide G.O. (P)No.2/2020/ID is one of the key initiatives under the Ease of Doing Business Reforms of the Industries Department for establishing and operating MSME units. This forms part of the online single window clearance mechanism which covers central inspection system for compliance inspections, introduction of self-certification regime, parallel processing of applications by various departments, deemed approvals post the mandated timelines, elimination of redundant clearances, and spot approval for registration through nodal agencies which are revamped single window Board at State, District, and Industrial Parks.

The Department organised *ASCEND 2019* at Kochi to highlight the Ease of Doing Business and emphasise on simplification and rationalisation of the Acts/Rules for industrial growth in the State. Based on the successful conduct of *ASCEND 2019*, Government organised *ASCEND 2020* at Lulu International Convention Centre, Grand Hyatt, Bolgatty, Kochi, for two days from January 9 and 10, 2020, focusing on credible projects targeting the potential investors.

4.2 MANUFACTURING SECTOR

As per the provisional data from the Central Statistics Office (CSO), the growth of India's manufacturing sector has been estimated at 0.03 per cent in 2019-20 as against the previous year's growth rate of 5.7 per cent. The annual growth of Gross Value Added (GVA) by the manufacturing sector in India as per provisional estimates, at constant prices from 2015-16 to 2019-20 is exhibited in **Figure 4.2.1**.

Manufacturing Sector in Kerala

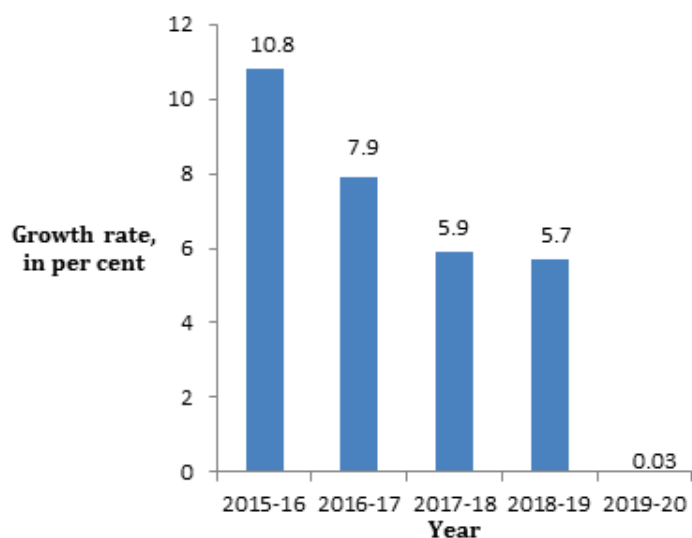
As per quick estimates of Kerala's Gross State Value Added (GSVA) for 2019-20 by Department of Economics and Statistics, the manufacturing

sector of Kerala grew at 1.5 per cent at constant prices (2011-12) in 2019-20. The shares of the manufacturing sector to GSVA in Kerala at constant and current prices in 2019-20 were 12.5 per cent and 10.1 per cent respectively. The growth of manufacturing sector in Kerala from 2012-13 to 2019-20 is given in **Appendix 4.2.1**.

The trend in growth rate of GSVA of manufacturing sector in Kerala (at constant prices) for the period from 2012-13 to 2019-20 is shown in **Figure 4.2.2**.

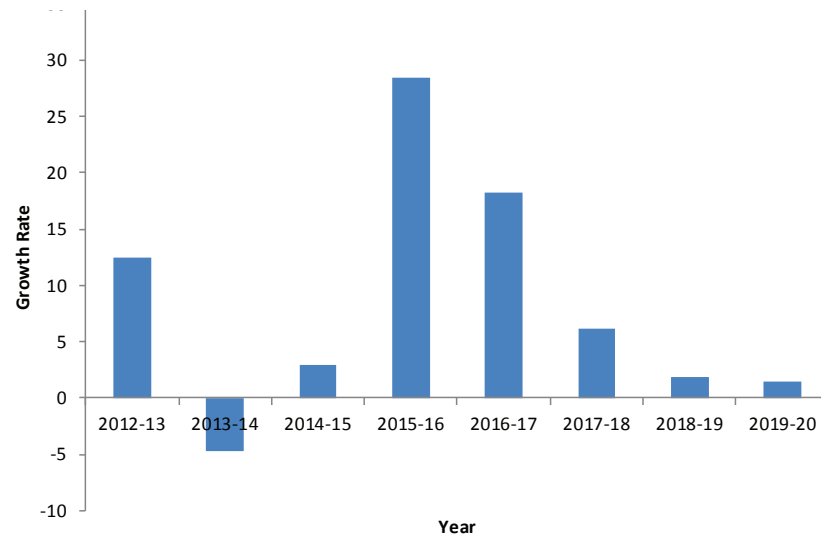
The growth of GSVA by the manufacturing sector at constant prices was 4.54 per cent in 2011-12,

Figure 4.2.1 Annual growth of gross value added by the manufacturing sector in India, at constant prices, in per cent



Source: Central Statistics Office

Figure 4.2.2 Annual growth of Gross State Value Added (GSVA) by manufacturing sector in Kerala, at constant prices, in per cent



Source: Department of Economics and Statistics

and it increased to 12.47 per cent in 2012-13. After showing a negative growth rate of 4.67 per cent in 2013-14, it became 18.2 per cent in 2016-17, 6.1 per cent in 2017-18, 1.8 per cent in 2018-19 and 1.5 per cent in 2019-20.

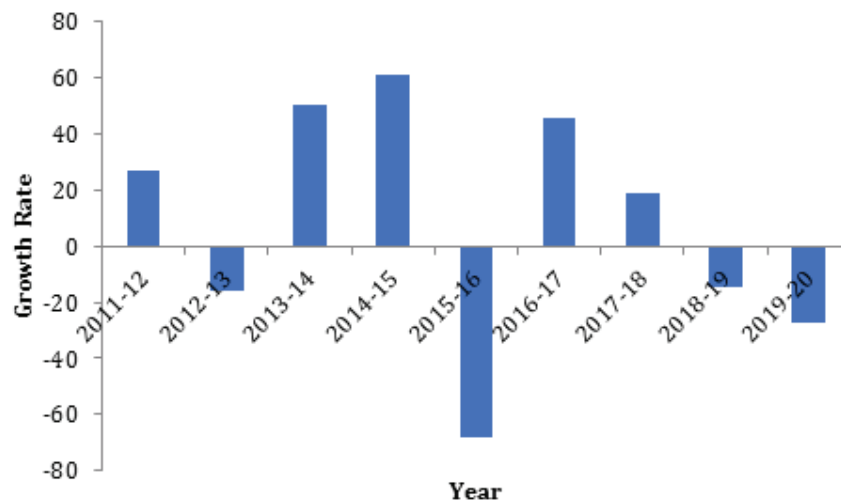
estimated at ₹2021.7 crore in 2019-20. It shows a decline of 27.5 per cent compared to the previous year. The share of mining and quarrying in GSVA at constant prices decreased from 0.5 per cent in 2018-19 to 0.4 per cent in 2019-20.

Mining Sector in Kerala

The contribution of the mining and quarrying sector to GSVA of Kerala at constant prices is

The growth of income from the mining and quarrying sector in Kerala at constant prices from 2011-12 to 2019-20 is depicted in **Figure 4.2.3**.

Figure 4.2.3 Annual rates of growth of GVA by mining and quarrying sector in Kerala, at constant prices, in per cent



Source: Directorate of Economics and Statistics

The growth rate of income from the mining and quarrying sector in Kerala at constant price has been fluctuating over the years. After registering a growth rate of 26.88 per cent in 2011-12, it shows a negative growth rate of 15.98. In 2013-14 and 2014-15 growth rate became 50.14 per cent and 60.76 per cent respectively. After achieving a negative growth of 67.17 per cent in 2015-16 it shows an increasing trend up to 2017-18 after that it shows decreasing trend. In 2019-20, there was a negative growth rate of 27.5 per cent.

In 2019-20, nine mining leases for major minerals, 270 quarrying leases for minor minerals, and 1,292 dealers' licenses were granted. In this period, there were 172 registered metal crusher units in Kerala and one prospecting license was granted for minor and major minerals.

Mineral-wise Production and Revenue Collection 2019-20

The Government gets revenue from minerals mainly by way of royalty. About 95 per cent of the revenue comes from minor minerals and rest from major minerals. In 2018-19, an amount of ₹171.29 crore was received as revenue from minerals and it decreased to ₹160.1 crore (decline of 6.5 per cent) in 2019-20. Of this, ₹8.77 crore was received from major minerals and ₹151.35 crore from minor minerals. In 2019-20, the highest revenue received among major minerals was from limestone (₹3.84 crore) followed by ilmenite (₹2.64 crore). Among minor minerals, granite building stone contributed the highest (₹71.91 crore) followed by Laterite (building) (₹1.94 crore) in 2019-20. The revenue

from minerals during the last 5 years is shown in **Table 4.2.1**.

In 2019-20, 392.6 lakh tonnes of major and minor minerals were produced in Kerala. Among major minerals, limestone topped the list with 4.8 lakh tonnes followed by Ilmenite (1 lakh tonnes). Among minor minerals, the highest production was from granite building stone (299.6 lakh tonnes) followed by ordinary earth (67.66 lakh tonnes). The production and royalty received from minerals in the State in 2019-20 is given in **Appendix 4.2.2**.

District-Wise Analysis of Revenue Collected from Major/Minor Minerals

District-wise analysis of revenue collection for the year 2019-20 shows that Ernakulam District had the highest collection of ₹24.5 crore followed by ₹23.6 crore in Thiruvananthapuram and ₹15.1 crore in Palakkad. The least revenue collection of ₹1.7 crore (1.1 per cent) was from Wayanad. The District-wise collection of revenue from major and minor minerals is furnished in **Appendix 4.2.3**.

The Plan outlay and expenditure of Mining department from 2016-17 to 2020-21 is shown in **Table 4.2.2**.

Implementation of E-governance Projects

The Kerala Online Mining Permit Awarding Services (KOMPAS) is an online system which is implemented through the National Informatics Centre. It is implemented in all Districts. In 2019-20, 54 lakh passes were generated and printed.

Table 4.2.1 Revenue from Minerals, in ₹ crore

Sl No	Year	Major minerals	Minor minerals	Total
1	2015-16	13.4	126.3	139.7
2	2016-17	6.4	132.3	138.7
3	2017-18	8.5	143.5	152.0
4	2018-19	5.4	165.9	171.3
5	2019-20	8.8	151.3	160.1

Source: Mining and Geology Department

Table 4.2.2 Plan Outlay and Expenditure of Mining, in ₹ lakh

Sl No	Year	Outlay	Expenditure
1	2016-17	84.00	48.82
2	2017-18	135.00	123.03
3	2018-19	149.00	61.46
4	2019-20	149.00	75.92
5	2020-21*	132.00	44.77

Source: Budget Estimates

Note: *Expenditure as on October 31, 2020

Mineral Based Industries in Kerala

Some of the industries based on major minerals are Indian Rare Earths Ltd, Kerala Minerals and Metals Ltd, Malabar Cements, Travancore Cements Ltd, Kundara Ceramics, English Indian Clays Ltd, and Kerala Clays and Ceramic Products Ltd. The major industries based on minor minerals are stone crushers, units of production of manufactured sand, brick factories as well as tile factories. Due to recent spurt in infrastructure development, a number of granite building stone crushers as well as sand production units have come up in the State.

Mining and quarrying are important economic activities, although the impact they may have on the environment needs to be closely monitored. The Government is therefore diligent in adopting and implementing regulations to moderate the negative impacts of mining operations. Modern technologies and practices have, to a great extent, reduced the risks associated with mining and quarrying to the environment and economy.

4.3 PUBLIC SECTOR UNDERTAKINGS

Public Sector Enterprises were set up to serve the broad macro economic objectives of higher economic growth, self-sufficiency in production of goods and services, low and stable prices besides meeting certain socio economic obligations. Public Sector Undertakings (PSU), both at the Central and State levels, have played an important role in the industrialisation and the overall development of the country. They were set up with the objective of helping the country to achieve self-sufficiency in manufacturing and technology and were intended to achieve commanding heights in the Indian economy. PSUs have been key and strategic actors in the nation's economy producing essential goods and services and maintaining a dominant market position. However, since 1990s, economic reforms in India have been emphasising a greater role for markets and the Central Government has been following a policy of disinvestment in the PSUs. Contrary to the Central Government policies, however, the Government of Kerala aims to strengthen the public sector, run PSUs professionally, and help them to earn profits and contribute to the larger development of the industrial sector and the economy.

Central Public Sector Undertakings

As on March 31, 2019, there were 348 PSUs under the administrative control of various ministries/departments of the Government of India (GoI). In 2018-19, 178 central PSUs in India generated a combined profit of ₹1,74,587 crore in 2018-19 as compared to ₹1,55,931 crore in

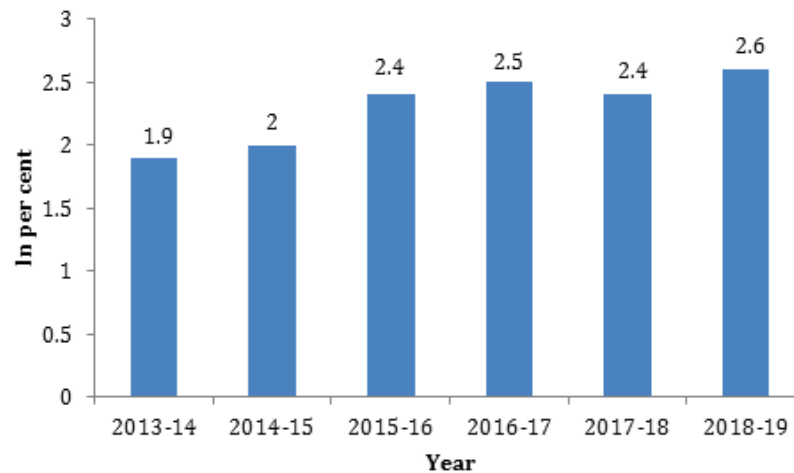
2017-18 showing a growth in profit by 11.96 per cent. There were 70 Central PSUs in the economy which incurred a combined loss of ₹31,635 crore in 2018-19 as compared to 32,180 crore in 2017-18 showing a decrease in loss by 1.7 percentage.

Central Sector Investment

The aggregate real investment in Central PSUs in India, measured in terms of 'gross blocks', increased from ₹19.7 lakh crore in 2017-18 to ₹21.9 lakh crore in 2018-19, registering a growth of 11.2 per cent over the previous year. The investment by Central PSUs in Kerala in terms of gross block grew by 19.3 per cent from ₹47,242 crore in 2017-18 to ₹56,379 crore in 2018-19. The State's share in total investment by Central PSUs slightly increased from 2.4 per cent in 2017-18 to 2.6 per cent in 2018-19 (Public Enterprises Survey 2018-19). Among Indian States, Maharashtra was ranked first with respect to shares in investment by Central PSUs (with a share of 8.4 per cent) followed by Uttar Pradesh (share of 6.9 per cent) and Tamil Nadu (6.8 per cent). Details of central sector investment in Kerala and India from 2013-14 to 2018-19 are given in **Appendix 4.3.1** and central sector investment in selected States as on March 31, 2019 are given in **Appendix 4.3.2**.

Kerala's share in investment by Central PSUs from 2013-14 to 2018-19 is illustrated in **Figure 4.3.1**. It may be seen that the share of Kerala's investment started

Figure 4.3.1 Share of Kerala in investment by Central PSUs, in per cent



Source: Public Enterprises Survey 2018-19

increasing from 2013-14 onwards and then shows a slight decline in 2017-18. In 2018-19, it registered a slight increase.

Joint Stock Companies

There were 34,036 Joint Stock Companies in Kerala as on March 2020, of which 31,987 (94 per cent) were private limited companies and 2,049 (6 per cent) were public limited companies. Compared to March 2019, the number of joint stock companies has increased by 1707 by March 2020. In 2019-20, 4479 companies were newly registered (4228 private limited and 251 public limited). 35 companies were transferred from other States and 8 companies were transferred to other States in 2019-20. Number of Companies wound up dissolved / struck off/amalgamated in 2019-20 were 2799. 15 public limited companies were converted to private limited companies and 4 private limited companies were converted to public limited companies. Total number of Government companies as on March 2019 was 169. Details of joint stock companies working in Kerala are given in **Appendix 4.3.3**.

State Public Sector Undertakings under Industries Department

There are 42 Public Sector Units under the Department of Industries and Commerce, which include KINFRA, a statutory corporation, TEXFED, an apex body of textile companies under the co-operative sector, and KSIDC.

In 2019-20, the PSUs under the Industries Department reported a net loss of ₹165.65 crore against a turnover of ₹3148.18 crore. The profit making PSUs include Travancore Cochin Chemicals Ltd (TCC), Kerala Minerals and Metals Ltd (KMML) and Kerala State Drugs and Pharmaceuticals Ltd. Following Okhi in 2017-18, Kerala was badly affected by the floods in 2018-19 and 2019-20. The outbreak of Covid-19 in March 2020 has deteriorated the situation further. Consequently, this has also affected the performance of PSUs.

Major Achievements in PSUs under Industries Department in 2019-20 and for the period up to September 2020

In 2019-20, Government has allocated ₹299.35 crore to the PSUs under the Industries Department for the completion of various

projects initiated in 2017-18 and 2018-19 and for implementation of new projects in 2019-20. Administrative sanction had been accorded by Government for the implementation of new modernisation / expansion projects. The major achievements by PSUs include:

- **Kerala Minerals and Metals Ltd:**

- Completion of the project for installation of Distributed Control System (DCS) at a total outlay of ₹12 crore and conversion of existing LPG System to LNG a total cost of ₹ 8 crore.
- The R&D wing of company has developed and launched new titanium products RC 829, RC 800PG+
- Commissioned 70 TPD oxygen plant.

- **Travancore Titanium Products Ltd:**

- Obtained the award from State Pollution Control Board for the best practices in pollution abatement in 2019.

- **Kerala State Drugs and Pharmaceuticals Ltd.**

- Installed new plants for injection and drops.
- Company has produced and supplied hand sanitiser to the Health Department in view of the increased demand for this product following the outbreak of Covid-19.

- **Kerala Automobiles Ltd** has started commercial products of e-Auto.

- **Autokast Ltd:**

- Received “A class foundry” certificate from Research Design and Standards Organisation (RDSO)
- Commissioned the Arc furnace and Steel Casting Units and started the manufacturing of Railway Boggies and have successfully completed the trial run.

- **United Electrical Industries Ltd** has developed and launched the vehicle tracking system

- **Kerala State Electronics Development Corporation.**

- Successfully developed and completed the supply of Low Frequency Dunking Sonar against the order received from BEL around ₹8.69 crore
- Execution and Completion of first phase of Chennai Smart City Projects
- Developed NavIC receiver for Fishermen’s Kerala
- Received order for implementation of Integrated Traffic Management System (ITMS) for Kochi Smart City Project

- **The Kerala Ceramics Ltd.** Has completed the first phase of modernisation projects.

The overall performance of the Textiles sector has improved. Commercial production started in the newly set up textile units at Komalapuram, Pinarayi, and Uduma. Trivandrum Spinning Mills, Alleppey Co-operative Spinning Mills Ltd, and Cannanore Co-operative Spinning Mills have started exporting yarn. Kerala State Textiles Corporation has manufactured and marketed around 1 lakh masks as part of preventive measures against Covid-19.

Kerala Clays and Ceramic Products Ltd and The Metal Industries Ltd has set up Petrol Pumps as a part of diversification projects.

The various components used in Chandrayan 2 project were manufactured by PSUs like Steel and Industrial Forgings, SIDCO, KELTRON and Kerala Automobiles Ltd. Takeover of Hindusthan News Print Limited (HNL) is in the final stage.

The outbreak of Covid-19 adversely affected the performance of PSUs to a great extent. The overall performance declined because of the decrease in production and consequent to lockdown, shortage of human power, non-

Table 4.3.1 State PSUs under Industries Department: Plan fund allocation, turnover, and net profit, in ₹ crore

Items	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21 (as on September 30, 2020)
Chemicals(7 units)						
Plan fund allocation	19.1	19.7	19.5	28.2	15.3	51.5
Turnover	1153.6	1266.6	1401.9	1595.9	1394.7	670.5
Net profit	13.0	28.2	223.3	189.1	63.4	6.1
Textile (8 units)						
Plan fund allocation	29.7	34.8	23.8	22.2	20.5	33.8
Turnover	96.3	82.3	133.9	157.3	158.7	53.8
Net profit	-72.3	-73.9	-90.9	-94.2	-115.5	-56.0
Engineering (6 units)						
Plan fund allocation	6.0	12.9	25.9	30.5	9.4	34.2
Turnover	121.4	116.6	125.8	154.2	158.8	67.0
Net profit	-33.7	-31.9	-44.8	-42.7	-42.2	-21.7
Electronics (3units)						
Plan fund allocation	1.5	2.8	2.7	10.6	0	17.7
Turnover	484.8	452.4	480.2	542.6	521.1	143.9
Net profit	13.4	-17.51	3.8	9.6	4.4	-11.0
Electrical (4 units)						
Plan fund allocation	18.5	15.5	17.9	32.9	5.5	46.3
Turnover	398.2	424.0	393.4	565.1	498.9	166.9
Net profit	-47.3	-17.9	-34.2	-20.4	-34.8	-40.1
Traditional and wood based (7 units)						
Plan fund allocation	14.0	4.9	7.1	7.5	4.5	11.05
Turnover	146.7	139.7	128.1	136.3	121.5	29.3
Net profit	-20.9	-22.1	-30.1	-21.8	-22.2	-17.2
Ceramic (2 units)						
Plan fund allocation	2.0	4.9	4.9	16.2	3.0	
Turnover	5.5	4.7	5.3	8.2	10.99	8.93
Net profit	-10.9	-10.9	-13.7	-9.0	-8.27	-6.08
Development (3 units in 2014-2017 and 2 after 2017)						
Plan fund allocation	-	5.5	-	-	1.0	15.21
Turnover	393.2	235.2	252.4	283.1	283.6	77.8
Net profit	37.6	12.7	-8.4	-2.3	-10.5	-10.5

Source: RIAB

availability of raw material, low market demand and shortage of working capital. Government has provided financial support of ₹50 crore under Covid-19 package to the PSUs in 2020-21.

The combined net profit made by all 42 State PSUs under the Industries department was ₹110.41 crore in 2012-13. However, from 2013-14 onwards, the combined net profit

of these State PSUs has been negative. Their combined losses amounted to ₹133.4 crore in 2016-17. But from 2017-18 onwards, there was a remarkable increase in net profit made by these State PSUs. The net profit was ₹5 crore in 2017-18 and it increased to ₹8.3 crore in 2018-19. The performance of State PSUs under the Industries Department during the last 5 years is given in **Appendix 4.3.4**.

The sector-wise financial performance of State PSUs under Industries department during the last five years is shown in **Table 4.3.1**.

PSUs under chemical and electronic sectors contributed to the better performance of State PSUs in the industrial sector in 2018-19. At the same time, PSUs in the textile sector recorded losses, pulling down the overall performance of the State PSUs. The State Government has launched efforts to revive the PSUs and help them emerge as agents of technological transformation of Kerala's industrial sector.

The total value of production in the 42 State PSUs under the Industries department decreased from ₹3,405.7 crore in 2018-19 to ₹2,777.7 crore in 2019-20, registering a decline of 18 per cent. Turnover of these State PSUs also decreased by 8.6 per cent in 2019-20 compared to its previous year. Details of PSU-wise turnover and profit/loss in 2019-20 and 2020-21 (as on September 2020) are shown in **Appendix 4.3.5**.

The increased dependency on budgetary support even for continuing with regular operations of PSUs was a major concern during the 12th Five-Year Plan period. However, from the last year of the 12th Five-Year Plan period (2016-17) onwards, major initiatives for strengthening and revamping of PSUs under the Industries department are being undertaken.

Future Plans

PSUs need transformation from purely profit-making ventures to institutions that create an enabling environment for high technology enterprises, in private and public sectors. There

is a need to increase the linkages between PSUs and the State's economy. For this, raw material should be procured as much as possible from the State itself and measures will be taken to help and support the development of ancillary and downstream industries.

Government of Kerala is committed to the development and rejuvenation of PSUs. Professional managers have been appointed to oversee the operations of PSUs. A permanent Public Enterprises Selection Board has been set up for selecting a cadre of top managers in a transparent manner. Convergence and mergers of PSUs manufacturing similar products will be undertaken to bring about efficiency in their operations.

Public Sector Restructuring and Internal Audit Board (RIAB)

RIAB, which is functioning under the Industries department, is the agency for undertaking reform initiatives in State PSUs. RIAB has been playing a major role in the rejuvenation and revival of PSUs under the Industries department. Major responsibilities of the agency include performance planning and monitoring of PSUs, enterprise reconstruction, capacity building, recruitments in PSUs, and governance advisory support to State PSUs.

Industrial Promotion and Infrastructure Development Agencies

The main industrial financing agencies in the State are Kerala State Industrial Development Corporation (KSIDC) and Kerala Financial Corporation (KFC). In addition to industrial financing, KSIDC promotes and facilitates physical and social infrastructure required for industrial growth in the State. KINFRA has been focusing on industrial infrastructure development.

State Planning Board with the help of Centre for Management Development (CMD) has prepared an evaluation study report on policies and agencies for industrial development in Kerala. The major findings are mentioned in **Box 4.3.1**.

Box 4.3.1 Report on “Evaluation of Policies and Agencies for industrial development in Kerala”

State Planning Board with the help of Centre for Management Development (CMD) has prepared an evaluation study report on the ‘Policies and Agencies for Industrial Development in Kerala’. The main objectives of the study was to understand and document the policies and schemes (such as on land allocation or entrepreneurship promotion) of various promotional agencies and their effectiveness with respect to promoting industrial development of Kerala. The study also suggested measures to achieve greater co-ordination in the activities of these agencies and to build synergies in various areas of industrial development.

The study highlighted the need for a progressive transformation of the MSME ecosystem in the State, aiding the growth of profitable and sustainable ventures. This is proposed to be achieved through identification and development of decentralised distributed manufacturing hubs suited for different geographies. Kerala’s advantages include the human resources required for hi-tech knowledge-based industries and the availability of capital within the State to launch new industries.

The factors that guide the formation of the manufacturing hubs are: (1) geographic advantage of raw material or trade linkage, (2) proximity to an existing PSU or Government agency, (3) availability of established ecosystem players in the sector in the region, and (4) proximity to research and talent ecosystems. The study suggests that there is a need for Kerala to move from the conventional industry structure to a structure aligned to its key differentiators.

The mandates for the various industry development agencies had been evolved two or more decades back. These mandates reflected the primary role assigned to large-scale industries in the overall industrial development of the State. Kerala State Industrial Development Corporation (KSIDC) was created for catering to the requirements of large-scale industries while the Small Industry Development Corporation (SIDCO) was mandated to support the ancillary MSMEs of these large industries. Industrial development was guided by the conventional factors of production, that is, land, capital and labour.

Kerala has much to gain now with the emergence of knowledge-based and skill-based industries. The policies and agencies for industrial promotion in Kerala have to adapt themselves to the changing requirements of industrial promotion in the era of knowledge-based industries. Specific policies have to be evolved to promote start-ups and high technology MSMEs.

Source: Report on “Evaluation of Policies and Agencies for industrial development in Kerala

Kerala State Industrial Development Corporation (KSIDC)

KSIDC is a wholly owned company of the Government of Kerala, established in 1961, for the promotion and development of medium and large scale units in the State. KSIDC initiated major industrial and infrastructure projects, which are strategically important for Kerala’s economic development. KSIDC also plays a vital role in the State by financing and promoting private industrial projects, spearheading

investment promotion initiatives, creating sector-specific industrial infrastructure and ecosystem, and nurturing entrepreneurship and start-ups. As the nodal agency for foreign and domestic investment in Kerala, KSIDC provides comprehensive support for investors, helping them access various incentives and schemes, and facilitating constant interaction between the Government and the industrial sector.

KSIDC acts as the single point contact for investors setting up enterprise in the State

Box 4.3.2 KSIDC: Major Activities and On-going Projects

- Financial assistance and support to medium and large-scale industries
- Investment promotion in Kerala
- Providing support for industrial infrastructure development, including Industrial Growth Centres
- Promoting Ease of Doing Business (EoDB) in Kerala
- Providing support for various start-up initiatives
- Entrepreneur support through mentoring
- Angel/seed fund scheme
- Electronic Hardware Park at Kochi
- Life Sciences Park for promoting private industries and R&D institutions in the life sciences sector.
- Second phase of Light Engineering Industrial Park, Palakkad.
- Industrial Growth Centres
- Business Incubators
- Medical devices Park (Med Spark)
- Light Engineering park
- Mega Food park

by offering a comprehensive set of services from support in developing business ideas into viable projects, assistance in conducting feasibility studies, providing developed infrastructure facilities, facilitating timely approvals and clearances to handholding the investor from project conceptualisation to commissioning. KSIDC has strived to create an enabling ecosystem for start-ups through setting up Business Incubation Centres, providing mentoring sessions and extending seed funding for startup.

Besides financing several industrial units and implementing various mega projects, KSIDC had also taken up many activities. The major activities

and ongoing projects initiated by KSIDC are shown in **Box 4.3.2**.

Financial Status

The Corporation in 2018-19 has reported a net profit of ₹33.8 crore. Certain key financial parameters of KSIDC for the past three years are given in **Table 4.3.2**.

Industrial Financing by KSIDC

In 2019-20, KSIDC sanctioned projects worth ₹312.6 crore. These projects are expected to generate employment for 705 persons directly and indirectly. The Corporation achieved ₹59.5

Table: 4.3.2 Key Financial Parameters of KSIDC, in ₹ crore

Particulars	2016-17	2017-18	2018-19
Net Worth	669	777.3	703.7
Total expenditure	13.7	44.9	14.7
Employee Expenses	9.1	10.3	8.9
Net Profit/Loss (+/-)	34.5	33.6	33.8
Audit Status	Audit up-to-date		

Source: BPE Review 2018-19

Table 4.3.3 Plan Outlay and Expenditure, KSIDC, in ₹ crore

Sl. No	Year	Outlay	Expenditure	%
1	2016-17	87.5	75.5	86.3
2	2017-18	96.3	171.7	178.4
3	2018-19	134.4	77.5	57.7
4	2019-20	116.0	15.9	13.7
5	2020-21*	109	10.51	9.7

Source: Budget Estimate

Note: *Expenditure as on September 30, 2020.

crore of disbursements, and a total amount of ₹90.5 crore was recovered by way of principal and interest. Currently there are 23 projects under various stages of implementation with a total investment of ₹2,565.1 crore, which would create employment for around 1,759 persons. The physical and financial performance of KSIDC in 2019-20 and 2020-21 (as on September 2020) is given in **Appendix 4.3.6**.

The Plan outlay and expenditure of KSIDC from 2016-17 to 2020-21 are shown in **Table 4.3.3**.

Major Promotional Activities of KSIDC

KSIDC has been engaged in a number of activities to facilitate and promote private investment. The major promotional activities are:

Ease of Doing Business (EoDB)

The Department of Industrial Policy and Promotion (DIPP), Government of India, has been ranking States annually based on the reform measures taken to improve EoDB. KSIDC has carried out a study on the reforms needed to improve EoDB in Kerala, especially reforms in the existing Rules and Acts relating to clearance procedures for starting an industrial unit in Kerala. Based on the recommendation of the study report; amendments to seven Acts have been approved by the State Cabinet. The State Legislature passed the Kerala Investment Promotion and Facilitation Act 2018.

Kerala Single Window Interface for Fast and Transparent Clearance (KSWIFT)

State Government has introduced the 'Single Window Clearance System' to ease the setting up of industrial projects in the State. KSIDC is the nodal agency for the scheme and National Informatics Centre (NIC) has been engaged for the development of online clearance mechanism and online common application form. KSWIFT will be the platform for all future transactions with the Government on the issue of granting licences and approvals in a time bound manner. Presently, the services of 15 Departments/Agencies are being made available in KSWIFT.

Financial assistance

KSIDC launched several financial assistance and support programme for medium and large scale industries in the State. KSIDC's term loan assistance is limited up to a maximum of ₹100 crore in a project. The various kinds of loans provided by KSIDC are term loan, short term loans, equipment purchase loans, working capital term loans, corporate loans and equity/ preference share investments. KSIDC has been supporting young entrepreneurs by various initiatives such as seed fund assistance, incubation facility and mentoring support innovative ventures are given seed fund by way of soft loan on equity share capital at 90 per cent of the project cost on ₹25 lakh whichever is lower. This programme has sanctioned over ₹22 crore to more than 100 companies since its launch.

Table: 4.3.4 Key Financial Parameters of KINFRA, in ₹ crore

Particulars	2016-17	2017-18	2018-19
Net Worth	741.6	1122.5	1228.5
Total expenditure	37.6	33.7	43.4
Employee Expenses	11.2	12.3	18.1
Net Profit/Loss (+/-)	0.4	0.9	5.7
Audit Status	Complete and up to date		

Source: BPE Review 2018-19

The Women Entrepreneurship Mission of KSIDC was another initiative launched to identify, promote and provide support to existing women entrepreneurs for scaling up their business ventures. The quantum of assistance under this programme is limited to 80 per cent of the fund requirements or a maximum of ₹25 lakh, whichever is less.

Kerala Industrial Infrastructure Development Corporation (KINFRA)

KINFRA was set up in 1993 with the objective of building industry-specific infrastructure across the State and thereby promoting private investment and employment creation, and creating a land bank for future industrial growth. KINFRA has promoted economic development of industrially backward regions of the State by setting up industrial parks/townships/zones, which provide most of the facilities required for entrepreneurs to start an industry. KINFRA aims at developing the essential infrastructure for various industries. The industrial parks developed by KINFRA have facilities such as developed land on built up space, dedicated power and water supply, and communication

facilities. KINFRA provides a ready-made manufacturing environment for entrepreneurs, and help them reduce the time and cost involved in setting up a unit.

Financial Status

The Corporation in 2018-19 has reported a net profit of ₹5.7 crore. Certain key financial parameters for the past three years are shown in **Table 4.3.4**.

The Plan outlay and expenditure of KINFRA from 2016-17 to 2020-21 are shown in **Table 4.3.5**.

Land Available with KINFRA

The total land acquired by KINFRA is 2,939.1 acre. Land available with KINFRA for industrial development purposes is 2,318.3 acre, of which 1,476.7 acre have already been allotted to industrial units. The remaining land (841.1 acre) is still available with KINFRA for allotment to industrial units. The details of allotments in KINFRA industrial parks as on October, 2020 are given in **Appendix 4.3.7**.

Table 4.3.5 Plan Outlay and Expenditure, KINFRA, in ₹ crore

Sl. No	Year	Outlay	Expenditure	Expenditure as per cent of outlay
1	2016-17	101.2	52.7	52.1
2	2017-18	111.3	66.36	72.7
3	2018-19	96.0	47.0	49.0
4	2019-20	107.0	31	17.4
5	2020-21*	92.53	40	43.2

Source: Budget Estimate

Note: *Expenditure as on September 30, 2020

KINFRA has completed infrastructure development in 12 key industrial sectors with world class infrastructure in 24 industrial parks, of which 9 are catering exclusively to the Small and Medium Enterprises sector.

KINFRA has promoted investments in the State and created investment-friendly climate within its parks, contributing significantly to the State's economy. In this regard 728 industrial units have been allotted land in the various industrial parks of KINFRA with total committed investment of ₹1746 crore with direct employment to 20000. KINFRA has also successfully implemented a single window clearance system in all the parks.

- KINFRA has successfully completed India's first International Apparel Park at Thiruvananthapuram, Export Promotion Industrial Park at Ernakulam; Infotainment Park, the Film and Video Park at Thiruvananthapuram, and Food Processing Industrial Park at Malappuram.
- KINFRA has developed Small Industries Park at Thiruvananthapuram, Pathanamthitta,

Ernakulam, Thrissur, Kannur, Wayanad, and Kasaragod.

- Industrial Park, Ottapalam: Construction of Standard Design Factory completed and allocation of built-up space under progress. Internal roads and other common facilities have been completed.

The major on-going projects of KINFRA are shown in **Box 4.3.3**.

Kerala Financial Corporation (KFC) (Industrial Financing)

KFC is a Government owned non-banking financial company in the State. KFC has been playing a major role in the industrialisation of Kerala. The main objective of KFC is to extend financial assistance to micro, small and medium enterprises (MSMEs) in the manufacturing and services sectors. The Corporation provides financial assistance for setting up of new units and for the expansion/modernisation/diversification of existing units in both manufacturing and service sectors. Financial

Box 4.3.3 KSIDC: Major Activities and On-going Projects

- Water supply and road works for Info park, Smart city and KEPIP
- Industrial Park, Mattannur, Kannur
- Food and Spices Park, Muttam, Thodupuzha
- Special Economic Zone for Animation/IT/ITES in KINFRA Film and Video Park, Kazhakuttam, Thiruvananthapuram
- Export promotion (State ASIDE scheme)
- Construction of Standard Design Factory in Neo Space at KINFRA Techno Industrial park, Kakkancherry, Malappuram
- Petrochemical Park, Kochi
- Standard Design Factory, Koratty, Thrissur
- Advanced Technology Park, Ramanattukara, Kozhikode
- Global Ayurveda Village, Thonnakkal and Varkala, Thiruvananthapuram
- International Trade and Convention centre (JV with ITPO), Kochi
- Defence Park, Ottapalam, Palakkad
- Mega food Park, Palakkad
- Common Facilities for Women
- Up gradation of infrastructure in existing industrial parks (grant head)

assistance is provided in the form of term loans, working capital loans and special schemes. KFC is a member of Credit Guarantee Fund Trust for Micro and Small Enterprises. The major activities of the Corporation are the following:

- Sanction of term loans to new micro, small, and medium enterprises in the manufacturing and services sectors.
- Sanction of term loans to existing industrial concerns and services sector units for expansion/modernisation/diversification.
- Sanction of working capital loans to meet working capital requirements of industrial/service enterprises under special schemes.
- Special schemes for financial assistance to civil contractors.
- Special scheme for financial assistance for producing feature film and TV serials.
- Special scheme for modernisation, up gradation and expansion of existing cinema theatres and establishment of new multiplexes.
- Special scheme for purchase of lab equipment/waste management.
- Scheme for Funding Venture Debt for IT Hardware and Software Enterprises.
- Scheme for Financing Working Capital Requirements of Start-ups for Executing Purchase Orders.

The Corporation sanctioned financial assistance amounting to ₹1657.9 crore in 2019-20 as against ₹1645 crore in the previous year. An amount of ₹1446.2 crore was disbursed in 2019-20 as against ₹815.8 crore in 2018-19. The changes in the Government policies and other external factors affected business in certain sectors. Performance of KFC during the last five years is given in **Appendix 4.3.8**. The details of loan operations and industry-wise classification of loans in 2019-20 of KFC are shown in **Appendix 4.3.9** and **Appendix 4.3.10** respectively.

Way forward

The challenge before the State Government is to offer gainful employment to the youth of the State. To meet this challenge the Government aims to create an enabling environment for entrepreneurship in the State. More than one lakh youngsters enrol for technical education in the State on a yearly basis. Total annual enrolment for higher education in the State is close to 2 lakh. Many of these youngsters are potential entrepreneurs. Kerala Government seeks to create a new generation of job providers rather than job seekers. The Government aims to support entrepreneurs by setting up industrial parks with good infrastructure, by providing assistance in marketing, and by encouraging the use of local resources. There has been a growing focus on food and agro-based industries and technologically advanced industries.

The vision of the Government is to achieve an industrial transformation in Kerala that is socially and environmentally sustainable. Adoption of new technologies in various stages of production, design and marketing will be an important component of this transformation.

4.4 MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs)

Micro, Small and Medium Enterprises (MSMEs) constitute a vibrant sector of the Indian economy, particularly with respect to employment. In fact, MSMEs provide the largest number of employment opportunities in the country outside agriculture, with relatively low-level of capital per employee. The sector contributes about 45 per cent to India's manufacturing output, more than 40 per cent of the country's exports and over 28 per cent of the GDP, while creating employment for about 11.1 crore people (Source: Report of the Expert Committee on Micro, Small and Medium Enterprises, RBI, 2019).

Micro, Small and Medium Enterprises (MSMEs) in India

The MSME sector in India is diverse in terms of size, levels of technology employed, and products. As per the 73rd round of NSS data for 2015-16, there were 633.88 lakh unincorporated non-agricultural MSMEs in the country engaged in different economic activities (196.65 lakh in Manufacturing, 230.35 lakh in Trade, 206.85 lakh in Other Services and 0.03 lakh in Non-captive Electricity Generation and Transmission) excluding those MSMEs registered under Factories Act, 1948. MSME sector provided employment for 11.10 crore workers (3.60 crore in manufacturing, 3.87 crore in trade and 3.62 crore in other services and 0.007 crore in non-captive electricity generation and transmission) in the rural and urban areas across the country. 31 per cent MSMEs were found to be engaged in manufacturing activities, while 32 per cent were in trade and 33 per cent in other services. Again,

out of an estimated 633.88 lakh MSMEs, 324.09 lakh MSMEs (51 per cent) were in rural areas and 306.43 lakh MSMEs (49 per cent) were in the urban areas (Source: Annual Report 2019-20, Government of India, Ministry of Micro, Small and Medium Enterprises).

Economic activities across the country have been hit severely during the lockdown imposed to contain the spread of the Coronavirus. As per the official data released by the Ministry of Statistics and Programme implementation, the Indian economy contracted by 23.9 per cent during the April-June quarter of 2020. The declines suffered by private consumption and private business investment were 27 per cent and 47 per cent respectively. MSMEs have been among the hardest hit on account of the above-referred developments.

Impact of Covid-19 Pandemic on MSMEs

To understand the impact of Covid-19 pandemic and the consequent lockdown on the MSME sector in Kerala, State Planning Board made an assessment by comparing the latest trends on three variables namely number of units started, new investment and employment created during the period January –August 2019 and 2020.

The pandemic and the consequent lockdown have led to a significant slowdown in the growth of the number of new MSME units that have come up in Kerala since January 2020. Between January and August 2020, the number of new MSME

units that were set up in Kerala was 5,662, which was just half of the numbers of new MSME units that were set up in the State (10,550) during the corresponding months of 2019 (or a decline of 46 per cent between 2019 and 2020). The biggest decline in the number of units started has been, as expected, between April and June 2020, when the economy had been hit the most because of the lockdown. The decline in the number of MSME units during this period was to the extent of 75 per cent from the numbers during the corresponding months of 2019. A slight recovery is observed during the months of July and August, 2020: 1,361 units new MSME units were started during this period, which was 70 per cent higher than the number of MSME units started between April and June, 2020 (803). However, it is still significantly lower (-)44 per cent than the corresponding figure for 2019.

New Investment in MSME units in Kerala fell from ₹978 crore during January-August 2019 to ₹612 crore during the corresponding months of 2020, a decline of 37 per cent. Between April and June 2020, investment declined by 70 per cent compared to the corresponding-level in 2019. Investment has picked up during the months of July and August, 2020.

New employment created in MSME units fell from 35,543 during January-August 2019 to 19,152 during January-August, 2020, a fall of 46 per cent.

The reduction in employment has been relatively high in the case of men. New employment created for men fell from 21,501 in 2019 to 11,199 in 2020 (a fall of 48 per cent), while employment created among women fell from 14,042 in 2019 to 7,953 in 2020 (fall of 43 per cent). The decline in employment was sharpest between April and June, 2020 (Source: Directorate of Industries and Commerce). Details are given in **Table 4.4.1**.

The impact of the Covid-19 epidemic on MSME business can be broadly grouped into 3 categories which merit different approach and interventions.

1. Permanent impairment on account of the lockdown. These include the part of the losses that are unrecoverable. These are mostly at the micro-level and include rental charges paid, wages distributed for work not done, business losses because of the lockdown, and seasonal business opportunities lost because of the perishable nature of the businesses. These losses warrant immediate intervention for mitigating or easing the negative consequences.

2. Disruptions in the supply chain. The breakdowns in multiple stages of the supply chain on account of the lockdown has not only halted work but also made it difficult to restart the business operations. The problems faced by businesses at present include raw material

Table 4.4.1 Investment and New Employment created in MSME Sector in Kerala, 2019 and 2020

Variables	2019				2020							
	Quarter 1	Quarter 2	Quarter 3	Total (Till August)	Quarter 1		Quarter 2		Quarter 3		Total (Till August)	
					New	Growth from 19	New	Growth from 19	New	Growth from 19	New	Growth from 19
Investment (₹ in cr)	444	276	257	978	368	-17.11%	85	-69.09%	159	-38.21%	612	-37.35
Female Employment	9,756	6,602	5,143	21,501	6,520	-33.17%	1,882	-71.49%	2,797	-45.62%	11,199	-47.91
Male employment	6,806	3,989	3,247	14,042	4,752	-30.18%	1,218	-69.47%	1,983	-38.93%	7,953	-43.36
Total – Employment	16,562	10,591	8,390	35,543	11,272	-31.94%	3,100	-70.73%	4,780	-43.03%	19,152	-46.12

Source: Directorate of Industries and Commerce

shortage, receivables uncollected, tied up inventory, human power shortage, supply chain issues, lack of supply-side credit, and logistical issues. These are macro challenges, which can be resolved only with interventions at the level of multiple industries in the value chain.

3. Lack of future demand. The decline in demand is considered as a major challenge by all sectors, especially services. The negative consumer sentiments because of the pandemic, reduction in discretionary spending to keep buffer for necessities and emergencies, reduction in income-level because of job loss, salary cuts, lower earnings, covid induced life style changes like digital consumption, e-learning, localisation, and restrictions like social distancing has caused a slowdown in demand in many sectors. These impacts require interventions that need medium to long term solutions (Source: Impact of Covid-19 on Kerala

MSMEs report by Kerala Institute of Entrepreneurship Development)

Relief Measures from the Government and Banking Institutions

Taking into account the stress on the MSME sector after the outbreak of Covid-19 and the subsequent lockdown, Government of India and Reserve Bank of India has announced series of measures to revive the MSME sector. This inter-alia includes i) moratorium up to August 31, 2020 on repayment of instalments of term

loans/cash credit/over draft (ii) reducing the Cash Reserve Ratio and Repo rate (iii) Special refinance facility of ₹15,000 crore to SIDBI for on-lending/refinancing (iv) Special liquidity scheme for NBFCs, HFCs and MGIS worth ₹30,000 crore (v) Emergency Credit Guarantee Line of ₹3 Lakh crore for Standard accounts and stressed accounts (vi) Credit Guarantee Scheme for Subordinate Debt for Standard and NPA accounts for infusing ₹20,000 crore in MSME Sector (vii) ₹50,000 crore equity infusion through MSME Fund of Funds; (viii) New revised criteria for classification of MSMEs; (ix) New Registration of MSMEs through 'Udyam Registration' for Ease of Doing Business; (x) No global tenders for procurement up to ₹200 crore; and (xi) Credit Guarantee scheme for Street Vendors (Pradhan Mantri Street Vendor's Atma Nirbhar Nidhi) which also involves interest subsidy.

The Atma Nirbhar Bharath Abhiyan Package announced by the Government of India provides various kinds of assistance to the economy including units in the MSME Sector. The Emergency Credit Line Guarantee Scheme (ECLGS) is implemented through the National Credit Guarantee Trustee Company Ltd. (NCGTC) which is under the administrative control of Department of Financial Services (DFS), Ministry of Finance. The scheme provides support of ₹3 lakh crore for Standard accounts and stressed accounts. DFS has reported that as on September

Table 4.4.2 Emergency credit facility sanctioned and disbursed to eligible MSME Borrowers in Kerala as on October 12, 2020

Bank	No of eligible borrowers	Sanctioned		Disbursed		Yet to be disbursed	
		A/c s	Amount (In Cr.)	A/c s	Amount (In Cr.)	A/c s	Amount (In Cr.)
Total Public Sector Commercial Banks	1,75,140	1,23,790	2,545.38	88,795	20,58.13	34,995	4,87.25
RRB-Kerala Gramin bank	35,568	1,730	18.36	1,730	18.36	0	0
Total – Private Sector Commercial Banks	46,560	17,548	3,108.74	14,043	27,87.05	3,505	3,21.69
Total – Banking Sector	2,57,268	1,43,068	5,672.48	1,04,568	4,863.53	38,500	808.94

Source : State Level Bankers Committee

9, 2020, an amount of ₹163,103 crore has been sanctioned to 42,01,060 borrowers and an amount of ₹1,17,885 crore has been disbursed to 25,01,216 borrowers under the scheme.

As per statistics provided by SLBC, in Kerala as on October 12, 2020, emergency credit has been sanctioned to 1,43,068 eligible cases, out of 2,57,268 eligible borrowers across the State. The total amount sanctioned is ₹5,672.48 crore. Credit amounting to ₹4,863.53 crore has already been disbursed to 1,04,568 borrowers. Details are given in the **Table 4.4.2**.

The Prime Minister has launched an online Portal “Champions” on June 1, 2020. The portal covers many aspects of e-governance including grievance redressal and handholding of MSMEs. Through the portal, 19,181 grievances have been redressed up to September 14, 2020.

Further, the Ministry of Micro, Small and Medium Enterprises (MSME) implements various schemes and programmes for promotion and development of Micro, Small and Medium Enterprises (MSMEs) throughout the country. These include the schemes/programmes such as Prime Minister’s Employment Generation Programme (PMEGP), Scheme of Fund for Regeneration of Traditional Industries (SFURTI), A Scheme for Promoting Innovation, Rural Industry and Entrepreneurship (ASPIRE), Credit Guarantee Fund Scheme for Micro and Small Enterprises, Credit Linked Capital Subsidy and Technology Up-gradation Scheme (CLCS-TUS), Micro and Small Enterprises – Cluster Development Programme (MSE-CDP) and National Scheduled Caste and Scheduled Tribe Hub (NSSH). (Source: Ministry of MSME, GoI)

State’s Initiatives

Vyavasaya Bhadratha – a Special Package for Relief and Financial Assistance to MSMEs in Kerala in the Wake of Covid-19

Considering the severe setbacks faced by the MSME Sector in the State because of the Covid-19 pandemic and the subsequent lockdown, the

Industries Department of Government of Kerala proposed a new relief scheme called “Vyavasaya Bhadratha”. The scheme has the following features:

1. New Land premium payment policy: This is to reduce the financial burden on new investors by decreasing the upfront lease premium to be paid and increasing the duration of the payment period in industrial parks owned by Kerala State Industrial Development Corporation (KSIDC)/Kerala Industrial Infrastructure Development Corporation (KINFRA) parks.
2. Freezing of land premium for one year – This aims to help entrepreneurs by freezing the land premium to be paid by them between April 1, 2020 and March 31, 2021 in industrial parks owned by KSIDC and KINFRA.
3. Waiving of SDF rentals for three months – This aims to waive off the rental charges on firms operating from Standard Design Factories of KSIDC/KINFRA.
4. Top up loans from KSIDC – This aims to extend support to existing clients of KSIDC to meet their immediate working capital and asset creation needs.
5. Waiver of penal interest charges for existing customers of KSIDC.
6. Moratorium for payment of principal and interest. This aims to extend the moratorium for payment of principal and interest for all operating units of KSIDC for a period of three months.
7. Special loans from KSIDC for asset creation by MSMEs
8. The Government is planning to extend the benefits of Entrepreneur Support Scheme.
9. (A) A scheme to provide margin money assistance for additional working capital. (B) A scheme to provide interest subvention on additional working capital loan for MSMEs.
10. A scheme to provide interest subvention on additional term loan for MSMEs.
11. The other features of the Vyavasaya Bhadratha package relate to the following: ESI contribution of employers for three months; PF contribution of employers for three months; modification of NPA loans;

extension of moratorium for principal and interest to 6 months; and payment of interest during the moratorium period for MSMEs.

An amount of ₹5,315 lakh has been identified for the scheme “Vyavasaya Bhadratha’ by reprioritising 17 existing schemes. Administrative Sanction for the scheme has been obtained and a web portal for finding out the beneficiaries has also been launched.

MSME Sector in Kerala

Kerala has a relatively high share of MSMEs in the country. Kerala, with its excellent connectivity, communication network, availability of highly skilled human resources, and relatively good industrial infrastructure, is highly suited for the growth of the MSME sector. The MSME sector helps in industrialisation of rural and backward areas, and provides employment to youth and socially disadvantaged groups such as SC, ST, women and persons with disabilities.

The economic growth of Kerala is related to the development of MSMEs. Directorate of Industries and Commerce is implementing various schemes to increase production and employment in this sector. In addition to providing financial assistance through Government schemes, the Directorate is also functioning as a facilitator providing various services and advices to entrepreneurs.

The Department is implementing various schemes to develop entrepreneurial culture in the State. Department provides financial assistance to start ED clubs at school and college-level to develop entrepreneurial culture among the youth and to organise entrepreneurship development programmes for them. In addition, the department has made it a priority to provide services to Start-ups and to set up business incubation centres in District Industries Centres. The Directorate of Industries and Commerce (DIC) acts as a facilitator for the growth of the MSME and traditional industrial sectors in Kerala. The agencies under the Directorate are: Directorate of Handloom and Textiles, which aims at evolving policies for the promotion and development of handloom and textile sector in the State; Directorate of Coir Development, which is the implementing agency for all policy decisions of the Government of Kerala related to coir industry; and Khadi and Village Industries Board, which is vested with the responsibility of organising and promoting Khadi and Village Industries in the State.

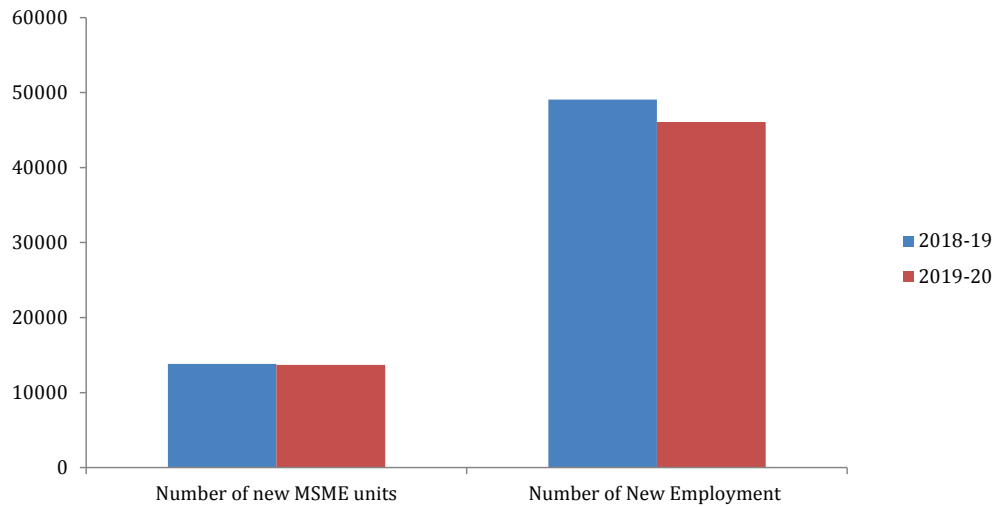
According to Directorate of Industries and Commerce, 13,826 new MSME units were started in Kerala in 2018-19 with a total investment of ₹1,321.94 crore, and generated employment for 49,068 persons. In 2019-20, 13,695 new MSME units were started with an investment of ₹1,338.65 crore and generated employment for 46,081 persons. The number of new MSME units and employment created for the last two years is shown in **Figure 4.4.1** below.

Box 4.4.1 Existing and Revised Definitions of MSMEs

Existing MSME Classification-Criteria –Investment in plant/machinery/equipment			
Classification	Micro	Small	Medium
Manufacturing enterprises	Investment <₹ 25 lakh	Investment <₹ 5 crore	Investment <₹ 10 crore
Service Enterprises	Investment <₹ 10 lakh	Investment <₹ 2 crore	Investment <₹ 5 crore
Revised MSME Classification			
Composite Criteria: Investment in plant/machinery/equipment and Annual Turn Over			
Classification	Micro	Small	Medium
Manufacturing enterprises and enterprises rendering Services	Investment <₹ 1 crore	Investment <₹ 10 crore	Investment <₹ 50 crore
	Turn over <₹ 5 crore	Turn over <₹ 50 crore	Turn over <₹ 250 crore

Source: Ministry of MSME, Government of India

Figure 4.4.1 Number of new MSME units, and new employment created in MSMEs, 2018-19 and 2019-20



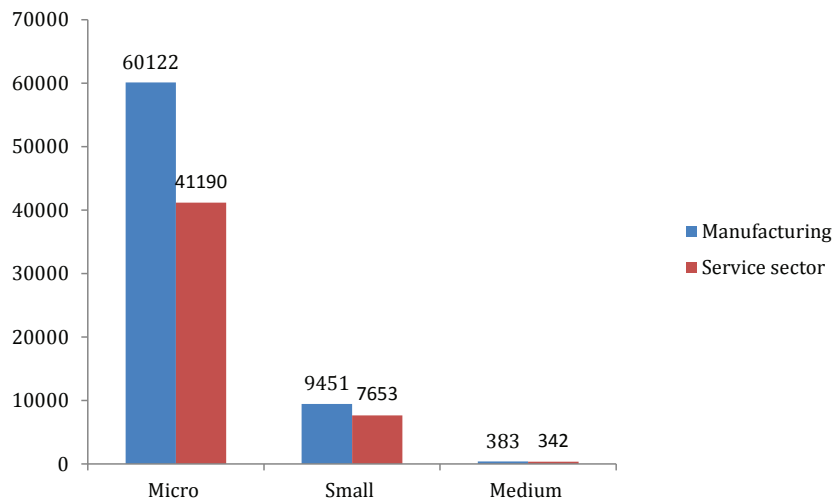
Source: Directorate of Industries and Commerce

Udyog Aadhar Memorandum (UAM) in the State

Under the UAM scheme, which was notified in September, 2015 under section 8 of the MSME Development Act 2006, MSME entrepreneurs need to file an online entrepreneurs' memorandum to instantly get a unique Udyog Aadhaar Number (UAN).

In Kerala, DIC discontinued the practice of filing EM Part II from September 18, 2015, and in its place, started online registration in Udyog Aadhar. As on March 31, 2020, the total number of Udyog Aadhar Memorandums filed was 1,19,141, which included UAMs for micro, small, medium manufacturing units of 60,122, 9,451 and 383 numbers respectively (totalling 69,956 numbers, which represented a 24.88 per cent increase over the corresponding number

Figure 4.4.2 Number of Micro, Small and Medium units registered under Manufacturing and Services Sector for the year 2019-20



Source: Directorate of Industries and Commerce

Table 4.4.3 Subsector-wise details of new MSME units started in Kerala

Sl. No.	Name of subsector	2016-17	2017-18	2018-19	2019-20	2020-21 (up to 30/09/2020)
1	Agro and Food-based	2,395	2,553	2,712	2,582	970
2	Textiles and Garments	1,695	1,947	1,858	1,904	360
3	General/mechanical/light Engineering	1,606	2,001	1,533	1,334	264
4	Service Activities	3,057	3,679	3,259	4,036	566
5	Wood Products	775	871	644	5,32	127
6	Cement Products	344	469	329	3,09	71
7	Printing and Allied	322	392	348	2,80	47
8	Paper Products	158	163	192	1,88	62
9	Information Technology	263	316	294	2,40	54
10	Others	3,098	3,077	2,657	2,290	648
	Total	13,713	15,468	13,826	13,695	3,169

Source: Directorate of Industries and commerce

for 2018-19, i.e. 56,019). In addition, there were 49,185 UAMs filed in the service sector including 41,190, 7,653, and 342 micro, small and medium units respectively (which was an increase of 21.54 per cent over 2018-19, i.e. 40,465 (Source: Directorate of Industries and Commerce). The details are given in **Appendix 4.4.1**.

Performance of the Sector

According to DIC, 13,695 new MSME units started operations in Kerala in 2019-20, with a total investment of ₹1,338.65 crore, and generated employment for 46,081 persons. The District

with the largest numbers of new units started was Palakkad with 1,694 new units generating 5,984 jobs, followed by Thrissur with 1,594 new MSME units generating 4,341 jobs and Ernakulam with 1,386 MSME units with 4,903 jobs. Kasaragod had the lowest number with 2,51 new MSME units, generating employment for 9,53 persons. The details are given in **Appendix 4.4.2**. The subsector-wise details of MSME units started in 2019-20 is given in the **Table 4.4.3**.

The sector-wise growth of MSME units over the last four years shows that there is a steady

Box 4.4.2 Major Physical Achievements in 2019-20

- In 2019-20, 13,695 MSMEs started with an investment of 1,338.65 crore and created 46,081 employment opportunities.
- Assistance was given to 530 units for an amount of ₹29.04 crore under Entrepreneur Support Scheme
- Assistance was given to 144 units for an amount of ₹26.35 lakh under Nano House Hold Scheme.
- Multi Storied Industrial Estate at Puzhakkalppadam (Phase I, 86 per cent of the work is completed. Punnapra Multystoried Gala (65 per cent of the work has been completed), Multi Storied Industrial Puzhakkalpadam (Phase -II, 78 per cent of the work is completed)
- 339 number of people participated in Technology Management Development Programmers. 107 of them have taken effective steps for starting enterprises
- 18 Industrial Exhibitions were conducted across the State.

Source: Directorate of Industries and Commerce

increase in the number of agro and food-based MSME units from 2,395 units in 2016-17 to 2,582 units in 2019-20 (an increase of 7 per cent). The number of service related MSME units increased from 3,057 in 2016-17 to 4,036 in 2019-20 (an increase of 32 per cent).

In 2019-20, the highest number of MSME units were started in the services sector, followed by agro and food based industries, “others” category (which covers units making plastic containers, gold ornaments, rubber products, handicrafts products), textile and garments.

State Budget (2020-21)

In the State Budget for 2020-21, an outlay of ₹390.32 crore was provided for Village and Small Enterprises and the expenditure up to October 31, 2020 was ₹300.39 crore (76.95 per cent). In the annual Budget 2020-21, an amount of ₹154.79 crore was provided under the MSME Sector. Due importance was also given to gender budgeting. Five new schemes viz. Modernisation of DIC and District sub offices, KIED as Centre of Excellence in entrepreneurship development, Enterprise Development Centres (EDCs), Margin money grant to nano units, Assistance to Skilled Entrepreneurs Development Centres have been

taken up in the year 2020-21. The details are given in **Table 4.4.4**.

Major State Plan Schemes and achievements

In 2020-21, State Government implemented various schemes successfully for improving the industrial environment of the State through development of industrial infrastructure, promotion of entrepreneurship, and by providing skill development. Following are the major schemes and achievements.

1. Industrial Infrastructure Development Schemes/Programmes

These schemes intend to promote development of infrastructure in the industrial parks, estates, Development Areas (DAs)/Plots (DPs), including roads, power, water, and facilities for waste management. Also provisions are there to develop new multi-storied industrial buildings (SDF's), industrial parks, and common facility centres for clusters.

a. Improving infrastructure in existing Development Plots/Areas

The Directorate of Industries and Commerce (DIC) develops infrastructure facilities

Table 4.4.4 Plan Outlay and expenditure of Village and Small enterprises 2019-20 and 2020-21, in ₹ crore

Sl. No.	Sector/Sub sector	Annual Plan (2019-20)		Annual Plan (2020-21)	
		Outlay	Expenditure	Outlay	Expenditure (as on October 15)
6.1	Village and Small Enterprises				
i	Small-scale Industries	163.89	54.57	134.14	67.11
ii	Commerce	15.43	4.77	16.00	1.62
iii	Handicrafts	3.55	2.04	4.65	3.02
	Sub Total (MSME)	182.87	61.38	154.79	71.75
iv	Handloom and Power loom	56.01	35.51	51.39	25.52
v	Coir industry	141.51	137.35	112.74	134.34
vi	Khadi and Village Industries	14.43	6.70	16.10	3.75
vii	Cashew Industry	54.45	9.90	55.30	65.03
	Total (Village and Small enterprises)	449.27	250.84	390.32	300.39

Source: Budget 2019-20, 2020-21 and Plan space

for small-scale industries in the State. At present, there are 39 Development Area/Development Plots under DIC, having a total area of 2,424.85 acres. A total of 2,574 units are functioning in these DA/DPs. In 2019-20, an amount of ₹912 lakh has been released for creating/improving infrastructural facilities in 16 existing Development Areas/Plots. Total employment provided through these DAs/DPs in 2019-20 are 35,332 and income generated is ₹4,93,944.86 lakh. The details are given in **Appendix 4.4.3**.

b. Construction of Multi-storied Industrial Estates

Industrial land is very scarce in the State of Kerala. In order to accommodate more industries in the same industrial area, multi-storied constructions with more floor area are inevitable. In 2019-20, preliminary steps were taken for the construction of multipurpose trade facilitation centre at Alappuzha with an estimated cost of ₹978 lakh and ₹100 lakh released to PWD for this work. Works on three Standard Design Factories (SDF) at Puzhakkalpadom Phase I (86 per cent) and II (78 per cent) and Punnapra (65 per cent) are going on and expected to be completed in 2020-21. An outlay of ₹10 crore was provided for the scheme for the year 2019-20.

c. Mini Industrial Estates

As on March 31, 2019 there were 96 mini industrial estates with 857 SSI units; in them 740 working units in these estates provided employment to 3,623 persons. In 2020, as on March 31, there were 91 mini industrial estates with 887 SSI units (3.3 per cent increase over 2018-19); in them 752 working units (1.59 per cent increase over 2018-19) in these estates provided employment to 3,651 persons. The details are given in **Appendix 4.4.4**.

d. Industrial Estates under SIDCO

Kerala Small Industries Development Corporation (SIDCO) provides infrastructure

facilities such as land, work shed, water, distribution of scarce raw material to the units in the small scale sector. In 2018-19, there are 17 major industrial estates with an area of 233.86 acres, of which 193.61 acres were allotted, which comprises 880 working units with employment generation of 7,762. In 2019-20, allotted land was 200.26 acres and number of working units were 909 (3.2 per cent increase). These working units provide employment to nearly 7,833 workers (as on March 31, 2020) and total income generated in 2019-20 was ₹2.94 crore. Besides, there are 7 industrial parks and 36 mini industrial estates (source: <http://www.keralasidco.com>) under SIDCO in which about 1,596 employees are working in 332 working units all over the State. The total Income generated by mini industrial estates in 2019-20 of SIDCO was ₹1.17 crore. Details of industrial estates under SIDCO are given in **Appendix 4.4.5, 4.4.6 and 4.4.7**.

e. Industrial Cluster Development

Industrial clusters have an important role in the promotion of small and medium-sized enterprises mainly because of their inclusiveness, technology absorption, efficiency improvement, and availability of common resources. The Ministry of Micro, Small and Medium Enterprises (MSMEs) adopted the cluster approach as a key strategy for enhancing the productivity and competitiveness as well as capacity building of small enterprises.

The State has already adopted the cluster development approach for industrialisation to reap the benefits of agglomerations through transformation of the traditional systems of activities or industrial districts to new networks ready for competition and innovation. The State supports cluster development through MSME-Development Institute (MSME-DI), Government of India, Thrissur and Kerala Bureau of Industrial Promotion (K-BIP). The common facility centres, which are in various stages of

development in the State, are in the areas of wood, plywood, furniture, rubber, textile, rice mill, plastic, printers, ethnic food, agriculture implements and general engineering. The major plant and machinery required for setting up Common Facility Centres (CFCs) in Wood Furniture Cluster, Chevoor, Thrissur is installed and it is in the final stage of completion. The building construction works are progressing in the wooden furniture cluster, Kozhikode (Source: Kerala Bureau of Industrial Promotion). Ministry of MSME under the Scheme Micro Small Enterprises Cluster Development Programme (MSE-CDP) is assisting 19 Cluster CFC in Kerala. MSME-DI, Thrissur is actively engaged in the promotion and development of clusters in the State in close liaison with the State Government and other stakeholders. In principal approval obtained for Kalady Steel Consortium private limited, Ernakulam and Papadam cluster Thiruvananthapuram (Source:

Annual Report 2019-20, MSME Development Institute, Thrissur).

2. Capacity building programmes

The scheme intends to promote entrepreneurial/ industrial promotional activities and skill development training for micro, small and medium enterprises. Under the scheme, an outlay of ₹8 crore was provided in 2019-20, and the following major programmes were carried out.

- Conducted 28 Entrepreneurship Development Programmes at 14 Districts, in which, 1,391 persons participated.
- Conducted Entrepreneurship Awareness Programme (EAP) at block/Municipality/ Corporation-level and ITI, Poly technic, Arts and Science College and 20,192 persons participated in it.
- Conducted Taluk-level investors meet at 14 Districts and 5,324 persons participated.
- 305 Entrepreneurship Development Clubs have been set up in educational institutions to promote entrepreneurship among students.
- Department set up business incubation centres at 14 Districts.
- Department conducted an ED Club Conclave – MSME Summit (Enlight 2020) for youth on January 29 and 30, 2020 at Udaya Palace Convention Centre, Kowdiar, Thiruvananthapuram. Students, Teachers and Entrepreneurs from all over Kerala participated in the ‘Enlight 2020’ ED Club Conclave to display their innovative products.

a. Promoting Entrepreneurship and Skill Development

Promotion of local entrepreneurship is important for the creation of sustainable consumption and production systems. The details of Skill Development and Training Institutes in Kerala are shown in **Box.4.4.3**. MSME-Development Institute (MSME-DI), Thrissur, Government of India has conducted 32 courses in 2019-20, benefitting 7,328 potential entrepreneurs. In 2020-21 (up to September 30, 2020), 4208 persons were benefitted from the skill development programmes through webinars. Details are given in **Appendix 4.4.8**.

3. Development of Commerce

a. Promotional Events/Exhibitions – Achievements of the MSME sector in 2019-20

The Directorate of Industries and Commerce conducted/participated in 30 Exhibitions/ Fairs/Expos inside Kerala with 1,212 stalls in 2019-20 and generated an income of ₹35.95 crore. These exhibitions were held in most Districts of Kerala, while the maximum number of exhibitions (6) and stalls (480) was put up in Kannur District. Details are given in **Appendix 4.4.9**. Following are the major promotional activities undertaken by the Department of Industries and Commerce in 2019-20.

- In 2019-20, the Department conducted 18 industrial exhibitions across the State and organised Kerala Agro food pro (exhibition) on January 2020, at Ernakulam. A total of 125

Box 4.4.3 Skill Development and Training Institutes in Kerala

MSME Development Institute, (MSME-DI), Thrissur, Government of India:

The institute under the Ministry of MSME, Government of India provides techno-economic and managerial consultancy services to the MSME sector in Kerala and the Union Territory of Lakshadweep. It also conducts various training programmes viz. Industrial Motivation Campaigns, Entrepreneurship Skill Development Programme (ESDP), and Skill Development Programmes (SDPs). In 2019-20, 3 courses on Skill Development Programmes were undertaken and 66 persons were trained.

Kerala Institute of Entrepreneurship Development (KIED). KIED was established as an autonomous body of the GoI on November 26, 2005. It is aimed to promote entrepreneurship, especially among the young, by offering orientation programmes and training in skill development. The institute organises various entrepreneurial awareness campaigns, seminars, workshop and research and development. There is a potential to widen the scope of activities of the Institute to revitalise the functioning of the institute. In order to revamp the institute, a scheme, KIED as Centre of Excellence in entrepreneurship development with an outlay of ₹200 lakh has initiated in 2020-21 Budget. To revive the institute as centre of excellence, the road map for the master Plan preparation by Indian Institute of Management, Kozhikode is progressing. In association with Kerala Start Up Mission, KIED is developing an online platform for providing skill development and training to entrepreneurs. KIED take initiative to set up Entrepreneur Development Centre at Ankamaly, Ernakulam in association with Kerala Academy of Skill Excellence.

Kerala Academy of Skill Excellence (KASE). Government of Kerala has set up three Kaushal Kendras under KASE at Kollam, Kozhikode and Palakkad to provide career guidance, industrial training to young workers and improving their employability. Considering the peculiar demographic characteristics of the State of Kerala, unique skilling models have been adopted by KASE with industry tie-ups and placement linkages and various such skill development programmes initiated by KASE are under implementation.

Kerala Institute of Labour and Employment (KILE) Constituted by Government of Kerala, KILE is an institute for training and research on labour and allied subjects. In 2019-20, various programmes were conducted by KILE including training, workshops, seminars and publications. The beneficiaries through these programmes were 6,593. In 2019-20, 3 training programmes were conducted (as on August 31, 2019) and the beneficiaries are 554.

Source: MSME Development Institute, (MSME-DI), Thrissur, Kerala Institute of Entrepreneurship Development, Kerala Academy of Skill excellence, Kerala Institute of Labour and Employment (KILE)

MSME units participated in this exhibition, showcasing their products.

- 29,530 number of people participated in various Industrial Promotion Programmes in 14 Districts and 15,000 employments opportunities created
- In order to introduce new technology to entrepreneurs and to directly communicate with the institutions providing technology, department conducts Machinery expo. Machinery expo was organised on February

2020 at Thrissur, 132 machine manufactures of different State exhibited their machines in the expo.

b. Commerce Mission

In 2018, the State Government constituted the Commerce Mission with an aim to provide assistance to MSMEs, start-ups and traditional industries with marketing and branding of their products as well as with sourcing quality input materials at fair prices

from national/international markets. Major Activities undertaken by Commerce Mission were:

- **Kerala e-market**

Aiming national and international markets for the products from the State, the Government has launched a business to business web portal titled 'Kerala e-market'. Kerala Bureau of Industrial Promotion (K-Bip) under the department of Industries and Commerce developed the portal www.keralaemarket.com/www.keralaemarket.org to help and facilitate micro, small and medium enterprises, and public sector undertakings to expand their business in the national and international markets. The portal will serve as a connection point for national and international buyers to interact with the MSMEs and PSUs in the State. Each MSME and PSU can list their industry and their products along with pictures, prices etc. The products or industries are classified in various sectors such as food processing, handloom and textiles, rubber, coir, Ayurveda, electricals and electronics, handicrafts and agriculture. Total number of applicants including buyers and sellers registered in the portal up to October 2020 are 1,449.

- As part of the activities of the Commerce Mission, Kerala has participated in the following international business meetings. At these meetings, the possibilities to expand mutually beneficial business partnerships have been explored.
 - i. The 5th edition of Food Tech Asia 2019, International exhibition on food processing and allied sectors was organised at Kirchipur, Kathmandu, Nepal from September 25 to 28, 2019.
 - ii. India Expo 2019, organised by SEFM (SME and Entrepreneurs Federation of Maldives) in association with Ministry of Commerce, GoI and Indian Embassy

in Maldives from October 15 to 17, 2019 at Dharubaaruge, Male, Maldives.

- c. **Permanent Exhibition cum Marketing Complex (Kerala Mart)**

The objective of this scheme, which was launched in 2019-20, is to create a permanent exhibition cum marketing facility for the MSME sector. The proposed MART can help augment sales, showcase products and brands, and act as a marketing platform with strong national and international networks to enhance economic activities in MSME sector. This will help the MSME sector in the State.

4. Industrial Incentive Schemes

- a. **Entrepreneur Support Scheme (ESS)**

The scheme intends to provide extensive support to MSMEs and give one time support to entrepreneurs, especially women and persons belonging to SC and ST community. An outlay of ₹58.50 crore was provided for ESS scheme in 2019-20 and assistance of ₹29.03 crore was given to 512 units.

- b. **Package for Rural Industries-Prime Minister's Employment Generation Programme (PMEGP)**

'Prime Minister's Employment Generation Programme (PMEGP)' is a credit linked subsidy scheme at the national-level, which aims to generate employment opportunities by setting up micro-enterprises in the non-farm sector in rural as well as urban areas. In 2019-20, the banks sanctioned 1,695 applications and provided Margin Money of ₹3,508.72 lakh. The comparable figures for 2018-19 were 1,338 applications and ₹2,971.24 lakh respectively. Banks sanctioned more number of applications in Thrissur District with 234 numbers, followed by Palakkad with 214 and Ernakulam with 176 numbers. Details are given in **Appendix 4.4.10**.

c. Interest subvention on deferred land cost investments to entrepreneurs in industrial areas/parks

It is a new scheme, taken up in 2019-20. The objective of the scheme is to make the Government Industrial estates/parks more investor friendly to new entrepreneurs attracting more investments and creating employment. The scheme envisages deferring a portion of the investment burden in land cost to a new entrepreneur by taking over the interest burden on the land cost for a specific period in industrial estates/parks promoted by DIC/SIDCO/KSIDC/KINFRA.

5. Industrial Financing in MSME Sector

a. State Level Bankers' Committee (SLBC)

As per the State Level Banker's Committee (SLBC) report, the outstanding bank credit by the commercial banks in Kerala to various sectors increased to ₹3,59,274 crore at the end of March 2020 as against ₹3,29,899.97 crore in the previous year, an increase of 8.17 per cent. The outstanding flow of credit to the MSME sector in March 2019 was ₹54,446.19 crore, an increase of 13 per cent, compared to ₹47,201.37 crore in March 2018. The status of flow of credit to various sectors is given in **Appendix 4.4.11**.

b. The Small Industries Development Bank of India (SIDBI)

The Government encourages SIDBI to refinance credit institutions, which provide unsecured loans, at reasonable interest rates, to borrowers based on their transaction history. Till March 31, 2020 under the scheme, SIDBI Make in India Fund for MSME (SMILE) aggregate loans of 7,846.40 crore had been disbursed to 4,347 MSMEs. To provide liquidity support to MSME sector in view of Covid-19, RBI provided Special Liquidity Facility (SLF) of ₹15,000 crore to SIDBI. SIDBI introduced Covid-19 Start up Assistance Scheme (CSAS) to provide

financial assistance to start ups affected because of Covid-19 (Source: SIDBI, Working Report 2020).

Industrial Co-operative Societies

In Kerala, the total number of working industrial co-operative societies as on March 31, 2020 was 977. Kannur has the larger number of working societies with 142 numbers. Out of 977 societies, 95 Societies were registered by women. The details are given in **Appendix 4.4.12**. In 2019-20, 542 societies were registered.

Issues and challenges in the sector

The contribution of the sector in the economy is currently constrained because of several challenges affecting growth of the sector. Some of the major ones are:

Policy and institutional interventions-

The challenges include formulation of targeted policies in the areas of infrastructure development, modernisation, technology adoption, building backward and forward linkage, credit gap reduction and ensuring timely payments to MSMEs.

Accelerating growth and enabling formalisation

– There is a need to nurture and support innovative business ideas and shape them into enterprises, and this way create a favourable eco system for MSMEs. This can be achieved with support from entrepreneurial development and incubation centres. Utilisation and reach of various schemes, including schemes for credit support, have been constrained because a number of reasons. Promoting formalisation and digitisation amongst MSMEs and encouraging them to register in UAM has remained a challenge.

Addressing infrastructural bottlenecks

– Inadequate availability of basic amenities such as work sheds, tool rooms, product testing laboratories, electricity, rural broadband and innovation hubs is acting as a deterrent to the growth of the sector. There have been only a few

MSME clusters which provide good infrastructure facilities

Facilitating access to credit and risk capital –

Due to their informal nature, MSMEs lack access to formal sources of credit. Banks face challenges in credit risk assessment of MSMEs owing to lack of financial information. Very few MSMEs are able to attract equity support and venture capital financing.

Enabling market linkage and tie-ups with public procurement platforms-MSMEs face the twin challenge of limited access to quality raw material and market for finished product. Tie ups with public sector units can help their growth.

4.5 FOOD PROCESSING

A well-developed food processing sector with higher-level of processing helps in the reduction of wastage, improves value addition, promotes crop diversification, ensures better return to the farmers, promotes employment as well as increases export earnings. This sector is also capable of addressing critical issues of food security, food inflation and providing wholesome, nutritious food to the masses.

In India, the food processing sector has emerged as a high growth and high-profit sector due to its immense potential for value addition. Food processing has an important role to play in linking Indian farmers to consumers in the domestic and international markets. The Ministry of Food Processing Industries (MoFPI) is making all efforts to encourage investments across the value chain. The industry engages approximately 18.5 lakh people in around 39,748 registered units (Source: Annual Report 2019-20, Ministry of Food Processing Industries, GoI).

Food processing in India covers fruit and vegetables, plantations, grain processing, spices, milk and dairy products, meat and poultry, fisheries, non-alcoholic and alcoholic beverages, as well as other consumer product groups such as confectionery, chocolates, cocoa products, soya-based products, mineral water and high protein foods.

The food and grocery market in India is the sixth largest in the world. Also food and grocery retail

market in India constitutes almost 65 per cent of the total retail market in India.

Contribution of Food Processing sector to GDP

Over the years agricultural production in India has consistently recorded higher output. India ranks first in the world in the production of milk, ghee, pulses, ginger, banana, guava, papaya and mango. Further, India ranks second in the world in the production of rice, wheat and many other fruits and vegetables. An abundant supply of raw materials, increase in demand for food products and incentives offered by the Government has impacted food processing sector positively. During the last 5 years ending 2018-19, food processing sector has been growing at an average annual growth rate (AAGR) of around 10 per cent as compared to around 3.11 per cent in agriculture at 2011-12 Prices. Food processing sector has also emerged as an important segment of the Indian economy in terms of its contribution to GDP, employment and investment. The sector constituted as much as 8.98 per cent and 11.11 per cent of GVA in manufacturing and agriculture sector respectively in 2018-19 at 2011-12 prices.

The Indian food processing industry is one of the largest industries in India with respect to production, consumption, export and future potential for growth. The value of processed food exports in 2018-19 was of the order of US \$35.30 billion accounting for about 10.69 per cent of

India's total exports. The value of import of processed food in 2018-19 was US\$19.32 billion which was 3.95 per cent of India's total imports (US\$ 514.03 billion). The share of India's food export in the world was 2.3 per cent in 2018 and share of India's food imports in the world was 1.3 per cent in 2018 (Source: Annual Report 2019-20, Ministry of Food processing Industries, GoI)

Food Processing Industry in Kerala

Kerala accounts for nearly 20 per cent of the country's total food exports. Kerala has been traditionally strong in spices, marine products, cashews, coconuts, cocoa, coffee and tea and fruits like banana and pine apple.

Kerala Industrial Infrastructure Development Corporation (KINFRA) has been playing a proactive role for the promotion of food processing industry in the State. KINFRA functions as nodal agency for the Ministry of Food Processing Industries, GoI and also the nodal agency of the State for implementing "Assistance to States for developing Export Infrastructure and Allied Activities (ASIDE), Ministry of Commerce and Industries. KINFRA has set up a number of food based parks across the State.

KINFRA Food Processing Park, Kakkancherry, Malappuram

The KINFRA Food Processing Park at Kakkancherry, Malappuram District, set up in an area of 72 acres, has 43 working units. In 2019-20, the park has attracted investment of ₹14,365.53 lakh and created 1,434 number of jobs.

Food and Spices Park, Muttam, Idukki

This project is located in 15 acres of land at Muttam, Idukki District, to be implemented under MSME-Cluster Development Programme (MSME-CDP), Ministry of MSME, Government of India. It envisages full-fledged common infrastructure facilities for food and spices and its allied activities. Government of India has accorded "in-

principle approval for the project". Total project cost is ₹12.5 crore, out of which ₹6 crore will be assistance from GoI.

KINFRA Mega Food Park, Palakkad

Ministry of Food Processing Industries (MOFPI), Government of India has approved the proposal from KINFRA for setting up a Mega Food Park in 79 acres at Kanjikode, Palakkad in accordance with the Mega Food Park Scheme (MFPS). The estimated project cost is ₹119.02 crore. The assistance provided by the Ministry of Food processing Industries is ₹50 crore. Under the project, KINFRA has undertaken site development including development works such as providing roads, drainage, water supply and electricity supply. In addition to the Central Processing Centre (CPC) at Palakkad, KINFRA has undertaken the setting up of four primary processing centres (PPCs) at Muzhuvanoor, Koratty, Kakkanjery and Kalpetta in line with requirements of Mega Food Park Scheme. Components such as compound wall, drainages and warehouses in CPC have been completed and roads, electrification, water supply and standard design factory building at CPC are nearing completion.

Details of KINFRA food processing units in parks are given in **Appendix 4.5.1**.

KSIDC Mega Food Park, Alappuzha

KSIDC is developing a Mega Food Park at Industrial Growth Centre Pallippuram, Cherthala, focusing the sea food processing sector, with grant assistance from Ministry of Food Processing Industries (MOFPI), Govt. of India under the Mega Food Park Scheme. The park will cater to marine food processing sector with common infrastructure facilities such as cold storage, standard design factory and ice plant. The project is expected to bring an investment of ₹350 crore within 3 years. As of now, about 42 acres has been allotted to different seafood/food processing and allied units at the park. Balance available land at Mega Food Park comes to about

Box 4.5.1 Food pro 2019, Chennai

The 13th edition of Food pro 2019 organised by Confederation of Indian Industry (CII) was held at Chennai Trade Centre, Chennai from August 23 to 25, 2019. The exhibition focused on the current trends in food processing industry, showcased innovation through modern technology, build brand and create awareness. Kerala participated in the Exhibition as a 'Partner State' and K-BIP facilitated the participation of MSMEs in food processing and allied Sectors from the State in the Kerala Pavilion organised by K-BIP. The Exhibition provided tremendous opportunity for the Kerala based companies to showcase their innovative technologies and solutions in the food processing and allied sectors.

Source: CII

3 acres. Land will be allotted to sea food/food processing units and industrial units in allied sectors for 30 year lease period. The present applicable lease premium is 137.26 lakh per acres up to March 31, 2020. (Source:www.ksidc.org)

Implementation of Food safety system through NCHC

National Centre for HACCP Certification (NCHC) associated with K-BIP is in the process of auditing, certification and recertification of various food processing and allied units in Kerala and outside the State. National Centre for HACCP Certification (NCHC) in association with Kerala Commissionerate of Food Safety organises awareness programmes on Food Safety.

Major challenges in food processing sector

- Supply chain infra gaps (Lack of primary processing, storage and distribution facilities)
- Inadequate link between production and processing (lack of processable varieties)
- Seasonability of operations and low capacity utilisation
- Inadequate focus on quality and safety standards
- Lack of product development and innovation

Way forward

Food processing sector faces a set of unique problems which have a direct bearing on the strategy and required intervention for the

development of the sector. The processors in this sector deal with seasonal, perishable materials which need to be processed in a short period. As the sector mainly consists of tiny, micro and small units, neither they are able to generate adequate surplus for their expansion nor invest in supporting infrastructure. Therefore, the sector needs support for creation of infrastructure and targeted incentives to attract investment for creation of processing capacity. To address these issues, considerable investment is required in different components of the supply chain by way of grading and packing centers, controlled atmosphere facilities, reefer vans, cold storage for perishable cargo at port/airport/railway stations, testing laboratories and other supporting infrastructure and services such as setting up of testing laboratories, research and development, imparting skill training, marketing support etc.

4.6 TRADITIONAL INDUSTRIES

Handicraft sector

The handicrafts sector plays a significant and important role in the country's economy. It provides employment to a vast segment of craft persons in rural and semi urban areas and generates substantial foreign exchange for the country, while preserving its cultural heritage. Handicrafts have great potential, as they hold the key for sustaining not only the existing set of millions of artisans spread over the country, but also for the increasingly large number of new entrants in the crafts activity. Presently, handicrafts contribute substantially to employment generation and exports.

However, it suffers from weaknesses such as the unorganised nature of the industry, low-levels of education of workers, low capital base, poor exposure to new technologies, absence of market intelligence, and poor institutional framework. Series of efforts have been taken by the Government to redress these problems. Office of the Development Commissioner [Handicrafts] implements various schemes for promotion and development of handicrafts sector under "National Handicraft Development Programme [NHDP]" and Comprehensive Handicrafts Cluster Development Scheme (CHCDS) to emphasise integrated approach for development of handicraft cluster in a holistic manner.

In India, the handicrafts sector employs 68.86 lakh artisans, out of which 30.25 lakh are male and 38.61 lakh are female artisans. The export of handicrafts including handmade carpet in

2019-20, up to September, 2019 was ₹18,679.60 crore. (Source: Annual Report 2019-20, Ministry of Textiles, Government of India).

Handicraft industry in Kerala

Handicraft industry is one of the traditional industries of Kerala. It is estimated that there are about 1.7 lakh handicrafts artisans actively engaged in the handicraft sector in Kerala. Kerala has the tradition of making beautiful handicrafts with ivory, bamboo, palm leaves, seashells, wood, coconut shells, clay, cloth, coir, metals, stone, lacquer ware, and so on. Many old handicraft classics can be seen in palaces, old heritage homes and museums across the State. A vast majority of the traditional artisans suffer from social and economic disadvantages. There are 32 different crafts in Kerala of which ivory carving, wood and horn carving, bell metal casting, hand embroidery, coconut shell carving are important commercial items. The schemes implemented by the Government of Kerala intend to eliminate intermediaries, improve the skill of artisans, productivity, increase market opportunities and strengthen Co-operatives.

Importance of Handicraft Industry

Kerala State Handicrafts Apex Co-operative Society (SURABHI), Handicrafts Development Corporation of Kerala (HDCK), and Kerala Artisans Development Corporation (KADCO) are the major agencies for the promotion of the handicraft industry in Kerala.

Kerala State Handicrafts Apex Co-operative Society (SURABHI)

SURABHI is the apex organisation of primary handicrafts co-operatives established with a view to uplift the artisans by marketing their products and supporting them through the welfare schemes of GoK and GoI. There are 46 Co-operative societies under SURABHI. There are 11 showrooms under SURABHI inside and outside Kerala. The turnover of the society in 2019-20 was ₹174.99 lakh. The Apex society received an amount of ₹25.00 lakh in 2019-20 as assistance from the State Government. SURABHI had no exhibitions and profit in the year 2019-20. The total employment provided during the period was 30,000. Details are given in **Appendix 4.6.1**.

Handicrafts Development Corporation of Kerala (HDCK)

Handicrafts Development Corporation of Kerala (HDCK) is engaged in procuring and marketing handicraft products, and thereby ensuring fair returns to artisans. HDCK's show room includes Sree Moolam Shashtyabdapurthi Memorial Institute (SMSMI) in Thiruvananthapuram and Kairali emporia spread across State and other major locations in India. At present, it has a network of 19 such sales emporia other than SMSMI. Apart from marketing, HDCK is supporting artisans through welfare schemes of GoK and GoI and has been running a Common Facility Service Centre (CFSC) at Thiruvananthapuram for artisans who engage in development of wood crafts. Establishment of Common Facility Service Centres and Assistance to Apex Organisation in the Handicrafts Sector are the Plan schemes implemented through HDCK.

Besides the sales of handicrafts through 19 sales units, the corporation has been implementing financing schemes for the assistance and benefits of the craftsmen to satisfy their capital requirements under NBCFDC loan schemes. Moreover, with the support of GoI, the corporation has been implementing welfare

schemes to artisans, training programmes, setting up of CFCs, distribution of tool kit, conduction of exhibitions/craft bazars at important places and tourists centres for exhibiting and providing marketing facilities to the artistic crafts produced by artisans.

In 2019-20, corporation has targeted a sales turnover of ₹1,900 lakh, but it could achieve only total sales of ₹1,124.08 lakh. The major reason for not achieving the targeted sale is the spread of Covid-19 pandemic all over the world. Sale of the Corporation mainly depends on domestic and foreign tourists and also on fairs and exhibitions. Corporation could not achieve sales as targeted from December 2019 onwards because of restriction in the flow of tourist and there after complete lock down all over India. HDCK conducted 34 exhibitions across India and distributed free tool kits to artisans to improve their productivity. Total turnover of the Corporation in 2019-20 was ₹1,124.08 lakh, which was ₹138.17 lakh less than that of previous year. Details are given in **Appendix 4.6.2**.

The Kerala Artisans Development Corporation (KADCO)

Kerala State Artisans Development Corporation Ltd was incorporated in 1981, as a fully owned Kerala Government company registered under Companies Act, 1956. The main objective of the Corporation is the upliftment of indigenous artisans in Kerala including carpenters, goldsmiths, blacksmiths and those engaged in pottery, masonry, work using copper/bronze and other handicraft work. The identification of different types of artisans and promotion of the crafts undertaken by them is the primary objective of KADCO. KADCO is successfully running Common Facility Centres for Carpentry in Mini Industrial Estate at Nadavannur, Kozhikode and Umayanallore Kollam. Many artisans engaged in carpentry sector in this area are utilising this facility available under a nominal rate. Alongside, KADCO with its 4 decades of experience in the field of handicrafts development, realises the necessity of pooling the

most contemporary infrastructure for the local and traditionally skilled work force under one roof so as to provide them with all the necessary inputs to address the growing international handicrafts market.

KADCO being one of the State Channelising Agencies (SCA) for National Backward Classes Finance & Development Corporation (NBCFDC), is disbursing short term loan with a nominal interest rate of 5 per cent up to ₹1,00,000 for women who belong to backward classes and living below poverty line to start various income generating activities. More over loan up to ₹5 lakh is also given to the artisans units for renovation and start new production units. (www.keralaartists.com)

Bamboo Industry

Bamboo is a highly useful renewable and eco-friendly resource which has several applications. It is widely used in environment protection, as a nutrient food, high-value construction material, and in about 1,500 other applications. It is estimated that about 250 crore people use bamboo in one form or the other at the global-level. Advanced research activities are being taken up to utilise bamboo for efficient fuel generating system.

In Kerala, 28 species of bamboo are found. Bamboos from Kerala forests are being supplied mainly for the pulp and rayon units under

concessional rates. It is estimated that there are about one lakh people in the State dependent on bamboo for their livelihood. A unique feature of Kerala is that 67.3 per cent of the extracted bamboo comes from home gardens rather than from forests. The weaving sector artisans around Angamaly region is supported by the State Bamboo Corporation. Recent data from the Pachayats indicate that from the early seventies onwards there has been a great drain in the number of artisans from the sector to semi skilled and unskilled jobs in the tertiary sectors like construction etc. (Source: www.keralabamboomission.org).

The Kerala State Bamboo Mission

Kerala State Bamboo Mission (KSBM) being the Bamboo Development Agency (BDA) of the State was constituted in the year 2003 with the aim to adopt a focused approach to revitalise the bamboo Sector, promote value addition, enhance incomes of workers in the sector, and help alleviate poverty. The interventions initiated by KSBM through K-BIP includes promotion of bamboo cultivation, creation of new designs for innovative products, skill development, and promotion of bamboo-based modern industries supported by technology adaptation and development. On June 9, 2020 Kerala State Bamboo Mission supplied 3,000 Bamboo saplings to Nedumangad Bock Panchayath, the saplings were planted in the river banks of Killiyaar as part of river bank protection programme.

Box 4.6.1 Kerala Bamboo Fest 2019

Kerala State Bamboo Mission organised the 16th edition of 'Kerala Bamboo Fest' at Marine Drive Ground, Kochi from December 6 to 10, 2019. The Fest was organised with the participation from artisans, craftsmen from outside the State especially from the North East region of the Country. 166 stalls were set up in 'Kerala Bamboo Fest 2019' with a total participation of 277 Artisans/Craftsmen which included 220 Artisans within the State, 24 Artisans from other 6 States, 10 Government/Research Institutions, 14 Entrepreneurs, 2 Bamboo Nurseries, Bamboo Food Stalls and 3 Kudumbasree Units from the State. The products displayed included handicraft items, mementos/trophies, furniture, interior decoration designs including lamp shades, kitchen utensils, curtains, flooring tiles, food products using bamboo rice and shoots.

Source: Kerala State Bamboo Mission

The Kerala State Bamboo Corporation

The Kerala State Bamboo Corporation is an undertaking established in 1971, for the welfare, development and upliftment of traditional bamboo workers in the State of Kerala. The main objectives of the Corporation are to develop and promote industries based on bamboo, reed, cane and rattan, to undertake manufacture and trading of bamboo based products, and provide financial, technical and other assistance to the traditional bamboo workers. The Corporation is serving about 10,000 bamboo workers in Kerala. A majority of these workers are poor and belong to socially and economically backward, SC/ST Communities.

The main activities of the Corporation include the collection of good quality of reeds from Government forests and distribution of these reeds to traditional bamboo weavers at a subsidised rate on credit basis, and also the procurement of woven mats from the weavers. The main products of the corporation are bamboo mats, bamboo ply, flattened bamboo boards, bamboo flooring tile, bamboo furniture and handicraft items. As part of encouraging more the drop workers into mat weaving, Kerala State Bamboo Corporation has started training programmes in making bamboo mats and handicraft items.

Kerala State Bamboo Corporation Ltd. has three Feeder/Primary Processing Units at Palakkad, Mananthavady and Nadapuram for the purpose of processing raw bamboo into strips in various thicknesses by weaving it as Bamboo curtains for the production of Flattened Bamboo Board at its subsidiary unit of Bamboo Board Factory, Angamaly. The waste bamboo, arising out of the above process ranging from 50 per cent to 70 per cent are further used for the manufacturing of value added products like Toothpick, Curtain Blinds, and Bamboo Curtains and Incense Sticks.

Problems/issues in the sector

The major issues that face the sector are:

- Spread of Covid-19 pandemic has badly affected the sector
- Severe competition from the private sector
- Availability of cheap replacement of the crafts, Chinese products in particular
- Artisans reluctant to pursue the traditional work because of unfavourable work conditions
- Lack of interest of new generation to enter in the sector
- Shortage of skilled workers in the sector such as in bamboo
- Rules relating to cutting of and procuring bamboo from forests
- Absence of a proper supply chain (for bamboo)
- Shortage of working capital and credit for artisans/NGOs/MSMEs
- Limited entrepreneurship, insufficient skill development programmes and lack of modernisation in designs and products
- Lack of awareness about technology, designs and developing tools
- Standardisation and packaging technology
- Inadequate marketing facilities/handholding support for forward and backward linkages

Way forward

Kerala's industrial sector needs to take advantage of global best practises and attract more investors, educated and skilled work force. Emphasis should be given to the practice of ethical manufacturing, focused in value addition and in harmony with the environment. Focus should be given to tap the huge potential of knowledge based industries such as IT, computer hardware and bio technology. Kerala needs to create an eco-system where economic activities can be undertaken in a socially and environmentally responsible manner.

TEXTILE INDUSTRY

Textile and Garment Industry in India

India is the second largest manufacturer and exporter of textiles in the world, after China. The share of textile and garment industries in India's total exports was 12 per cent in 2018-19. At the same time, India has a share of 5 per cent of the global trade in textiles and garments. Textile and the garment industries are among the largest sources of manufacturing employment in the country. Together, these industries provided employment to 1.93 crore workers in India in 2017-18, of which 0.7 crore were women (according to estimates based on the Periodic Labour Force Survey in 2017-18). The above-referred numbers include workers in the traditional sectors such as handlooms, power looms and handicrafts, as well as the capital-intensive mill sector.

Handloom and Power loom Industry in India

Handloom industry is the largest cottage industry in the country with about 23.77 lakh looms. According to the Annual Report 2019-20 of the Ministry of Textiles, handloom weaving is one of the largest economic activities after agriculture providing direct and indirect employment to 35.23 lakh weavers and allied workers. This sector contributes nearly 15 per cent of the cloth production in the country and is also a major source of export earnings. It is estimated that almost 95 per cent of the world's hand woven fabric comes from India (Annual Report 2019-20 of the Ministry of Textiles, Government of India). Though the number of weavers in handloom sector is declining, persistent efforts on the part of the Central and State Governments have succeeded in arresting the declining trend in handloom production. Since 2004-05, considerable growth in production of handloom products is visible in India. The production was 79,900 lakh sq metres in 2017-18.

Products from the handloom industry include fabrics, bed linen, table linen, toilet and kitchen linen, towels, curtains, cushions and pads, tapestries and upholstery, carpets, floor coverings and embroidered textile materials which also have a good export market. Karur, Panipat, Varanasi and Kannur are some of the prominent Handloom export centres in the country. According to Handloom Export Promotion Council (HEPC), the nodal agency constituted under the Ministry of Textiles, Government of India to promote exports of handloom products, the major export destinations of Handloom products from India are USA, UK, Spain, Italy, UAE, Germany, France, Japan, Saudi Arabia, Australia, and Netherlands. The value of handloom exports in 2018-19 was ₹2,392.39 crore.

The decentralised power loom sector is one of the most important segments of the Textile Industry in terms of fabric production and employment generation. It provides employment to about 44.18 lakh persons and contributes 60 per cent of total cloth production in the country. More than 60 per cent of fabric meant for export is also sourced from power loom sector. The readymade garments and home textile sectors are heavily dependent on the power loom sector to meet their fabric requirement (Annual Report 2019-20, Ministry of Textiles, Government of India).

There are approximately 25 lakh power looms in the country. The technology-level of this sector varies from plain loom to high tech shuttle-less looms. It is estimated that more than 75 per cent of the shuttle looms are obsolete and out dated. These are more than 15 years old and have virtually no process or quality control devices/ attachments. However, upgradation of technology in the power loom sector has picked up during the last 8-9 years (Annual Report 2019-20, Ministry of Textiles, Government of India).

Textile sector in Kerala

The textile sector in Kerala includes areas like spinning, weaving, garment manufacturing,

dyeing and processing units. The sector involves the units in public sector (both State and Central), co-operative sector, and private sector. The spinning sector includes 26 mills with total spindle capacity of 7.03 lakh, employing about 7,600 people. The weaving sector includes the khadi units, handloom units, and power loom units. The garment industry has the potential to generate employment in large numbers even with the adoption of latest technologies. It has a large presence of women employees. The State Government has plans to set up a Textile Processing Centre at Nadukani, which will be an important step towards localisation of textile processing in the State.

The total State Plan outlay for the textile sector (excluding State PSUs and Khadi) in the Annual Plan 2019-20 was ₹5,601 lakh and amount spent was ₹3,551.03 lakh (63.4 per cent). The total Plan outlay for the sector in the Annual Plan 2020-21 is ₹5,139 lakh and amount spent till November 2020 is ₹2,613.84 lakh (50.86 per cent). Details are provided in **Table 4.6.1**.

Handloom sector in Kerala

The handloom sector is a major source of employment in Kerala. In fact, among the traditional industries in the State, the handloom sector is second only to the coir sector with respect to employment. The handloom industry in the State is mainly concentrated in Thiruvananthapuram and Kannur District and in some parts of Kozhikode, Palakkad, Thrissur, Ernakulam, Kollam and Kasaragod Districts. The industry is dominated by the co-operative

sector which covers more than 93 per cent of total looms. The rest of the industry is owned by private sector firms.

The total number of handlooms in the State in 2019-20 was 17,113. They produced about 317.5 lakh metres of handloom cloth. The total value of production in 2019-20 was ₹113.77 crore while the turnover was ₹220.95 crore. The total number of weavers in handloom sector in 2019-20 was 13,928. The number of women employed in 2019-20 was 9,137. Total employment generated in 2019-20 was 31.66 lakh person days. Compared to 2018-19, the total number of looms, total production, value of production, productivity and number of women employed fell in 2019-20. However, total turnover, number of weavers and person days of work generated have increased. Fall in the value of production is spread more or less equally between the co-operative and corporate/unorganised/private sector. Fall in the number of women employed is primarily due to the fall in women employed in co-operative sector. It is interesting to note that the turnover in 2019-20 is more than double that in 2018-19. Turnover is also more than the value of production in 2019-20. Details are provided in **Appendix 4.6.3**.

The major varieties produced in the hand loom sector of the State are dhotis, furnishing material, bed sheets, shirting, sari and lungi. The following products of the State are registered under the Geo Indication Act of India.

1. Balaramapuram saree and fine cotton fabrics.
2. Kasaragod saree

Table 4.6.1 State Plan Outlay and Expenditure for Textile sector (excluding PSUs and Khadi), in ₹ lakh

Sub-Sector	2019-20			2020-21 (till November 2020)		
	Outlay	Expenditure	%	Outlay	Expenditure	%
Handloom	2,941.95	1,547.35	52.59	2,333	1,246.02	53.4
Powerloom	199	54.9	27.58	169	41.82	24.74
Spinning Mills	2,460.05	1,948.78	79.22	2,037	1326	65.1
Textile Processing Centre-Nadukani	0	0	0	600	0	0
Total	5,601	3,551.03	63.4	5,139	2,613.84	50.86

Source: Plan Space, Kerala State Planning Board

3. Kuthampully saree
4. Chendamangalam dhothi
5. Cannannore home furnishings

Agencies in handloom sector

The Directorate of Handlooms and Textiles, Kerala State Handloom Weaver's Co-operative Society (HANTEX), Kerala State Handloom Development Corporation (HANVEEV) and the Indian Institute of Handloom Technology (IIHT, Kannur) are the major stakeholder institutions involved in the development of the handloom sector in the State.

Directorate of Handlooms and Textiles

The Directorate of Handlooms and Textiles Kerala has the overall responsibility to support the areas of infrastructure, marketing, human resource development, conservation and preservation of traditional skills and products, finance, design input, raw materials supply, modernisation, welfare programmes, price stability to equip the segment to compete with the global environment. It is the principal arm of the State Government in implementation of schemes for the development of the sector. The Government provides assistance by way of loan and grant for the development of the handloom industry. Loans and Grants include those from the State Government, Central Government and other financial agencies such as NCDC, NABARD and HUDCO. Government also provides assistance for sales promotion through rebates. Details are provided in **Appendix 4.6.4**.

Kerala State Handloom Weaver's Co-operative Society (HANTEX)

HANTEX was registered in 1961, as the apex body of primary handloom weaver's co-operative societies in Kerala. The main objectives of HANTEX are to market the products of member societies, provide them institutional support and inputs for production. Currently, HANTEX comprises 500 primary co-operative societies as members. HANTEX societies are engaged in production with modern infrastructure

to produce handcrafted fabrics, garments, furnishings, made-ups, sarees and traditional weaves in tune and harmony with eco-friendly norms for internal and export market. HANTEX collects yarn, chemicals and dyes from NHDC with Government subsidy and distributes among the members.

HANTEX is also involved in the marketing and sales of the produce from its members. Currently, there are 78 functional showrooms. All production and procurement activities are covered by 4 regional offices and 5 functional production centres. HANTEX has a process house at Thiruvananthapuram which has all facilities for dyeing and printing of fabrics. It also owns two weaving factories and a garment unit with modern machinery.

HANTEX achieved a sale of ₹3,077 lakh in 2019-20. HANTEX has sold goods worth ₹11 crore to various Government departments in 2019-20. It has also sold cotton yarn worth ₹1.26 crore. The paid up capital at the end of the year was ₹6,556.44 lakh. As compared to 2018-19, income from sales has increased marginally in 2019-20. However, the agency has reported losses in 2017-18 and 2018-19. The accumulated loss of HANTEX is also increasing on a yearly basis. Details are given in **Appendix 4.6.5**.

As part of free school uniform project, HANTEX distributed 14.5 lakh metre cloths to schools in 2019-20. As part of *Kaithari Suraksha Scheme*, HANTEX distributed inputs to about 5,000 weavers to enable continuous production of handloom. Considerable gains are achieved through computerisation of showrooms. In the financial year 2020-21, HANTEX has aimed at a sale of ₹60 crore. As a result of Covid-19 lock down, most of the weaving units and sales units were closed, hence new products could not be produced and sold. Sales during 2020 Onam were only half of previous years. In order to carve out a niche market, the agency is producing and branding premium products. The case of 'Royal' range of products is a good example.

Kerala State Handloom Development Corporation (Hanveev)

Hanveev, was incorporated in 1968, for the welfare and development of traditional weavers in the unorganised sector. It is engaged in the manufacturing and marketing of a wide range of handloom products. At present Hanveev supports employment to 1938 individual weavers. It has 30 primary societies registered as members. It has 48 own showrooms, 3 exclusive agency showrooms and 34 production centres. The corporation also conducts exhibitions during festival seasons and also participates in expos conducted at national and international-level.

Sales turnover (provisional figures) of Hanveev in 2019-20 was ₹2,030.29 lakh. This shows an improvement over 2018-19. The value of cloth and other items produced was ₹1,668.40 lakh which is also an improvement over 2018-19. However, the value of yarn and other inputs purchased and distributed was ₹479.49 lakh in 2019-20, down from ₹567.70 lakh in 2018-19. Details are provided in **Appendix 4.6.6**. The paid up capital of Hanveev at the end of 2019-20 was ₹3,956 lakh. The net loss of Hanveev in 2019-20 was ₹401.15 lakh, which was less than the corresponding loss figures for 2018-19. However, the accumulated loss of the agency is increasing every year. The details regarding the financials of Hanveev are provided in **Appendix 4.6.7**.

As a result of the Covid-19 lock down, Hanveev suffered a production loss of about 2 lakh meters valued at ₹350 lakh. Hanveev incurred loss of sales to the tune of ₹524 lakh during two important seasons namely Vishu and school re-opening. The total loss incurred is ₹874 lakh. Moreover, Hanveev could not achieve the expected sales during the Onam festival.

Indian Institute of Handloom Technology (IIHT, Kannur)

Indian Institute of Handloom Technology was established in 1987 in the name of Institute of Handloom and Textile Technology (IHTT). Subsequently, the IHHTs were amalgamated to form the Indian Institute of Handloom Technology. It functions according to the guidelines of Ministry of Textiles, Government of India. IIHTs technical support system has improved quality control in the handloom sector.

Co-operative Sector

The co-operative sector in Textiles sector is involved in spinning and weaving activity (both power loom and handloom) in the State. There are 8 spinning mills in the co-operative sector. They are the Quilon Co-operative Spinning Mills Ltd, Alleppey Co-operative Spinning Mills Ltd, The Priyadarshini Co-operative Spinning Mills Ltd, The Trichur Co-operative Spinning Mills Ltd, The Malabar Co-operative Textiles Ltd, The Malappuram Co-operative Spinning Mills Ltd, The Cannanore Co-operative Spinning Mills Ltd, and the Karunakaran Memorial Co-operative Spinning Mills Ltd. There are 562 conventional power looms in five co-operative societies under TEXFED in the State. The total number of power looms in the co-operative sector is estimated to be about 801. The co-operative units form about 82 per cent of total number of power looms in the State. There are 46 powerloom co-operative societies in the State.

The co-operative sector in handloom sector consists of factory type and cottage type societies. In 2019-20, there were 630 registered Primary Handloom Weavers Co-Operative Societies (PHWCS) in the State of which 180 are factory type and 450 are cottage type societies. Out of 630 registered Primary Handloom Weavers Co-Operative Societies, 408 are working. This is a slight improvement over 2018-19. Out of the 408 working societies in 2019-20, only 145 were profitable and 263 were in loss. However, the number of profitable societies has increased in

2019-20. Details of hand loom societies in the State are given in **Appendix 4.6.8**.

The production of handloom cloth by co-operative sector in 2019-20 was 3.023 crore metres valued at ₹89.9 crore. Though the quantity of production has increased, the value of production has fallen in 2019-20 as compared to 2018-19. Total turnover was ₹208.35 crore, this is more than double the turnover in 2018-19. Number of looms has fallen from 16,012 in 2018-19 to 15,851 in 2019-20. However, the number of weavers was increased marginally in 2019-20 to 12,666. Employment generated was 30.14 lakh persondays. The sector employed 8,048 women in 2019-20, which is a fall from 9,732 in 2018-19. Details can be found in **Appendix 4.6.3** mentioned earlier.

Powerloom Sector

There are 979 power looms in the State of which about 82 per cent (801) are in the co-operative sector. In the power loom sector, production of cloth in 2019-20 was 64.17 lakh meters valued at ₹534.36 lakh. Productivity was 6,554.64 meters per loom and the total turnover was ₹581.22 lakh. Details are given in **Appendix 4.6.9**.

To promote weaving in the State, four integrated powerloom societies have been started with budgetary support. In the year 2019-20, an amount of ₹40 lakh had been provided for modernisation of power loom co-operatives. After the modernisation of looms productivity has increased. Earlier two looms were attended by one weaver. After modernisation, a weaver could attend to 8 looms. Thus productivity and wages of weavers has increased.

Spinning Mills

The spinning sector in Kerala includes the public sector (State and Central), the co-operative sector and the private sector. The spinning sector includes 26 mills with total spindle capacity of 7.03 lakh, employing about 7,600 people. There are 9 spinning mills under the 3 State

PSUs namely Kerala State Textile Corporation Limited (7 mills), Sitaram Textiles Limited and Trivandrum Spinning Mills Limited. There are 8 co-operative spinning mills in Kerala. They are part of Kerala State Co-operative Textile Federation Limited (TEXFED). Together under State PSUs and co-operative sector, there are 17 spinning mills having 2.87 lakh spindle capacity and employing about 3,500 people. The Central PSU National Textile Corporation Limited has 5 mills with a total spindle capacity of 1.99 lakh and about 1,900 people employed. In addition, there are two major private sector enterprises with a total of 4 mills. They have a spindle capacity of 2.16 lakh and employ about 2,200 people.

The main problems faced by these mills are the lack of working capital and availability of raw material. To overcome shortage of raw material for the sector, Government of Kerala now procures cotton for the entire textile sector in the State through a centralised purchase system managed professionally by a committee comprising RIAB, TEXFED, KSTC and managing directors of the individual spinning mills. Sale of yarn produced by these mills is carried out through a depot system which is monitored by the same committee. As a result, raw material costs have been brought down and the sector's performance has improved.

Government constituted an Expert Committee to study the crisis prevailing in the mills which recommended modernisation of five co-operative spinning mills in the State. The Government approved modernisation of Malappuram Co-operative Spinning Mills, Cannanore Co-operative Spinning Mills, Priyadarshini Co-operative Spinning Mill and the Quilon Co-operative spinning Mill. The first phase of modernisation of Malappuram Co-operative Spinning Mill and Kannur Co-operative Spinning Mill has been completed. The second phase of modernisation of the mill has started. In 2019-20, for the renovation of spinning mills under TEXFED, an amount of ₹1,948.78 lakh assistance was provided. Government is

considering the completion of modernisation/ expansion of Thrissur, Alleppey and Quilon Co-operative Spinning Mills with Plan assistance.

Kerala State Co-operative Textile Federation Limited (TEXFED)

TEXFED was established in 1992 as a body to plan, assist and supervise the setting up and management of co-operative textile units in Kerala. TEXFED is the apex body of co-operative spinning mills and integrated powerloom co-operative societies in the State. It integrates all the segments of the textile industry including spinning, weaving, processing and garmenting. There are eight co-operative spinning mills as members of TEXFED. Five of them are administered by the State Government and three by elected boards. Government administered Mills include The Quilon Co-operative Spinning Mills Ltd, Alleppey Co-operative Spinning Mills Ltd, The Thrichur Co-operative Spinning Mills Ltd, The Malappuram Co-operative Spinning Mills Ltd, and The Cannanore Co-operative Spinning Mills Ltd. The spinning mills administered by elected Boards includes The Priyadarshini Co-operative Spinning Mills Ltd, The Malabar Co-operative Spinning Mills Ltd and K Karunakaran Memorial Co-operative Spinning Mills Ltd.

Kerala State Textile Corporation Limited (KSTC)

KSTC, a Government of Kerala undertaking, was incorporated in 1972 with the main objective of setting up and running textile mills in the State, and uplifting the sick units in textile industry in Kerala. The Corporation has seven mills and one research and testing centre. The mills under KSTC are Prabhuram mills, Kottayam Textiles, Edarikkode Textiles, Malabar Spinning and Weaving Mills, Hi Tech Weaving Mills, Komalapuram Spinning and Weaving Mills and Uduma Textile Mills. In addition to the above, Corporation has under its fold a research and testing division (CARDT – Centre for Applied Research and Development in Textiles), located at Balaramapuram, Thiruvananthapuram.

Compared to previous years, the corporation had increased its production of Cotton/polyster blended yarn in 2018-19. Subsequently its income from sales of products also increased to ₹43.95 crore. However it has been reporting expenses in excess of income. KSTC has reported net loss in 2016-17, 2017-18 and 2018-19. The accumulated loss of the corporation at the end of 2018-19 stood at ₹255.72 crore.

Achievements in Textile Sector 2019-20

The outlay for the textiles (excluding PSUs and Khadi) in the year 2019-20 was ₹5,601.00 lakh. The expenditure reported was ₹3,551.03 lakh (63.4 per cent). Under the scheme 'Modernisation of handloom co-operative societies and promotion of value added products', work shed assistance was given to 5 Primary Handloom Weavers Co-Operative Societies (PHWCS). Additionally there were 69 beneficiaries under Loom a House scheme. Assistance for purchase of loom accessories was given to 188 beneficiaries and assistance was provided to 188 beneficiaries for loom maintenance. Government share participation assistance was provided to 21 Primary Handloom Weavers Co-Operative Societies (PHWCS). Government share participation assistance was also provided to HANTEX and Hanveev. Nearly 2564 weavers benefitted under the 'Weavers/allied workers motivation programme'. Contributory thrift fund assistance covered weavers in about 81 Primary Handloom Weavers Co-Operative Societies (PHWCS).

Issues and Challenges

Shortage of working capital and difficulty in procuring raw materials are among the challenges faced by the sector. Mills involved in spinning and weaving in Kerala have been facing problems of both demand and supply. Out-dated machinery, stiff competition, high cost of raw material, low productivity, decreasing profits and lack of working capital are also issues of concern for the textile sector in Kerala. A majority of textile spinning mills in the State are over 25

years old and they use obsolete technologies and equipment. Partial modernisation was attempted in certain units, but it is not at par with the industry standards. Absence of fabric processing facilities is also a problem faced by the power loom industry in Kerala. Lack of awareness among the weavers about the facilities made available to them by the Government is also a problem. Lock down because of Covid-19 pandemic has also adversely affected production and sales in this sector.

Way forward

Kerala has a large market for clothing and the State has the potential to emerge as a major player along various segments within the value chain (from spinning to garments). The focus for future endeavour should be on greater value creation. New products, new marketing strategies and innovation are critical for the future success of the sector. The textile sector needs to find ways to attract the young and educated in Kerala to this sector, as entrepreneurs or as workers. The Government of Kerala has taken several measures for the modernisation of the textile sector, while ensuring the interests of workers engaged. It has to be continued. Covid-19 induced lockdown has opened up new opportunities in online marketing. These can be explored to tap new markets. Increasing interest in 'Made in India' products and changing international trade conditions, open up new opportunities for Textiles in India and the State. The sector can benefit by grabbing the emerging opportunities.

KHADI AND VILLAGE INDUSTRIES

Khadi and Village Industries Sector in India

Khadi and village industries have the potential to create employment for rural artisans with a very low capital investment. Khadi and Village Industries Commission (KVIC), Government of India is a statutory organisation tasked with the role of promoting the production and sale of Khadi. There are a total of 2,701 Khadi institutions in the country, which employ a total of 4.96 lakh artisans, a majority of whom (over 80 per cent) are women. Khadi and Village Industries production (including polyvasthra and solar vasthra) in India have grown from ₹58,130.34 crore in 2018-19 to ₹70,035.78 crore in 2019-20 (provisional). Similarly, sales of khadi goods have shown growth from ₹74,292.09 crore in 2018-19 to ₹90,528.29 crore in 2019-20 (provisional). Employment generation in khadi and village industries sector increased from 146.99 lakh in 2018-19 to 152.96 lakh in 2019-20 (provisional) (Source: Annual Report: 2019-20, Govt. of India, Ministry of Micro, Small and Medium Enterprises).

Production, sales and employment in Khadi and Village Industries in India for the last five years from 2015-16 to 2019-20 is shown in the **Table 4.6.2**.

Table 4.6.2 Production, Sales and Employment generation in Khadi and Village Industries Sector in India

Year	Production (₹ in crore)	Sales (₹ in crore)	Employment (₹ in Lakh)
2015-16	34,583.06	42,048.54	131.32
2016-17	42,631.09	52,138.21	136.4
2017-18	48,081.41	59,182.43	140.36
2018-19	58,130.34	74,292.09	146.99
2019-20 (up to 31/12/2019)	49,139.6	63,227.4	149.58

Source: Annual Report 2019-20, Ministry of Micro, Small and Medium Enterprises, Government of India

The growth of production, sales and employment from 2015-16 to 2018-19 shows an increasing trend. The figures for 2019-20 is only up to December 31, 2019.

Khadi and Village Industries Sector in Kerala

Khadi sector in Kerala has a strong base with its historical significance and the social and political patronage it is enjoying. There are 29 Khadi institutions including Khadi and Village Industries Board, KKVIB aided institutions (14 numbers) and KVIC aided institutions (14 numbers) are engaged in khadi production and sales. Production, sales details of these institutions from 2017-18 to 2019-20 and employment in 2019-20 are given in **Appendix 4.6.10**. In 2019-20, khadi sector in Kerala provided employment to 13,620 artisans and showed an overall cloth and yarn production of ₹8,575.95 lakh. Total wages paid to khadi artisans come to ₹1,268.77 lakh and total khadi sales were ₹15,640 lakh. The Khadi and Village Industries Board could generate 4,135 new employment through the village industries. Through special employment generation programme (Entegramam), Khadi board created total capital investment of ₹629.65 lakh through 201 units and provided 615 number of employment opportunities. Through the scheme, Prime Minister's Employment Generation Programme (PMEGP) board created capital investment of ₹2,147.97 lakh for 367 units and employment created numbered 3,520.

Kerala Khadi and Village Industries Board (KKVIB)

KKVIB is a statutory body under the Department of Industries and Commerce vested with the responsibility of organising, developing and promoting Khadi and Village Industries in Kerala. The Board implements the programmes through co-operative, registered institutions, individuals and departmental units by imparting/availling assistance from Government of Kerala, Khadi Commission and Nationalised Banks. The Board had implemented various schemes under State Plan including Special Employment Generation Programme (SEGP) (Ente Gramam), Prime Minister's Employment Generation Programme (PMEGP) of KVIC. The Board had conducted District-level awareness camps and exhibitions, issued notices and printed materials regarding the implementation of the schemes under 'Ente Gramam' and PMEGP schemes.

Khadi and village industry's production, sales, employment, wages paid for the last two years from 2018-19 to 2019-20 is shown in the **Table 4.6.3**.

The allocation of funds from various sources to KVIB and the expenditure incurred by the Board during 2018-19 and 2019-20 is shown in **Table 4.6.4**.

Budget 2020-21

The outlay provided in the Annual Plan 2020-21, for the sector was ₹1,610.00 lakh and the expenditure up to October 31, 2020 was

Table 4.6.3 Production, Sales, Employment and wages in Khadi and Village Industries in Kerala in 2018-19 and 2019-20

Sector/sub sector	Value of Production (₹ in crore)		Value of sales (₹ in crore)		Employment (in numbers)		Wages (₹ in crore)	
	2018-19	2019-20	2018-19	2019-20	2018-19	2019-20	2018-19	2019-20
Khadi sector	63.15	85.75	146.98	156.40	14,500	13,620	23.30	12.68
Village industries Sector	117.06	105.69	122.59	112.34	93,010	83,407	83.29	76.03
Total	180.21	191.44	269.57	268.74	1,07,510	97027	106.59	88.71

Source: Kerala Khadi and Village Industries Board

Table 4.6.4 Fund allocated to and Expenditure incurred by Khadi and Village Industries Board in Kerala, ₹in lakh.

Particulars	2018-19		2019-20	
	Receipt	Expenditure	Receipt	Expenditure
State Government Grant – PLAN				
1. Administrative Expenses (Budget provision)	1,066.56	1,066.56	670	667.15
2. Income Support Scheme (Fund through DIC)	2,180	2,180	2,100	2,100
State Government Grant – NON-PLAN				
1.Non-Plan – Administrative Expenses	4,617.55	5,129.57	4,554.95	4,917.12
2.Non-Plan – Special Rebate	1,500	1,500	1,116	1,116
KVIC Grant				
PMEGP – Margin Money	1,260.26	1,134.47	1,250.35	928.87

Source: Khadi and Village Industries Board, Government of Kerala.

Box 4.6.2 Impact of Covid-19 on Khadi and Village Industries Sector

Khadi Industry – As a result of the lockdown in the wake of Covid-19 pandemic, production centres of the Kerala Khadi and Village Industries Board had been closed. It has led to a wage loss of about ₹10 crore during the period from April to June, 2020. From June 2020, khadi production centres have been more or less operational, except those in the containment zones.

Village Industries – Many of the workers in the village industrial production units under the direct control of the Kerala Khadi and Village Industries Board lost working days as they could not reach the units. In addition, 1,521 newly started units, which receive subsidies from the Board, were completely shut down for 2 months due to the lock down. Due to this closure, there was a production loss of ₹1 crore in village industries sector.

Marketing – Khadi Board has also suffered due to disruptions in its marketing network. Many of the khadi show rooms, especially those operating in places that became hotspots or containment zones, have suffered disruptions in their operations. It is estimated that there has been a loss of sales amounting to ₹35 crore during the 6 months from February to July 2020.

Source: Kerala Khadi and Village Industries Board

₹375.95 lakh (23.35 per cent) for the implementation of 12 schemes.

Major State Plan Schemes and achievements

In 2019-20, State Government implemented various schemes successfully for improving the industrial infrastructure, promotion of entrepreneurship, employment and by providing skill development and training. Following are the major schemes and achievements.

1. Industrial Infrastructure development schemes/programmes

a. Expansion and Modernisation of Sliver Project at Ettukudukka in Kannur District

The scheme intends to enhance the production of sliver products by developing the existing sliver project at Ettukudukka in Kannur District. It aims to supply quality sliver at affordable price required for the spinners in the departmental production centre/other khadi institutions in the State.

b. Establishment and Strengthening of Departmental Village Industries Units

The scheme is intended to strengthen the activities under departmental village industries units, which includes maintenance of Khadi Industrial Complex, Ernakulam, handmade paper unit Kizhakkambalam, Ernakulam, setting up of new paper bag manufacturing units at Pappinissery in Kannur, Kulathoor in Kottayam and Ollarikara in Thrissur. In 2019-20, establishment of paper bag manufacturing unit at Thrissur, Kannur and maintenance works of Khadi Industrial Complex at Kizhakkambalam were carried out by department.

c. Strengthening and Modernisation of Departmental Khadi Production Centres

Upgradation of the existing work sheds in Khadi production centres and technological upgradation are envisaged under the scheme. As part of the infrastructure development, construction of work-shed, common service facilities for women workers, preloom processing units, revitalisation of departmental spinning/weaving centres/production centres, Research and Development (R&D) are undertaken under this scheme. In 2019-20, the construction works of work shed of Ambalathinkala in Thiruvananthapuram and Pangarapally in Thrissur were progressing and spare parts were purchased for 13 projects

d. Development of Bee keeping Industry

This scheme aims to promote bee-keeping activities by supplying bee boxes with colony at subsidised rate to motivate bee keepers. It also imparts training in bee keeping. The board has manual honey processing units in various Districts such as Pathanamthitta, Ernakulam, Palakkad, Kozhikode, Kannur etc. Scheme envisages infrastructure development and modernisation of honey processing units. In 2019-20, department modernised honey processing unit at Balussery in Kozhikode.

e. Khadi Gramam Programme

The scheme envisages the establishment of 3,000 charkhas and 2,000 looms at household-level in selected grama Pachayats on a cluster mode providing employment to 5,000 people, mostly women or those belonging to disadvantaged sections during the 13th Plan period. In 2019-20, as part of the scheme, 31 looms were purchased.

2. Industrial Incentive Schemes

a. Production/Festival Incentive to Khadi Spinners and Weavers

The objective of the scheme is to provide production incentive to Khadi spinners and weavers and festival incentive to Khadi artisans, based on annual production and sales turnover in the sector/institutions, linking value addition in products and corresponding employment generation. In 2019-20, production and festival incentives were provided to 12,651 khadi artisans as part of the scheme. In 2020-21, production/festival incentive was provided to 12,500 khadi spinners and weavers.

b. Special Employment Generation Programme

It proposes to provide margin money subsidy to small entrepreneurs and traditional artisans through bank linked projects, based on appraisal of the project and approved guidelines by Industries and Commerce Department. In 2019-20, 100 village industries units were established and helped the creation of 250 new employment opportunities. In 2020-21, 214 village industries units were established and created 471 employment opportunities.

c. Prime Minister's Employment Generation Programme (PMEGP)

Under the Prime Minister's Employment Generation Programme (PMEGP), Government subsidy will be credited to the bank accounts of micro enterprises. In

2019-20, 367 projects were taken up and ₹918.93 lakh was disbursed as margin money grant, and 2,936 employment opportunities were created. KVIB implemented the scheme as 'Ente Gramam' in 2019-20. The total project cost for the programme in 2019-20 was ₹629.65 lakh. The programme helped the creation of 201 units and generation of employment for 615 people. The details of District-wise achievement under self-employment generation programme for the year 2019-20 is provided in **Appendix 4.6.11**.

Village Industries sector in Kerala

Goods worth ₹506.81 crore was produced through the aided units of the KVIB and goods worth ₹627.38 crore were sold. The sector provided employment to 1,31,840 persons (including PMEGP and REGP). The production, sales and wages paid and employment generated by KKVIB during 2018-19 and 2019-20 is provided in **Appendix 4.6.12**. District-wise details of departmental sales outlets and sales under K&VI Board for 2018-19 and 2019-20 is provided in **Appendix 4.6.13**.

Marketing

The KKVIB has 182 sales outlets for Khadi and village goods. This includes 44 Khadi Grama Soubhagya (including 3 mobile sales vans) units, 50 Khadi Soubhagya units and 88 Grama Soubhagya (GS Depot). The item-wise details of sales of KKVIB for the last three years from 2018-19 to 2020-21 is given in the **Table 4.6.5**.

Actual sales were less than the targeted sales from 2018-19 onwards, due to the heavy floods during 2018, 2019 and the spread of Covid-19 and subsequent lock down in 2020. The Board conducted Onam Mela during Onam in 2019. Sales through Onam Mela 2019 was ₹2,342 lakh. Onam sales target for 2020 was ₹7,644 lakh, but actual sales was ₹1,091 lakh due to restrictions as part of Covid-19 pandemic. District-wise sales achievements for the year 2019-20 (Up to March 31, 2020) are given in **Appendix 4.6.14**.

Issues and Challenges of Khadi and Village Industries in Kerala

- There is a huge gap between production and sale of khadi. Khadi units in Kerala fail to fulfill the market demand which is now satisfied by the Village Industry importing from other States. In recent years, Khadi and Village Industries board has been giving more emphasis on diversifying the production line to cater to the market potential and create new employment opportunities.
- Underutilisation of production capacity is another issue. There are sufficient number of charkhas and looms in Kerala. Lack of funds for purchasing spare parts and servicing of implements is a major issue faced by khadi institutions. Hence many charkha and looms are kept idle.
- *Low wages to artisans*. Low productivity due to non-availability of spare parts and regular supply of good quality of warp etc. is a major issue in khadi sector. Low productivity leads to low wages.

Table 4.6.5 Sales details of KKVIB during 2018-19, 2019-20 and 2020-21

Year	Target	Sales (₹ in lakh)						Total
		Cotton and muslin	Silk	Spun silk	Poly	Woollen	Village Industries products	
2018-19	6,930	3,350.40	1,399.09	268.82	29.52	0.69	258.14	5,306.66
2019-20	7,970	3,256.07	957.74	298.34	12.38	2.52	214.23	4,741.29
2020-21 (up to Sept 2020)	19,412	773.73	175.33	38.34	1.30	0	28.42	1,017.12

Source: Kerala Khadi and Village Industries Board

- Dependence on other State for high quality muslin and silk fabrics.
- *Lack of professional management.* Khadi institutions lack professional management and professional competency to cope up with present day challenges.
- Adapting to changing economic environment is one of the challenges faced by the industry. Innovation in production and marketing of products is necessary for successful survival of any industry. Khadi sector involving traditional mode of production faces big challenges in adapting to the fast changing economic environment.
- *Spurious khadi.* Wide spread production and use of spurious khadi is a serious challenge to khadi sector.
- *Khadi sector being traditional industry depends upon Government support for survival.* Making this sector self-sufficient still continues as a challenge.
- *Lack of infrastructure facilities in sales outlets.* Infrastructure facilities in most of the sales outlets are very poor. Most of the sales outlets cannot attract the customers.
- *Challenges in Village Industries Sector.* The marketing of village industries products is very poor. High competition, low publicity and advertisement and lack of technology are the main reasons. The flood of 2018 and 2019 and the Covid-19 pandemic also adversely affected this sector.

In order to overcome the present crisis created by Covid-19, the Department has initiated a number of new ventures. These include the production and sale of Khadi Masks; online marketing; a tie up with the Lulu business Group, which has a world-wide marketing chain, with the objective of finding newer markets for products from Kerala; the sale of khadi products through Kerala State Police Canteen; and production and marketing of Khadi bridal silk sarees in large scale.

COIR INDUSTRY

Coir Industry in India

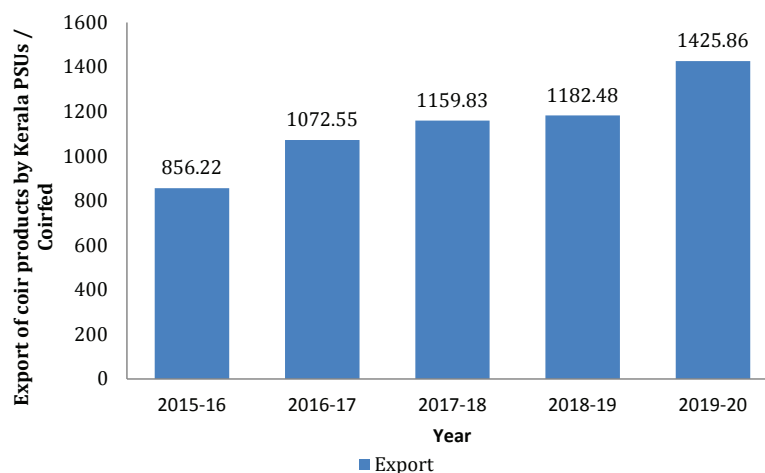
The coir industry in India contributes significantly to employment creation and the economy at large, mainly in Kerala and Tamil Nadu but also in other major coconut growing States and Union Territories including Andhra Pradesh, Karnataka, Maharashtra, Goa, Odisha, Assam, Andaman and Nicobar, Lakshadweep and Puducherry. In the country as a whole, approximately 7 lakh persons find employment, both direct and indirect, in this industry. The industry is also significant in terms of exports. In 2019-20, India exported 9.9 lakh MT of coir and coir products, earning ₹2,758 crore in export revenues. The domestic revenue earned is double the export revenue. India accounts for more than two-thirds of the global production of coir and coir products including 60 per cent of the total global supply of white fiber. Sri Lanka is the second largest producer accounting for 36 per cent of the total global supply of the golden fiber. Currently, the global annual production of coir fiber is about 3.5 lakh metric tonnes (Coir Board, GoI and Ministry of Micro, Small and Medium Enterprises, GoI).

The coir industry assumes significance because it is agro-based, has a large presence in rural areas, and involves a large proportion of women workers (80 per cent) and workers belonging to the economically and socially disadvantaged sections. India currently exports about 14 coir products, which include coir pith, coir fiber, tufted mats, handloom mats; geo textiles, coir yarn, curled coir, handloom matting and rubberised coir. Currently, only 40 per cent of the coconut husk is utilised by the coir industry, and there is potential for further development of the industry.

Coir Industry in Kerala

Kerala is the home of the Indian coir industry, particularly white fiber, accounting for 61 per cent of coconut production and over 85 per cent of coir products. Coir sector is the foremost

Figure 4.6.1 Export of Coir and Coir products by Kerala State PSUs and Coirfed, in ₹ lakh



Source: Directorate of Coir Development, Government of Kerala

traditional industry in Kerala employing nearly 1.5 lakh coir workers, of which 80 per cent are women. The entire processes in coir industry can be segregated into three major segments, namely fiber extraction, spinning and products sectors. The fiber extraction and spinning segments are mostly concentrated in the co-operative sector while the manufacturing segment is mostly running in factory mode with large presence of exporters.

Coir industry is also significant to Kerala for its role in generating export earnings. State Public Sector Undertakings and private entrepreneurs are engaged in export of coir and coir products in Kerala. In Kerala, the Coir PSUs namely Kerala State Coir Corporation and Foam Mattings (India) Limited along with Coirfed are engaged in export of coir products. Export from these

agencies has been increasing continuously since 2015-16: from ₹1,072.55 lakh in 2016-17, exports have increased to ₹1,425.86 lakh in 2019-20. Details are provided in **Figure 4.6.1** and **Appendix 4.6.15**.

Performance under schemes and programmes in coir sector

Much of the efforts of State Government in the sector are done through the Coir Development Department and the Directorate of Coir Development. Since 2015-16, State Government has allocated an outlay of ₹749.39 crore for the sector through Annual Plans. This excludes outlay to PSUs. The expenditure reported is ₹736.97 crore (98.34 per cent). As a whole, it is seen that the percentage of expenditure has been increasing since 2015-16. Details are provided in **Table 4.6.6**.

Table 4.6.6 State Plan Outlay and Expenditure for Coir sector, excluding PSUs, in ₹ lakh

Year	Outlay	Expenditure	Percentage of expenditure
2015-16	10,894	6,915.1	63.48
2016-17	11,700	15,611.17	133.43
2017-18	12,812	9,872.89	77.06
2018-19	14,108	12,766.13	90.49
2019-20	14,151	13,968.27	98.71
2020-21* (till Nov 20)	11,274	14,564.41	129.19
Total	74,939	73,697.97	98.34

Source: 12th Five Year Plan Accounts, Budget Programme Book 2020-21 and Plan Space Kerala.

Being an agro-based rural industry providing sustenance to lakh of families in the State, revitalising the coir sector is crucial. Directorate of Coir Development, Government of Kerala is implementing a comprehensive revival and transformational package for Coir Industry in the State as part of the '2nd Reorganisation of Coir Industry'. Through the programme, effort is taken to mechanise the coir sector and protect the wages of labourers, at the same time. The total outlay of the package is around ₹1,444.44 crore which includes State funds and NCDC fund to the tune of ₹200 crore. State funds include Plan and non-Plan allocation. The package involves activities in 5 thrust areas namely i) Technology enabled procurement and decentralised fiber extraction, ii) Distinct strategy for traditional spinning and weaving sector, iii) Modernisation of industrial spinning and weaving sector (focussing on geo-textiles), iv) Product diversification of Industrial coir – focus on non-woven and v) Institutional support for the coir sector.

Around 157 defibering units (DF) are newly setup across the State under mechanisation scheme with the production capacity ranging from 8,000 husks to 40,000 husks per 8 hours shift. It includes 50 units in the private sector. Another 157 units are operational. Through the operation of new defibering units, the husk utilisation in the State has risen from 12.5 per cent to 14.8 per cent. Coco peat and Bit Fibers, valued eco-friendly products, are also generated by the DF units. Through Government intervention, R&D and market support ventures, the value of coir pith and bit fiber has improved. The value of raw coir pith has risen from ₹0.50 per kg to ₹6 per kg. This has turned many of the defibering units profitable. It is also attracting investment into the sphere. The scheme includes 50 per cent subsidy for setting up of private unit in the defibering sector. Accordingly, 75 units were established in the private sector.

As part of the efforts towards modernisation, 15,000 numbers of electronic ratts and 250 numbers of Automatic Spinning Mills

(ASMs) were installed along with the existing infrastructure. As a result, in 2019-20, the coir yarn production has increased to more than 20,000 MT from about 7,800 MT in 2015-16. As part of modernisation policy, Coir Department, Government of Kerala has taken steps to sign MoU with University of Wageningen for developing coir composite board on commercial basis at a project cost of ₹100 crore. Commercial production of coir composite boards has commenced.

The State has been implementing the comprehensive Coir Geo Textiles Development Programme. It included assistance to Departments, Institutions and agencies for implementation of various Geo-textiles activities in their respective areas, based on projects with specific outcomes. As part of Coir Kerala 2019, Coir Department, Government of Kerala signed a MoU with 850 Panchayats, collected an order worth ₹103 crore and executed order worth ₹42.87 crore. This is in addition to the order worth ₹120 crore of which, order worth ₹40 crore has already been executed. Kerala is turning out to be the technology hub for the implementation of coir geo textiles for various engineering applications.

Production and marketing incentives have been provided to 475 societies in 2019-20. Under the scheme for Marketing Development Assistance, an amount of ₹8 crore was released to 25 Coir Matt and Mattings Societies, Coir corporation, Foam Mattings (India) Ltd and Coirfed in 2019-20. An amount of ₹519 lakh was sanctioned for paying pension to the employees retired from coir co-operatives and same was transferred to the account of Kerala State Co-operatives Pension Board. A total of ₹80.52 crore was distributed as pension to 73,096 retired coir workers. Under the Income Support Scheme an amount of ₹19.67 crore was sanctioned to 29,352 coir workers for income support in 2019-20. Under the Price Stabilisation Scheme for coir and coir products, an amount of ₹4,500 lakh was sanctioned and an amount of ₹3,545.57 lakh was spent for the procurement of fiber, coir yarn and coir products

by Coirfed and Kerala State Coir Corporation in 2019-20. A total of 1.57 lakh quintal coir yarn and coir products worth ₹14,418 lakh were procured by these institutions. More than 200 working days were ensured in 214 yarn societies. Moreover, wages were enhanced to ₹350 per day for workers in the traditional coir sector.

Directorate of Coir Development and Agencies in Kerala Coir Sector

The Directorate of Coir Development acts as a facilitator for the promotion of coir industry in the State. Kerala State Coir Corporation, Foam Mattings (India) Ltd., Kerala State Co-operative Coir Marketing Federation Ltd (Coirfed), National Coir Research and Management Institute (NCRMI), Kerala State Coir Machinery Manufacturing Company, Kerala State Coir Workers Welfare Fund Board are the important agencies functioning for the promotion of coir industry. The co-operative sector plays a substantial role in activities like collecting husk, defibering, and production of yarn and other products in the Coir sector.

Coir Co-operative societies

The total number of coir co-operative societies in Kerala decreased from 1,147 in 2018-19 to 1,100 in 2019-20. In this period, the number of working societies decreased from 625 to 581. However, among the working societies, there is a huge increase in the number of profitable societies. The numbers rose from 222 to 316. It is also significant that the number of new societies which have not started working decreased from 114 in 2018-19 to 98 in 2019-20. Similarly, the number of societies under liquidation also decreased from 263 to 249.

Almost half of the total number of societies are primary co-operative societies engaged in the yarn sector. Compared to 2018-19, the total number of primary co-operative societies and number of working societies engaged in yarn sector decreased in 2019-20. However, the number of profitable societies has shown a huge

increase from 123 in 2018-19 to 209 in 2019-20. The non-yarn sector includes manufacturing societies (mats and mattings) and small scale producers' co-operative societies. The total number of manufacturing societies (mats and mattings) increased from 40 in 2018-19 to 41 in 2019-20. Though there was no change in the total number of manufacturing societies that were operational (31), the number of profitable societies increased from 12 in 2018-19 to 19 in 2019-20. The total number of small scale producers' co-operative societies increased from 50 in 2018-19 to 57 in 2019-20. However the number of societies that were operational decreased marginally from 46 numbers in 2018-19 to 45 by 2019-20. However, it is significant that the number of profit making units increased from 24 to 40. Details are provided in **Appendix 4.6.16**.

The number of workers engaged in the coir co-operative societies in the yarn sector has more than doubled between 2017-18 and 2019-20. As a result, the amount of wages paid in the sector increased from ₹34.77 crore in 2017-18 to ₹45.30 crore in 2019-20. Similarly the value of husk procured, the value of fiber produced and the value of yarn produced have also shown significant increase despite the fact that the number of working societies have reduced by about 17 per cent. The number of workers in the co-operative societies in the product sector, and value of production have also increased from 2017-18 to 2019-20. Details are provided in **Appendix 4.6.17**.

Coirfed

The Kerala State Co-operative Coir Marketing Federation Ltd (Coirfed) is the apex federation of primary coir co-operative societies spread all over Kerala. The main objective of the federation is procurement of the products of the member societies and marketing of these goods through its sales outlet. The process helps in providing fair wages and subsistence to the poor coir workers of Kerala. Coirfed has two facilities for the manufacturing of value added products.

One factory produces rubberised coir products and the other produces rubber backed coir mats. Coirfed has 4 defibering units. In 2019-20, an amount of ₹233 lakh was sanctioned for various projects of Coirfed. Coirfed has been able to achieve significant increase in sales in almost all product segments resulting in increase in sales turnover. Turnover has increased from ₹68.57 crore in 2016-17 to ₹125.72 cr in 2018-19 and ₹125.89 crore in 2019-20.

Kerala State Coir Corporation

The Kerala State Coir Corporation Ltd was established in 1969 to help the small-scale coir manufacturers by providing them assistance in manufacturing and marketing. Over the years, the Corporation has been procuring the produce of small scale manufacturers, thereby reducing their dependence on the intermediaries. The Kerala State Coir Corporation has 3 production facilities in Kerala. One more unit is being established in Adoor. An amount of ₹750.14 lakh was sanctioned for projects of the Coir Corporation in 2019-20. The corporation implements the Purchase Price Stabilisation Scheme (PPSS) in coir sector. Value of procurement under the PPSS has increased from ₹98.22 crore in 2016-17 to ₹170.08 crore in 2019-20. Total procurement value under PPSS from 2016-17 to 2019-20 is ₹521.50 crore. The turnover of the corporation has increased from ₹104.11 crore in 2016-17 to ₹184.85 crore in 2019-20. Total turnover from 2016-17 to 2019-20 is ₹578.80 crore. Net income from sale of products and total income for the State PSU has been increasing in 2016-17, 2017-18 and 2018-19. The PSU has also continuously reported net profit. Its net profit has increased from ₹1.12 crore in 2016-17 to ₹1.36 crore in 2018-19.

National Coir Research & Management Institute (NCRMI)

The NCRMI is setup to strengthen the research and development activities of coir sector with a view to enable the industry to produce more

value added products and new design products at competitive price. An amount of ₹1,072.13 lakh was sanctioned in 2019-20 for various projects of NCRMI.

The activities of the research institute in 2019-20 can be classified under the following heads – i) product development. A significant achievement has been the development of agri coir cell for cultivation. It is being tested for slope land stabilisation. ii) Machine development. The institute was engaged in developing low cost power loom, multi head spinning machine, high tech spinning machine, tender coconut crushing machine, coconut tree climbing machine, blended coir yarn making machine, fully automatic creel mat loom and testing and evaluation of automatic coir yarn spinning machine. iii) Collaborative projects. It includes product design and development of coir fiber reinforced polymer composites for automotive and domestic applications, development of biodegradable mulching mat using coir polymer systems, production of coir composite for furniture applications, large scale production of coir composite for acoustic application, and use of coir fiber as reinforcing material in cement mortar. iv) Technology development. It includes utilisation of coir pith for the production of bio plastic, conversion of household organic waste into compost using coir pith, training of coir pith composting to the workers of defibering units, treatment of coir fiber with various biological and chemical agents to improve the texture and colour of coir, standardisation and formulation of bacterial consortia for the bio softening of coir fiber, production and characterisation of biochar from tender coconut husk/coir pith/related products, development of biological system to treat ret liquor, field evaluation of differently treated coir pith compost, development of biofilm on coir fiber for treating waste water, and development of technology for conversion of tender coconut husk into organic manure. v) Training and skill development vi) Workshops, seminars and conferences vii) Consultancy services and viii) Commercial activities like trichopith spawn production and pith activator.

Foam Mattings (India) Limited (FOMIL)

FOMIL was incorporated in the year 1978 with an authorised capital of ₹550 lakh and paid up capital of ₹512.23 lakh. It is an entity functioning for the promotion, manufacture and marketing of a wide range of environment friendly products made from coir, jute and sisal. The products include door mats, mattings, carpets, rugs, coir geo-textiles and car mats which are sold in domestic and overseas markets. The company has state of art facilities like Latex Backing Plant, Modern Dye House, and Fully Automatic Powerloom where spare capacity is used for undertaking works of other exporters. In 2019-20, an amount of ₹399.98 lakh was sanctioned for projects of FOMIL. The State PSU has reported losses during the 3 years 2016-17, 2017-18 and 2018-19. The loss decreased in 2017-18 compared to 2016-17. However it has increased in 2018-19. The accumulated loss of the PSU was about ₹10 crore at the end of 2018-19 which increased to about ₹12 crore at the end of 2019-20. Net income from the sale of products had doubled in 2017-18 compared to 2016-17. However, it has declined subsequently.

Kerala State Coir Machinery Manufacturing Company Ltd (KSCMMC)

KSCMMC was started in February 2014, in Alappuzha, to provide the machinery needed for the coir sector in Kerala. The company provides coir machinery such as electronic ratts, automated spinning machines, defibering machines, integrated coir processing units, willowing machines and allied machines required for the coir industry. In 2019-20, an amount of ₹1,865.67 lakh was allotted for various projects taken up by KSCMMC. The activities of the company are crucial for the State, if the objective of mechanisation in coir sector is to be successful. The sales revenue of KSCMMC in 2019-20 was ₹22 crore, which shows an increase of 78 per cent compared to the previous year. The company produces the machines, builds the

necessary infrastructure, installs the machinery and provides continued service support to coir societies/units in the State. The installations in 2019-20 include 1,000 Automatic Spinning Mills, 125 defibering units, 28,000 electronic rats, 351 willowing machines, 80 coir unbundling machines, 6 garden articles production machines, 15 sets of carpet making machines, 20 crusher machines and 8 defibering mills (to Lakshadweep and Maharashtra). The installation of these machines have resulted in greater utilisation of raw materials, more remuneration for workers, and increased production in coir sector in the State.

Central Government Schemes

The Central Government has implemented various schemes for the Coir sector. The Coir Board is the nodal agency to implement these schemes in the sector. Coir Board at Cochin is an autonomous body established by the Government of India under the Coir Industry Act (45), in 1953 for the development of coir industry. The umbrella scheme Coir Vikas Yojana comprises components like Coir Industry Technology Upgradation Scheme (CITUS), Science and Technology (S&T), Skill Upgradation and Mahila Coir Yojana, Export Market Promotion (EMP), Domestic Market Promotion (DMP), Trade and Industry Related Functional Support Services (TIRFSS) and Welfare Measures. The sector also benefits from the schemes implemented by the Ministry of Micro, Small and Medium Enterprises (MSME) like Scheme of Funds for Regeneration of Traditional Industries (SFURTI) and A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship (ASPIRE). The sector also benefits from the Prime Ministers Employment Generation Programme, a Central sector scheme administered by the Ministry of Micro, Small and Medium Enterprises (MSME).

Challenges and the way forward

The low wages in traditional coir sector and the shortage of raw material are challenges facing the industry. The industry requires modernisation of

its production and organisation. Mechanisation and modernisation efforts initiated by the State Government have started showing positive results in Kerala. However, the modernisation process has to pick up speed. Continued hand-holding by the Government in modernisation of technologies and regulation of market-driven price fluctuations is important to propel the industry on a self-sustaining path. With emphasis on innovations, competitiveness, diversification of products and tapping of new markets, the sector is expected to do well over the coming years.

CASHEW INDUSTRY

Cashew, considered the wonder nut in the international market, occupies the third position after almond and walnut in global tree nut production in 2019-20. India is a large producer, consumer and exporter of processed cashew nut. In 2018, India accounted for a share of 17 per cent in the global exports of processed cashew nut, second only to Vietnam (which had a share of 57 per cent globally). Global consumption of cashew nut kernel in 2018 was 7.2 lakh MT, of which India had a share of 45.7 per cent (3.29 lakh MT). USA, Germany, Brazil and UK are other leading consumers of cashew nut. At the same time, India is a major importer of raw cashew nut for processing. Of the total global imports of 16 lakh metric tonnes of raw cashew nuts in 2018, India accounted for about 9 lakh MT. Vietnam, another major player in the industry, imported 5,22,198 MT of raw cashew nut in 2018.

As per the Nuts and Dried Fruits Statistical Yearbook 2019-20 published by the INC International Nut and Dried Fruit Council, global production of cashew in 2019-20 reached 7.87 lakh metric tonnes (MT) (kernel basis) and around 36 lakh MT of raw cashew nuts. With a production of 1.77 lakh MT (kernel basis) in 2019-20, India was the leading producer of cashew kernels in the world. Its share in world cashew production (kernel basis) is 22 per cent. In the production of cashew kernels, India was

followed by Cote d'Ivoire (1.36 lakh MT), Ghana (65,340 MT) Vietnam (62,100 MT) and Tanzania (55,000 MT). Western Africa, with 47 per cent share in world cashew production, was the biggest cashew producing region.

Cashew Sector in India

Cashew was first introduced in India in Goa from where it spread to other parts of the country. The major areas of cultivation of cashew in India are in Kerala, Karnataka, Goa and Maharashtra along the West Coast, as well as in Tamil Nadu, Andhra Pradesh and Orissa along the East Coast and to some extent in the States of West Bengal, Chhattisgarh, Gujarat, Jharkhand and the Northeastern States.

According to the Directorate of Cashew and Cocoa Development (DCCD), Government of India, in 2019-20, cashew was grown in an area of 11.25 lakh hectares in India with a total production of 7.02 lakh MT of raw nuts. The largest producer of cashew nut in India is the State of Maharashtra followed by Andhra Pradesh and Odisha. In terms of total production of raw cashew, Kerala ranks 6th among the producing States. The largest area under cashew nut production in India is in the State of Odisha (2.13 lakh ha) followed by Andhra Pradesh (1.92 lakh ha) and Maharashtra (1.91 lakh ha). Kerala has an area of 98,821 ha under cashew production. State-wise details of cashew nut production and area are provided in **Appendix 4.6.18**.

The overall productivity of cashew cultivation in India is around 707 kg/ha (2018-19). It is the highest in Maharashtra (1,169 kg/ha) followed by West Bengal (1,072 kg/ha) and Assam (1,012 kg/ha). Kerala with a productivity of 947 kg/ha is ranked 4th in productivity among States in India. Cashew Kernels are graded into white/scorched wholes, pieces, splits, butts etc depending on the shape, size and colour of the kernel. The Government of India Act prescribes 33 different grades of cashew kernels. Only 26 grades are commercially available and exported. W-180, W-210, W-240, W-320 and W-450 are some of the popular grades of cashew produced in India.

According to the Cashew Export Promotion Council of India (CEPCI), in 2019-20, the export of cashew kernels from India was 67,647 MT and the earnings were about ₹3,867.17 crore (5,510 lakh US Dollars). This amounts to 0.19 per cent of India's total foreign exchange earnings from exports. India exports cashew kernels to more than 60 countries. Of the total exports, the largest exports were to the West Asian Zone, followed by European zone and then South East/Far East Zones. Total earnings also include export of by-products like Cashew Nut Shell Liquid.

The domestic production of cashew nut in India is not sufficient to cater to the industry's current requirement/installed processing capacity of about 20 lakh MT. Hence India imports raw cashew nut from other producing countries. India imported 9.38 lakh MT of raw cashew nut in 2019-20.

Cashew Sector in Kerala

The cashew industry is a major traditional agro-based industry in Kerala. There are several cashew processing units in Kollam District, which has earned the title 'cashew capital of the world'. It is estimated that there are more than 800 formal and informal cashew processing units in Kerala. About 65 per cent of the cashew exporting and processing units officially registered with the Cashew Export Promotion Council of India (CEPCI) are from Kerala. It is estimated that the sector employs about 3,00,000 workers and 90 per cent of them are women. Cashew processing is concentrated mainly in the private sector.

The co-operative sector has limited presence in cashew processing. There are two public institutions engaged in the cashew processing industry in Kerala, namely Kerala State Cashew Workers Apex Industrial Co-operative Society Ltd (CAPEX) and Kerala State Cashew Development Corporation (KSCDC).

In 2019-20 cashew kernel export from Kerala was 30,478 MT valued at ₹1,742.54 crore. At the same time, India's export of cashew kernel in 2019-20 was 67,647 MT valued at ₹3,867.17 crore. The share of Kerala in export of cashew kernel from India was 45.05 per cent in terms of quantity and 45.06 per cent in terms of value.

In Kerala the production of raw cashew nut increased marginally from 80,120 MT in 2013-14 to 82,889 MT in 2018-19. However, the production fell sharply to 69,624 MT in 2019-20. Increase in production during recent years is attributed to increased productivity. The area under cultivation of cashew increased from 84,920 hectares in 2013-14 to 98,821 hectares in 2019-20, with significant gains from 2015-16 onwards. Details are provided in **Table 4.6.7**.

The challenges to expansion of cashew cultivation in Kerala include the pressure on land in the State, existing land ceiling laws, and the shift to more profitable cash crops like rubber (particularly given the absence of plantation status to cashew). It is also noted that Kerala has vast areas under cashew cultivation which have not been replanted. A major reason for the low-levels of productivity in cashew cultivation is the

Table 4.6.7 Production of raw cashew nut in Kerala, 2013-14 to 2019-20, in ha and MT

Year	Area in 000 ha	Annual growth, %	Quantity (in MT)	Annual growth, %
2013-14	84.9		80,120	
2014-15	84.5	-0.4	80,000	-0.2
2015-16	87.0	2.9	72,000	-10
2016-17	90.8	4.4	83,980	16.6
2017-18	92.8	2.1	88,180	5
2018-19	95.7	3.1	82,889	-6.1
2019-20	98.8	3.2	69,624	-16.1

Source – Directorate of Cashew and Cocoa Development (DCCD), Government of India

Table 4.6.8 Plan outlay and expenditure of State Government agencies in cashew sector, 2019-20 and 2020-21, in ₹ crore and in per cent

Sl. No.	Agency	2019-20			2020-21 (till Nov 2020)		
		Outlay	Exp	%	Outlay	Exp	%
1	KSCDC	16.50	16.00	96.9	14.00	35.04	250.3
2	CAPEX	2.50	0	0%	5.50	1.19	21.6
3	KSACC	5.15	0	0	5.50	2.00	36.3
4	KCB	30.30	0	0	30.30	45.30	149.5
	Total	54.45	16.00	29.4	55.30	83.54	151

Source: Plan Space, State Planning Board

fact that nearly 70 per cent of the cashew trees in the State are aged, local varieties, which start yielding late in the season. Climate change effects such as the coincidence of excessive rainfall and high relative humidity have also been a factor.

Agencies in Cashew Sector

Kerala State Cashew Development Corporation (KSCDC) and Kerala State Cashew Workers Apex Co-operative Society (CAPEX) are the two State Government agencies involved in the processing of cashew in the State. Kerala State Agency for the Expansion of Cashew Cultivation (KSACC) and Kerala Cashew Board (KCB) are the other two State Government agencies in the sector. Cashew Export Promotion Council of India (CEPCI) and the Directorate of Cashew and Cocoa Development (DCCD) are the other agencies involved in cashew promotion. The details regarding the outlay from State Annual Plan and expenditure incurred during 2019-20 and 2020-21 are provided in the **Table 4.6.8**.

Kerala State Cashew Development Corporation (KSCDC)

Kerala State Cashew Development Corporation Ltd. (KSCDC) was formed in 1969 as a company fully owned by the Government of Kerala. Partial mechanisation and the introduction of cutting machines has increased the processing of RCN per day from 100 MT to around 125 MT. The installation of 1250 cutting machines during the recent years has resulted in enhanced productivity. KSCDC currently operates 30 factories, of which 20 are private factories run

by KSCDC based on agreement. The process has enhanced livelihood opportunities to those engaged in the sector. In 2019-20, KSCDC provided employment to 12,121 workers, and the number of working days in factories was 147 days with staff strength of about 600. KSCDC processed 10,767 MT of raw cashew nuts and produced approximately 2,792 MT of cashew kernels in 2019-20. Total turnover of KSCDC in 2019-20 was ₹166.53 crore. Total turnover and total employment has increased since 2017-18. Though the agency has been reporting loss since 2014-15, it has reduced since 2017-18. Details are given in **Appendix 4.6.19**.

KSCDC is marketing its own 'value added products' which have given it better margins. These products have received good response from customers. KSCDC has also started outlets to increase the sales. As a step towards backward linkage, KSCDC has taken steps to propagate cultivation of cashew. It supplies about 2,000 grafts per year in grow bags, at a discounted price.

Kerala State Cashew Workers Apex Industrial Co-operative Society Ltd. (CAPEX)

CAPEX was set up at Kollam in 1984 as an apex body to take care of the operations of 10 primary co-operative societies under GoK. Its major function includes procurement, management of processing through co-operative societies and marketing. It procures raw nuts, distributes the same to the primary societies and gets them processed, and markets the kernels. These

Table 4.6.9 Sales turnover of CAPEX, in ₹ crore

Year	Domestic Sales	Export	Total Sales Turnover	Loss
2013-14	42.3	21.2	63.5	9.4
2014-15	59.4	14.4	73.8	14.4
2015-16	59.1	14.6	73.7	16.4
2016-17	26.2	19.6	45.8	9.9
2017-18	81.5	5.3	86.8	12.6
2018-19	76.5	0	76.5	19.8
2019-20*	85.1	0	85.1	-

Source: CAPEX *Subject to audit

are done with the aim of bringing down the processing costs and providing continuous employment and fair wages to the workers.

In the calendar year 2019, CAPEX provided continuous employment to more than 3,800 workers and staff for 215 working days. In the calendar year 2020, a total number of 87 working days was recorded as on August 31, 2020, notwithstanding the lockdown and restrictions following the outbreak of the Covid-19 epidemic. The scheme for modernisation and mechanisation in 10 CAPEX factories and packing centres is progressing. The number of workers required to process one bag (80 kg) of raw cashew nuts has fallen from 5 to 4.5, as a result of partial mechanisation. Thus productivity of workers has improved. Total sales turnover in 2019-20 was ₹85.09 crore. The turnover during the current financial year up to August 31, 2020 was only ₹23 crore due to Covid-19 restrictions. Details regarding the functioning of CAPEX are given in **Appendix 4.6.20**. The sales and turnover of CAPEX are given in **Table 4.6.9**

Kerala State Agency for the Expansion of Cashew Cultivation (KSACC)

KSACC was constituted by the Government of Kerala in 2007 to promote cashew cultivation and to ensure adoption of innovative technologies. KSACC started the project 'Cultivation of Organic Cashew and Establishment of Raw Nut Bank' from 2007-08. In 2019-20, the agency distributed 4,08,466 number of grafts (1,859 Ha) among

farmers and institutions. An area of 182.7 Ha was brought under high density planting and an area of 1,384.3 Ha was brought under normal planting. In 2020-21, till 30 September, the agency has distributed 2 lakh grafts covering about 700 Ha. Two Model Cashew Gardens have been established in the State. One is located in the premises of Kerala State Cashew Development Corporation and the other is at the Open Jail at Nettukaltheri in Thiruvananthapuram.

Cashew graft production in Government nurseries, surveying of cashew cultivable area, regular field visit, farmer contact, creation of awareness trainings, availability of labour in planting and harvesting sector, and marketing of the produce were hampered by Covid-19 pandemic in 2020-21.

Kerala Cashew Board Limited (KCB)

KCB was established in 2017 by the State Government as a special purpose vehicle with the main objective of procuring and supplying Raw Cashew Nuts (RCN) at reasonable price to the cashew processing units in Kerala. In 2019-20, Kerala Cashew Board procured 13,551 MT of RCN for a value of ₹119 crore, which was utilised by 40 processing units under Kerala State Cashew Development Corporation (KSCDC) and Kerala State Cashew Workers Apex Co-operative Society (CAPEX). A general trend of decline in the rates (₹/kg) at which KCB has been procuring Raw Cashew Nuts, is witnessed since the high rate of ₹132.50/kg in September-October 2018.

The last lot from Ghana (Lot V) was imported at the rate of ₹83.69/kg. Decline in the price of imported RCN will benefit the processing industry.

Covid-19 pandemic had an adverse impact on the processing sector in Kerala. Almost all the factories of KSCDC and CAPEX were closed down for more than 3 months. Even after relaxations in lockdown guidelines, the factories were only working at 50 per cent capacity. Hence procurement and import activities of KCB were also adversely affected. The import operations of KCB Ltd were affected since the suppliers were reluctant to participate in the tender operations as the operations of ports, banks, and transportation facilities were adversely affected because of the lockdown. Moreover, the prices of processed Cashew Kernels in international markets fell to the disadvantage of the cashew processing industry.

The cashew growers in Kerala were also in distress because of the Covid-19 pandemic as they were unable to find market for harvested Raw Cashew Nuts. To help the cashew growers in the State, the Government of Kerala introduced a support price scheme with KSCDC and CAPEX procuring RCN from the growers offering them better prices. KCB Ltd has availed a one-time loan of ₹30 crore from Kerala State Co-operative Bank to provide assistance to KSCDC and CAPEX for this procurement activity. Under this initiative, a total quantity of 2,743 MT of RCN was procured from the cashew growers in the State.

Cashew Export Promotion Council of India (CEPCI)

CEPCI established by Government of India in 1955, aims to promote the export of cashew kernels and cashew nut shell liquid. The Council serves as an intermediary between importers of cashew kernels and domestic exporters who are members of the council.

The export of raw cashew nut from India in 2019-20 was 15,826 MT, which was

valued at ₹140.46 crore. Kerala has not exported raw cashew nut since 2012-13. The exception was 2017-18 when 92 MT of raw cashew nut valued at ₹1.12 crore was exported. In 2019-20, import of raw cashew nut in India was 9.39 lakh MT valued at ₹8,861.58 crore. Import of RCN to Kerala in 2019-20 was 13,202 MT, valued at ₹125.51 crore. Large variations over the years in the export and import of raw cashew nut are primarily due to the activities of traders in the processing industry. There are large fluctuations in the international prices of raw cashew nut and cashew kernel. In India, cashew nut is imported also for export to other processing countries. Therefore, market conditions in other processing countries also affect international trade. Export of cashew nut shell liquid from the country in 2019-20 was 4,606 MT (valued at ₹23.1 crore) and the export from Kerala was 1 MT (valued at ₹0.01 crore in Kerala).

Directorate of Cashew nut and Cocoa Development (DCCD)

DCCD is the subordinate office of the Department of Agriculture, Co-operation and Farmers Welfare of the Government of India. It is the nodal agency for accelerating cashew and cocoa development programmes in the country. In 2019-20, under new plantation development programme, as a result of the combined efforts of Central and State Governments, an additional area of 19,688 ha has been brought under cashew cultivation. It has used clones of high yielding varieties and financial assistance under MIDH/RKVY. Replantation was undertaken in an area of 2,753 hectares. Six nurseries were established/upgraded and 45 nurseries were accredited for production and distribution of quality planting materials. In association with research institutions, 400 unemployed women were provided training in cashew apple utilisation techniques.

Challenges and the way forward

The challenges to cashew cultivation in Kerala include the pressure on land, restrictions because

of land ceiling laws, incidence of fungal diseases, and competition from other crops such as rubber, which provide better financial returns to farmers. The slow spread of high yielding cashew varieties and of modern cultivation techniques in the State are also constraints. Cashew processing in Kerala faces problems such as relative shortage of raw nuts at competitive prices, higher processing costs, slow adoption of modern processing technologies, and stiff competition from other processing nations/regions. Given such challenges, the focus of the State Government has been to restart the operations of private sector factories that had been closed and thereby ensure greater number of working days for workers who depend on this industry for their livelihoods.

Given the changing dynamics in the agriculture sector in Kerala, cashew cultivation is increasingly seen as a profitable venture. The adoption of high yielding varieties, scientific farming techniques, greater support in terms of extension services, and commercial scale of production can bring about an improvement in the production of raw cashew nut in the State. Increased domestic production of cashew at reasonable price and quality can reduce Kerala's dependence on imported cashew. Faster adoption of modern technologies in processing and value addition, reduction of production cost, evolving technologies and new products from cashew including the use of cashew apple are focus areas for the development of the cashew sector in Kerala. Greater efforts to develop new markets even while retaining the identity of 'Kerala Cashew' can help the industry.

CHAPTER

05

SERVICE SECTOR

SERVICE SECTOR

5.1 INFORMATION TECHNOLOGY

Information and Communication Technology (ICT) is the world's fastest growing industry that has applications in all sectors of the economy. The Information Technology (IT) and the Information Technology Enabled Services (ITeS) sectors have made significant contribution towards the development of economies in terms of their impact on economic growth, their capacity to absorb human resources and their ability to provide greater accessibility to innovative technology worldwide.

The mission of the Ministry of Electronics and Information Technology (MeitY) is to promote e-Governance for empowering citizens, promoting the inclusive and sustainable growth of electronics, IT and ITeS industries, enhancing India's role in internet governance, adopting a multipronged approach that includes development of human resources, promoting R&D and innovation, enhancing efficiency through digital services and ensuring a secure cyberspace. India is emerging as a global hub for 'Digital Skills'. The IT industry in India is a key part of the country's economy. The National Optical Fibre Network (NOFN) aims to connect all 2,50,000 gram panchayats in the country with high speed broadband. India today has the second highest number of internet subscribers in the world.

Today, Kerala is a major IT destination. This has been achieved by committed and talented human resources with innovative initiatives. The

high quality of life in the State, well established Government policies, and low operational costs have transformed Kerala into a favoured IT hub for investors.

The ICT sector has been playing an important role in the development of the State, since the 9th Five-Year Plan. Realising its potential and critical importance, the State Government has made earnest efforts to create a sound and world class infrastructure for the sector and to develop the State's digital technology capacities and resources. This has enabled the State to be at the forefront in implementing information and communication technology projects, e-governance initiatives, e-literacy programmes and in the creation of basic IT infrastructure facilities.

In a path-breaking initiative, the Government of Kerala has declared access to internet as a basic right and has taken immediate steps to implement the right through the Kerala Fibre Optic Network (KFON) project that aims to eventually provide internet connectivity to every household in the State. Two million BPL households are to be provided connectivity free of charge. The early implementation of the KFON project has the potential to raise the level of economic development of the State to a new level, the rapid modernisation and development of the State's human resources. The project itself is an innovative collaboration through the pooling of the resources of the Kerala State Electricity

Board (KSEB) and the State's public sector, Kerala State Information Technology Infrastructure Ltd. (KSITIL), especially in guaranteeing the necessary last-mile connectivity for eventual full coverage, while collaboration with various service providers would provide the link to the national and global internet.

The major agencies involved in the implementation and promotion of IT related activity in the State are Kerala State Information Technology Mission (KSITM), Indian Institute for Information Technology and Management-Kerala (IIITM-K), Technopark, Infopark, Cyberpark, Kerala State Information Technology Infrastructure Ltd. (KSITIL), International Centre for Free and Open Source Software (ICFOSS), Kerala Startup Mission (KSUM) and Centre for Development of Imaging Technology (C-DIT).

MAJOR HIGHLIGHTS OF IT SECTOR

- According to the Internet and Mobile Association of India (IAMAI) report, titled 'India Internet 2019', Kerala's internet penetration rate is the second highest in the country (54 per cent), with Delhi NCR topping the list with 69 per cent penetration. The report also notes that Kerala, Tamil Nadu, and Delhi have the highest proportion of female internet users.
- As per the latest report by IAMAI, India has more internet users in rural areas than in urban areas. India has become the second largest internet user market behind China.
- KSUM received International recognition as World #1 Public Business Accelerators in the world and national recognition as top performer (Top 3) in Government of India State Startup Ranking, 2019.
- In 2020, so far 399 startups have registered in Kerala, showing a growth of 18 per cent over the last year. Currently among startups, Maharashtra tops with 5,477 active startups. Kerala is ninth with 1,292 active startups.
- KSUM launched the integrated startup complex in Kochi, a sprawling complex, spread over 1.80 lakh square feet with dedicated facilities for various tech sectors in January 2019.
- Under the banner of Kerala Startup Mission and several of its sector-specific partner organisations, there are presently more than 2,500 registered startups with more than 4 lakh square feet of incubation space, ₹1,500 crore external investment, value creation of ₹1,00,000 crore and created 25,000 employment.
- Kerala is the first State to make internet access a basic right. Kerala Fibre Optic Network (K-FON) project was initiated by Government of Kerala for providing free internet connectivity to 20 lakhs economically backward households.
- 2,706 Akshaya Centres are functioning across the State giving employment to 7,547 persons.
- Maker Village of IIITM-K is awarded with "Smart Incubator of the Year-2020" by India Smart Grid Forum (ISGF).
- Completed installation of second phase of 1000 Wi-Fi hotspots and nearly 15 lakh unique mobile users are availing the facility. Per day data consumption is up to 8 TB.
- Cyberpark in association with Internet and Mobile Association of India (IAMAI) has developed app incubation hub, first of its kind in Kerala.
- As per the Nasscom report on startups, Gujarat took the Best Performer ranking, while Karnataka and Kerala are top performers.
- Presently there are about 900 permanent Enrolment Centres and 1,500 Child Enrolment Centres by Akshaya CSCs to facilitate Aadhar enrolment and modification in Aadhar details.
- The new campus of the IITMK Institute at Technocity would have a total built up area of 48,161 square metre.
- About 196 lakh square feet built-up space, ₹4,982.1 crore investment, ₹22,204.57 crore turnover and 1,09,740 employment created through 923 companies operating in the three IT Parks.
- Completed works of multilevel car parking

with 7 floors (G 6) and facility for parking 450 cars in Phase 2 Infopark campus.

- Technopark has become the largest employment base campus in Kerala and with the commissioning of Technopark Phase III, it became the largest IT park in India with 380 acres of land, 9.7 million square feet built-up area.
- As a relief to IT companies, three months' rent waiver effected to companies with less than 10,000 square feet. Due to lockdown and containment zone restrictions, companies have opted for Work From Home (WFH) for all the employees from the end of March 2020.

IMPACT OF COVID-19 ON IT SECTOR

The impact of Covid-19 on the IT sector and the response measures by the sector to the pandemic has been very significant. Due to unprecedented spread of Covid-19 pandemic, daily business operations, project deliveries and revenue streams of majority of the IT companies have been affected. The companies have opted for WFH for all the employees from the end of March 2020 because of lockdown and containment zone restrictions. The average employee productivity in Cyberpark was around 70-85 per cent in the last 6 months. Initial two months was critical for units as they had a challenge in setting up hardware and software systems, connectivity in place but were able to adapt to a new normal and were able to set a proper monitoring system. In order to reduce losses, 2 units in Cyberpark have

surrendered their space with a net leasable area 4046 square feet as the Covid-19 has completely forced to shut down their operations and another two units have held their expansion plans (4529 square feet). Cyberpark was able to allot space for 4 new companies during the pandemic and they have occupied an area of 8,094 square feet.

There were many steps taken for cost reduction which also lead to HR optimisation. As a relief to IT companies, three months' rent waiver effected to companies who have taken space less than 10,000 square feet and annual rent escalation of 5 per cent is freezed up to March 2021.

The revenue losses incurred by the firms are mainly because of losses arising from existing projects put on hold, existing projects being cancelled and projects in pipeline being cancelled. Internet connectivity, followed by power disruptions, security threats, and hardware issues are the major issues in 'work from home' mode. There were issues related to client meetings and client visits getting cancelled. Client payments are getting postponed and there are unexpected project cancellations.

PERFORMANCE OF AGENCIES IN THE IT SECTOR

The State Government envisages expansion of IT industry in the State in a manner that benefits all the districts in the State. A hub and spoke model has been planned. Thiruvananthapuram (Technopark), Kochi (Infopark), and Kozhikode

Box 5.1.1 Digital University

Vide Ordinance No. 9 of 2020 dated January 18, 2020; Government of Kerala upgraded IIITM-K as "Kerala University of Digital Sciences, Innovation and Technology". The University started functioning from the new campus of IIITM-K in Technocity and is expected to be inaugurated in January 2021. The University is envisaged to become a unique centre of excellence of global repute by conducting education, research and extension activities in areas of digital technologies, science and humanities. The University is aiming to create capacity building in masters and doctorate programmes in the areas of Artificial Intelligence and Natural Language Processing, Internet of Things, Electronic Systems and Automation, Imaging Technologies, Data Analytics and Big Data, Cyber Security, Block chain, Ecological Informatics and Geospatial Analytics. The new University will initially create about 200 job opportunities in academic and research level.

(Cyberpark) will act as hubs and the remaining districts will be the spokes.

Government of Kerala provided an amount of ₹574.38 crore in the Budget (2019-20), for the development of core IT infrastructure, ITeS, e-governance activities and incentivising investment in the sector and the expenditure incurred was ₹236.16 crore (41.1 per cent). In 2020-21, the outlay earmarked for the sector was ₹500.1 crore. The details of Plan outlay and expenditure for the last 3 years are given in **Table 5.1.1**.

KERALA STATE INFORMATION TECHNOLOGY MISSION (KSITM)

Kerala State IT Mission is an autonomous nodal IT implementation agency of the Department of Information Technology, Government of Kerala, which provides managerial and technical support to various initiatives of the Department. KSITM performs diverse roles including, enactment of ICT related policies, development of guidelines and standards for e-governance, ICT facilitation for the Government entities, provides end to end support and guidance to State Departments in digitisation efforts, act as a bridge between Government and industry, undertakes capacity

Table 5.1.1 Plan outlay and expenditure, in ₹ crore

Sl No	Name of Department/ Scheme	Annual Plan 2018-19		Annual Plan 2019-20		Annual Plan 2020-21	
		Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure (upto September, 2020)
1	Kerala State IT Mission	147.48	104.94	144.14	79.02	124.14	7.17
2	Technopark	84.00	23.27	84.00	33.14	2.00	0.07
3	Infopark	67.05	33.58	67.05	26.06	10.00	8.16
4	Cyber Park	25.69	7.13	22.69	0.58	0.01	0.00
5	Indian Institute of Information Technology and Management-Kerala (IIITM-K)	65.50	6.98	15.50	4.94	64.20	8.49
6	Kerala Startup Mission	80.00	44.20	80.00	38.57	73.50	13.97
7	Kerala State IT Infrastructure Ltd	52.37	24.00	148.00	48.12	212.75	77.29
8	Indian Institute of Information Technology-Kottayam	24.50	6.25	0.00	0.00	0.00	0.00
9	C-DIT	6.00	5.12	7.00	0.73	6.00	5.72
10	International Centre for Free and Open Source Software	5.00	7.50	6.00	5.00	7.50	1.75
11	Hardware Mission	30.00	6.11	0.00	0.00		
	Total	587.59	269.08 (45.8%)	574.38	236.16 (41.1%)	500.10	139.16 (27.8%)

Source: Annual Plans, Kerala State Planning Board and Planspace

building initiatives and bridges the digital divide, establishes and sustains common IT Infrastructure and takes up various e-Governance initiatives. The main activity is delivering the best of the digital services to the citizens keeping in mind “Citizen First” approach. As a result of these proactive policies and projects, Kerala achieved major progress in the transformational journey towards being a “Digital State”.

Major Awards and Accolades

National e-Governance Awards 2020, Elets e-India Award 2020, NCEG Award 2019, Governance Now Award 2019, Digital India Award 2019, SKOCH Award 2019, and Tech Sabha Award 2019 were some of the laurels received by KSITM.

Key Accomplishments of KSITM

In the present world, e-governance is an important tool for good governance by achieving transparency, reliability, and accountability in rendering services. Kerala has been a forerunner in e-governance and mobile governance by promoting and developing core infrastructure and e-literacy programmes.

Public Wi-Fi: Public Wi-Fi project aims to establish 2,000 Wi-Fi hotspots across the State to provide free internet to the citizens of the State. The present status of the programme is given below:

- Completed installation of second phase of 1000 Wi-Fi hotspots
- Free 1 GB data to citizens on daily basis for each mobile number
- Nearly 15 lakh unique mobile users availing the facility
- Released payment for operations and management charges of public Wi-Fi
- Up to 88,000 sessions per day and up to 8 TB data usage per day
- Users increased from 13,000 to 47,000 per day between phase I and II completion.

E-Office aims to conduct office procedures electronically thereby transforming Government offices to paperless offices and bringing out the

benefits of digital communication that ultimately leads to faster decision making. E-office has been implemented in all departments in Secretariat, 66 Directorates/Commissionerate/ other Government offices, all Collectorates, 17 Sub-Collectorates/RDOs. The Government has decided to roll out e-Office up to grassroot level in Taluks and Village Offices in coming years. Electronic file movement per month is more than 5 lakh. The training on e-office imparted to more than 30,000 end users. In 2019-20, e-office has been implemented at 13 RDOs/Taluks/ Directorates/other offices. In June 2019, as per the Government decision, the technical resources and the system administration were transferred from NIC to KSITM to take over training, support and system administration to enhance the productivity and interaction of e-office implementation and support.

Core infrastructure for e-governance in the State consists of Kerala State Wide Area Network (KSWAN), Secretariat Wide Area Network (SWAN), State Data Centre and State Service Delivery Gate way (SSDG).

KSWAN is the backbone of the State Information Infrastructure (SII), connecting Thiruvananthapuram, Kochi, and Kozhikode extending to 14 districts and 152 Block Panchayats and 63 Mini Civil Stations/revenue towers across the State. Around 4000 offices of Government departments are connected to KSWAN through Wireless and a larger number through leased lines and LAN. KSWAN aims to establish a state-of-the-art OFC based Network architecture in the Government Secretariat with a vision to improve the quality and availability of ITeS at its administrative Headquarters. State Data Centres (SDCs) are at the heart of e-governance framework of the State, hosting various applications and websites of the Government entities and provisioning associated services. The objective of the State Portal and SSDG project is to provide a “one-stop” shop to the citizens for Government services, both informational and transactional. Kerala State Portal (<https://kerala.gov.in>)

provides all Government related information and departmental services routed through services gateway (SSDG). A new website layout is designed by interacting with various stakeholders and intellectuals for accommodating all the contents from kerala.gov.in, with around 100 additional new pages and satisfying the GoI guidelines for websites and State Portal Framework guidelines.

e-District, a State Mission Mode project under National e-Governance Plan, targets delivery of high volume services at the district level and to undertake back-end computerisation to enable the delivery of online availability of these services through Akshaya. In 2019-20, total no of application received was 83,60,940. Of this, 76,30,945 no of applications were approved and the number of applications rejected was 61,026. Present status of e-district project are:

- Implemented 25 Revenue Certificate Services across the State
- RTI and public grievance services
- Online utility bill payment systems enabled in e-District portal
- Migrated from Broadband services to FTTH in feasible location

M-Keralam, the unified mobile application which will bring together all the services rendered by different Government departments under one umbrella.

e-Government Procurement (e-GP) is being implemented in the State, 54 Government departments and 335 PSUs/Boards/Autonomous Bodies/Government agencies are utilising the common e-Procurement system. In 2019-20, 1,13,303 tenders were floated using this platform and the total value of tenders floated is ₹ 39,848 crore. From April 2019 to March 2020, the number of officials who got trained is 1,027. In 2019-20, the number of offices which migrated to the e-Procurement System were 617 and officials registered in the e-Procurement system were 2,769.

Friends Janaseva Kendras have been established

in all the 14 district headquarters. In 2018-19, an amount of ₹148.1 crore revenue for the Government was collected and in 2019-20, the revenue collected is ₹126.87 crore. It is a single window 'no queue' integrated remittance centre, where the citizens have the opportunity to pay all taxes and other dues to the Government, under one roof, at no extra cost. On an average, 1,000-1,050 people visit each centre every day. A new software with more facilities and for facilitating online services for replacing the existing software called FREES (FRIENDS Re-engineered Enterprise Enabled System) developed at the FRIENDS Janasevana Kendram.

Akshaya is an innovative project launched on November 18, 2002 to bridge the digital divide. It works on public private participation mode. In the initial stages, the objective of the project was to make at least one person in a family e-literate. Gradually focus of Akshaya shifted to citizen service centric mode. Akshaya project acts as the enrolment agency and conducts aadhaar enrolment through the Akshaya centres. In 2019-20, 2,706 Akshaya centres are functioning across the State giving employment to 7,547 persons. The details of Akshaya centres in Kerala are furnished in **Appendix 5.1.1**.

Kerala State Spatial Data Infrastructure (KSDI) is a mechanism to provide geo-spatial data sharing at all levels of Government, the commercial sector, the non-profit sector, and academia.

Aadhaar -Kerala has achieved about 100 per cent of Aadhar generation. UIDAI has approved KSITM as the Authentication User Agency and e-KYC User Agency for offering the Authentication and e-KYC services offered by UIDAI. At present, there are about 900 Permanent Enrolment Centres and 1500 Child Enrolment Centres by Akshaya CSCs to facilitate Aadhaar Enrolment and changes to details in Aadhaar.

Video Conferencing (VC) is a technology which integrates and transmits video and audio to connect distant locations providing a location independent platform while conducting a

meeting/discussion. The management of VC sessions, upkeep of VC equipment and studios are with the support of C-DIT. Using VC infrastructure, KSITM was able to conduct around 750-800 VCs this year.

DigiLocker service is currently integrated for the following:

- e-District project – revenue certificates.
- Food and Civil Supplies Department – Ration Card
- Pareeksha Bhavan – SSLC
- Motor Vehicle Department – Driving Licence and Vehicle Registration

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY AND MANAGEMENT -KERALA (IIITM-K)

The Indian Institute of Information Technology and Management-Kerala was set up in 2000 as a premier institution of excellence in Science, Technology, and Management. It emphasises quality education to students and develops professionals and leaders of high calibre imbued with values of entrepreneurship, ethics and social responsibility. IIITM-K is the implementing agency for the various e-governance initiatives for Government of Kerala and Government of India. It co-ordinates national and international conferences and workshops to provide opportunity to students to interact with world class experts and researchers.

The institute focuses on education, research, development and training in basic and applied information technology and management. The academic programmes of the institute are Masters programme, M.Phil programmes, Ph.D programmes and Postgraduate Diploma programmes.

There are four specialised post graduate programmes (M.Sc.) being offered by the Institute in Computer Science with specialisation in Cyber Security, Machine Intelligence, Data Analytics, and Geospatial Analytics. Along with the above

four specialised courses, the Institute also offers M.Phil Ecological Informatics, M.Phil Computer Science and PG Diploma in E-Governance. The M.Phil and MSc degree are awarded by Cochin University of Science and Technology (CUSAT) and post graduate diploma by Directorate of Technical Education, GoK.

Vide Ordinance No. 9 of 2020 dated January 18, 2020, Government of Kerala upgraded IIITM-K as “Kerala University of Digital Sciences, Innovation and Technology”.

Placement Records

The pass outs from IIITM-K hold commendable positions in internationally reputed IT companies such as JFWTC-General Electric, Accenture, Amdocs, Siemens Ernst and Young, ARS Software, Allianz Cornhill, IBM, IBS, Infosys, Tata Elxsi, Tata Consultancy Services, UST Global Technology, and Wipro.

Research Centres

The following research groups functioning in the institute with state-of-the-art labs have produced more than 100 national and international research publications during the last 10 years.

- CV Raman Laboratory of Ecological Informatics
- Centre of Excellence in Cognitive Computing
- Kerala Blockchain Academy
- Centre for Research and Innovation in Cyber Threat Resilience
- Centre for Excellence in Pattern and Image Analysis
- Virtual Resource Centre for Language Computing
- Centre for Geo Informatics
- Centre for Data Science and Informatics
- Centre for Augmentation of Web based Multimedia to facilitate TEL for High Quality Education and Skill Development
- Knowledge Centre in Software Engineering for e-Governance
- Centre for Medical Information Systems

- Informatics Systems and Services
- Centre for Intelligence and Security Informatics (CISI)
- Centre for Agri Informatics and E-governance

ThingQbator, Cloud Computing lab, Data and Computational Modelling Lab, Embedded Systems Lab, Fab lab, Geo-Informatics lab, LoT Lab, Electronics Incubator lab, language computing lab, multimedia lab, medical image computing and signal processing lab, Data Engineering lab, agri-informatics lab are the various research labs functioning in the Institute.

Technocity Campus

The new campus of the Institute at Technocity is in completion phase and shall facilitate and promote studies, research and incubation in IT and its application domains. The fully completed campus would have a total built up area of 48,161 square metre. Construction of academic block, students hostel block, miscellaneous blocks like substation, sump and pump house are completed. KSEB power supply to the campus is ready to use. Completed testing of transformer and TOD metre. Final approval from Kerala Pollution Control Board for operating STP plants received.

Major Physical Achievements of IIITM-K in 2019-20

- Analysis of medical images for the identification of cancer cells.
- Object identification using image processing and machine learning
- Trying to implement a tool for Fish Identification System
- Literature Survey on Circular Mesh Based Feature Extraction Technique
- Trying to implement Circular Mesh for Feature Extraction
- Debugging and implementation of Tensor flow lite API for object identification in Android was done successfully.
- Implemented Circular Mesh and embedded fish images successfully
- Implemented Minimum Spanning tree

algorithms for preserving the shape of the object

- Implemented Fuzzy based Segmentation system
- Doing Classification using Multilayer Perceptron
- Implemented Fractal Dimension using Circular Mesh and compared the results with existing box counting method
- Implemented Convexity and Concavity using Circular Mesh
- Development of Prototypes of Finger Vein and Palm Vein Biometric Devices
- Palm vein image acquisition device prototype was constructed with the help of high power near infrared LEDs.

Award and Recognition

- Government of Kerala converted IIITM-K as Kerala University of Digital Sciences, Innovation and Technology through an Ordinance -2020
- Maker Village of IIITM-K is awarded with “Smart Incubator of the Year 2020” by India Smart Grid Forum (ISGF)
- Evelabs of Maker Village got CII Design Excellence Award
- Sastra Robotics of Maker Village got DST ISBA startup Award
- Maker Village awarded as “ Incubation Centre of the year with prominent IP Culture 2019” by IP Promotion Outreach Foundation (IPPO), Ahmedabad
- Hardtech 2019, Future and the Design Summit provided an unparalleled platform for the startups to showcase their competence.
- Kerala Blockchain Academy of IIITM-K became Linux Foundation Hyper ledger training partner in India. KBA is one of ten training partners globally and only academy from India

TECHNOPARK

Technopark was set up as an autonomous organisation fully owned by Government of

Table 5.1.2 Technopark's contribution to the State economy

Particulars	2016-17	2017-18	2018-19	2019-20
Total turnover (in ₹ crore)	12,000	14,000	14,000	15,000
Total export (in ₹ crore)	5,000	6,452	7,000	7,350
Total investment (in ₹ crore)	4,970	4,970	4,979	4,979
Total Employment (Nos)	52,746	56,000	60,000	62,000
No of Companies (Nos)	370	400	410	450
Total land (acres)	760	760	770.2	769.84
Total built up space (lakh square feet)	93	97	97	103

Source: Technopark

Kerala to create global standard infrastructure and to provide total support required for development of high technology industries. It was formally dedicated to the Nation on November 18, 1995. Since then Technopark has been growing steadily both in size and employees strength. With the commissioning of Phase III, Technopark will become the largest IT Park in India with 380 acres of land, 9.7 million square feet built up area. With the launch of Technocity project in Kazhakuttam, the largest integrated IT township in 335 acres of land, the Kazhakuttam-Kovalam (NH 66) has become the first IT Corridor in Kerala. Technopark has charted out an ambitious target of creating 50,000 new jobs by 2021. The park is now home to nearly 450 companies, employing more than 62,000 IT/ITeS professionals. Technopark's contribution to the State Economy is shown in **Table 5.1.2**. Details of growth and physical achievements of Technopark are given in **Appendix 5.1.2** and **5.1.3** respectively.

Land Available with Technopark

Technopark has 5 campuses which is spread over 769.8 acres under various phases of development. The details of extent of land in its 5 campuses are shown in **Table 5.1.3**.

Growth of Built up Space in Technopark

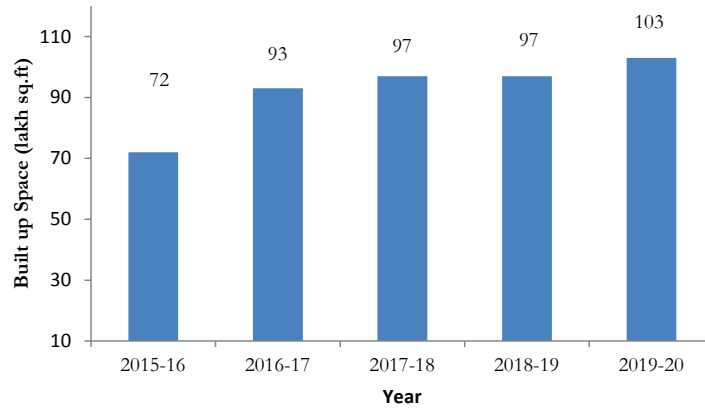
The built up space in Technopark has increased from 72 lakh square feet in 2015-16 to 102.7 lakh square feet in 2019-20. Out of which Technopark has created 32.8 lakh square feet area for industrial modules and total built up space completed by companies is 70 lakh square feet. The growth of built up space in the Technopark is shown in **Figure 5.1.1**.

Table 5.1.3 Land available with Technopark

Phases	Phase I	Phase II	Phase III	Technocity	Technopark, Kollam
Area, in acres	199.64	86	90.02	389.74	4.44

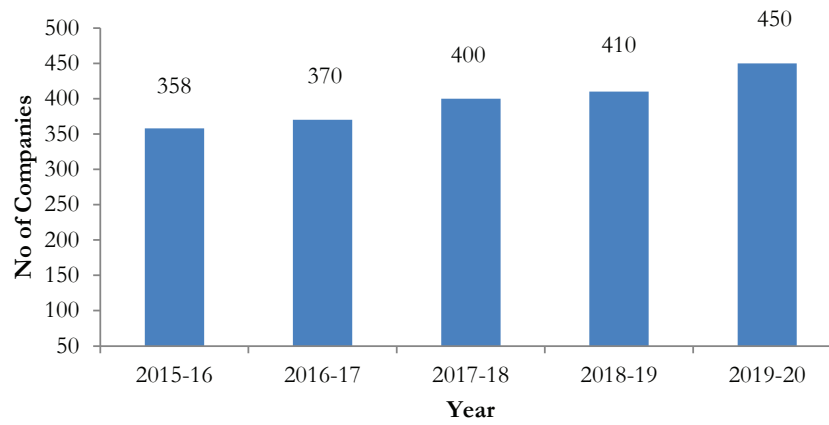
Source: Technopark

Figure 5.1.1 Growth of built-up space in Technopark



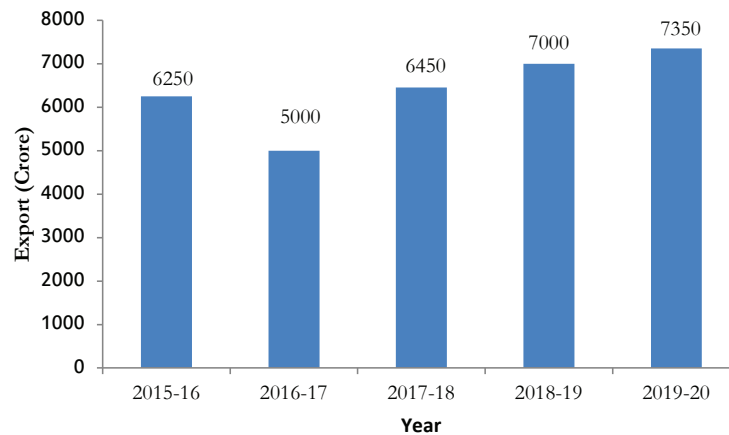
Source: Technopark

Figure 5.1.2 Number of companies in Technopark



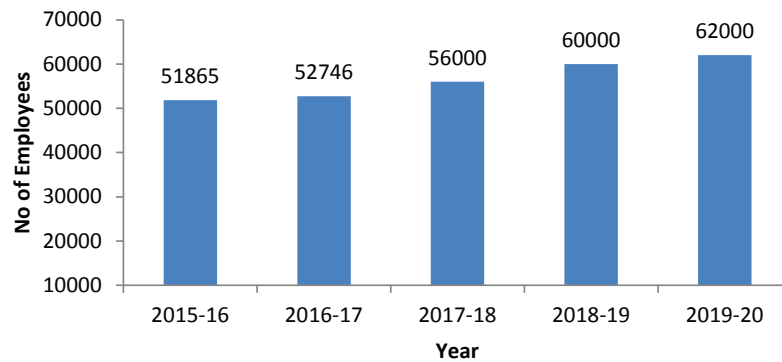
Source: Technopark

Figure 5.1.3 Export from Technopark



Source: Technopark

Figure 5.1.4 Growth of employment



Source: Technopark

Companies in Technopark

There has been an increase in the number of the companies working in Technopark during the last 5 years. In 2015-16, there were 358 companies in Technopark. It increased to 450 in 2019-20. The number of companies in Technopark from 2015-16 to 2019-20 is shown in **Figure 5.1.2**.

Growth in Export from Technopark

Export from Technopark increased from ₹ 5,100 crore in 2014-15 to ₹7,000 crore in 2018-19. In 2019-20, it increased to ₹7,350 crore which is 5 per cent increase over the previous year. The trend in export from Technopark during the last five years is depicted in **Figure 5.1.3**.

Growth of Employment in Technopark

The growth of Technopark can also be analysed in terms of employment generated during the last five years. The employment generated increased from 47,100 in 2014-15 to 62,000 in 2019-20. The growth of employment generation for the last five years is shown in **Figure 5.1.4**.

In Technopark Phase III, Embassy Taurus project construction started and is in full swing. It envisages to create a world-class business infrastructure in Technopark with a total investment of ₹1,500 crore in two phases. On completion, Taurus downtown is expected to

generate 20,000 direct employment and about 50,000 indirect employment.

Technocity

Technocity project is a flagship project by Technopark. Technocity project is broadly divided into two, namely, IT integrated Township and Knowledge City, which is designed to have six Centres of Excellence (CoEs) in emerging technologies to create a sustainable and healthy IT ecosystem by building a startup habitat. CoEs will be based on emerging technologies in IT like 1) cyber security, blockchain, 2) Fintech and blockchain, 3) Artificial Intelligence and machine learning, 4) Virtual/Augmented Reality, 5) e-Mobility, and 6) space science

Nissan Digital India LLP at Knowledge City will be the CoE for artificial intelligence, Deep Machine Learning, robotics and Electric/automated vehicles. Technopark has collaborated with VSSC for space mission programmes thus setting up Space Systems Complex with Nano Space Park Project.

Technopark has acquired 389.74 acres of land at Pallipuram for its Technocity project with 287.7 acres for IT Integrated Township and 102.05 acres for Knowledge City. Work on basic infrastructure has commenced and land allotted to TCS, Nissan, Suntech, KASE, and IIITM-K. Technocity project is envisaged as a ten year

project. The project on full development will cater to one lakh direct employment in IT and about 4 lakh indirect employment. The total built office space will be about 10 million square feet with an estimated investment of ₹5,000 crore.

Future Plans in Technocity

- Construction of 2 lakh square feet building by Technopark is in full swing and is expected to be completed by the end of 2020.
- TCS has planned to come up with Centre on Aerospace and Defence Vertical at Technocity
- Suntech has started their campus at Technocity with 3.1 lakh square feet IT building in March 2020 with an investment of ₹200 crore expecting to provide employment to 2500 people.
- IIITM-K has started their initial building consisting of management building and hostel in their 10.33 acres of land.

Technopark Kollam

Government of Kerala has transferred 18 hectare of land to M/s Kerala State IT Infrastructure Ltd. Out of this, 10 per cent of land will be given to Technopark for the operation and maintenance of Kollam Technopark. The world class 1,00,000 square feet IT building Ashtamudi is completed. Water distribution system inside the campus including a pump house, overhead water tank and arterial road works are completed. The streetlights in the campus are fully solar based. It is expected to provide 800 employment by the next 2 years. Smart Business Centre is operational and 20 companies are working from there.

Achievements/Awards to Companies Working in Technopark

- Allianz Technology India and Allianz Services India are among 100 best companies for women in India, recognised by Working Mother Media, a division of Bonnier Corporation.
- Allianz Services India awarded as 'Great place to Work', certified by Great Place to Work Institute, India
- H&R Block got great place to work certified.
- UST Global has bagged the 'Best Innovation in Employee Engagement' award at the Employee Engagement Summit 2020 by UBS Forums.
- Technopark has won 'Kerala State Renewable Energy Award 2018' in the category of Public Institutions.
- Allianz Services India is listed among the Top 20 companies which are recognised as the 'Most Admired' shared services organisations (SSOs) in the world for 2019.

INFOPARK

Infopark, Kochi is the second largest IT hub in Kerala with spokes at Cherthala and Thrissur. The objective of Infopark is creation of state-of-the-art infrastructure facilities such as space for IT/ITeS companies, supply of power, water and connectivity. Since its inception in 2004, Infopark and its co-developers created 9 million square feet built up space and have provided employment to over 47,000 IT Professionals through 427 IT companies who have taken space in its Parks. The export figures in 2018-19 was ₹4500 crore and in 2019-20, it is approximately ₹5,200 crore.

Table 5.1.4 Land available with Infopark, in acre

Phases	Kochi Phase I	Kochi Phase II	Thrissur	Cherthala	TBC, Kaloor
Area	100.86	125	30	66	30000 square feet of built up space under the lease of KSITM owned by GCDA

Source: Infopark

Table 5.1.5 Physical performance of Infopark

Particulars	Achievements 2016-17	Achievements 2017-18	Achievements 2018-19	Achievements 2019-20
Total turnover (in ₹ crore.)	3,200	4,013	6,606.75	7,200*
Total Employment (Nos)	33,116	37,000	40,000	47,000
No of Companies (Nos)	298	396	392	427
Total land (Acres)	323	323	323	323
Total built up space (million square feet).	66	8.0	9.0	9.0

Source: Infopark

Note:* Figure is tentative

Land Available with Infopark

Infopark has 5 campuses which is spread over 323 acres under various phases of development. The details of extent of land in its 5 campuses are shown in **Table 5.1.4**.

The physical achievements of Infopark are furnished in **Appendix 5.1.4**. The major physical performance of Infopark for the last 4 years is given in **Table 5.1.5**

Major Achievements of Infopark in 2019-20

- Completed works of multilevel car parking with 7 floors (G 6) and facility for parking 450 cars in Phase 2 campus.
- Settled LAR liability in connection with Phase II land acquisition as per court order thereby saving interest cost.
- Commissioned 500 kwP solar power plant. This can generate around 4 lakhs units per year, thereby a saving of around ₹24 lakh per year in electricity bill.
- Completed refurbishment of around 17000 square feet space in Thapasya building and companies commenced functioning, there by created 300 employment opportunities
- The total employee strength increased to 47,000. In 2018-19 it was 40,000.
- The number of IT companies increased to 427. In 2018-19, it was 392.
- New IT building by M/s Claysys group

completed and occupied.

- Total export revenue increased to ₹5,200 crore. In 2018-19, it was ₹4,700 crore

CYBERPARK

Cyberpark was established on the lines of Technopark in Trivandrum and Infopark in Kochi based on a hub and spoke model. It was set up to bridge the IT infrastructure gap along the west coast starting from Kochi to Kasaragod. The objective of Cyberpark is to provide cost effective and top of the line infrastructure to the IT/ITeS investors and thereby encouraging, promoting and boosting the export of software and software services and creating employment opportunities in Malabar region. It is the responsibility of Cyberpark to interface between Government and Industry interact with potential investors, strengthening the IT/ITeS base, holding promotional campaigns, developing human resources for IT and ITeS. Kerala State IT Infrastructure Limited (KSITIL) holds the ownership of the entire area of 43 acres of land at Kozhikode Cyberpark.

The major achievements of Cyber Park are shown below.

- Cyberpark in association with Internet and Mobile Association of India (IAMAI) has developed App incubation hub, first of its kind in Kerala.
- Created a Centre of Excellence for mobile incubation hub in Cyberpark

Table 5.1.6 Physical performance of Cyberpark

Particulars	2016-17	2017-18	2018-19	2019-20
Total turnover (₹ crore)	6.65	10.68	16.78	4.57
Total export (₹ crore)	6.65	10.68	14.95	29.292
Total investment (₹ crore)	0.85	2.39	3.12	3.12
Total Employment (Nos)	112	266	558	748
No of Companies (Nos)	8	13	23	46
Total land (acres)	42.49	43	43	43
Total built up space (lakh square feet)	2.88	3.0	3.0	3.0

Source: Cyberpark

- Forty one IT companies are operational in SEZ
- Thirty four startup companies are operational in the mobile incubation hub in Non SEZ providing employment to 127 persons.
- Created around 570 direct employment in the campus
- In 2019-20, total investment of ₹3.12 crore with a total turnover of ₹4.57 crore
- Export revenues have been increased to ₹17 crore.
- The leasing out of IT spaces in the existing IT building of 2.88 lakh square feet are actively going on.

The physical achievements of Cyberpark are given in **Appendix 5.1.5**. The major physical performance of cyberpark for the last 4 years is given **Table 5.1.6**

KERALA STATE IT INFRASTRUCTURE LTD (KSITIL)

KSITIL is a public limited company formed for the creation of the infrastructure for IT/ITeS in the State. The company leverages the valuable land assets owned by the Government and through viable financial models, generates funds for building the IT Infrastructure in the State in a Private Public Participation model.

The business model of the company is to acquire land and develop basic infrastructure facilities

like electricity, water, road and compound wall in the area, obtain SEZ status and other such Government approvals that may be required and then allot land to private developers for development of either IT SEZ or IT parks. Some of the highlighted projects of KSITIL are as follows:

1. Skill Delivery Project, Kerala: SDPK is a prestigious project assigned to KSITIL by Government of Kerala. The objective of the project is to bridge the gap between students and industry. SDPK consists of a virtual platform with teleconferencing system being installed in all the 150 engineering colleges and 3 studios, which are being setup as part of the project. System Integration works in 74 class rooms across Kerala and 3 studios in Technopark, Infopark and NIT Calicut has been completed.

2. Kerala Fibre Optic Network (KFON): KFON, a State-wide optical fibre network capable of providing high-speed internet connectivity to about 30,000 Government and educational institutions (Track 1), offer free internet to 20 lakh economically backward families and internet services at a lower rate for others (Track 2). Government has accorded Administrative Sanction for the implementation of K-FON project for an estimated cost of ₹1028.20 crore. Later, revised Administrative Sanction was issued for an estimated cost of ₹1548.08 crore. It has been decided to implement Track 1

with KIIFB assistance. A new joint venture company (KFON Limited) was formed in the share holding pattern of 49:49:2 in favour of KSEBL, KSITIL and GoK as the SPV for the project.

3. Construction of IT building at Technocity:

As part of development of Technocity, GoK has decided to construct the first IT building at Technocity with a built up area of 2 lakh square feet. For this, KSITIL is assigned as SPV and the funding agency is KIIFB. The total project cost is ₹ 105 crore. The entire project is expected to be completed in December 2020.

4. Building 1 at Technology Innovation Zone, Kalamassery:

As part of creating a startup ecosystem in Kerala, Government has announced the construction of 3.4 lakh square feet building at Kochi Innovation Zone. Accordingly, Government has accorded Administrative Sanction for ₹215.26 crore with financial assistance from KIIFB. KSITIL is designated as the SPV for the execution of the project. The works includes construction of three buildings and associated supporting infrastructure works. The first building is expected to be completed by December 2020 and second building by March 2021.

5. Village Knowledge Centres works at Dharmadam LAC and Thalipparambu LAC:

KSITIL was engaged as the implementing agency for the construction of Village Knowledge Centres at Kannur. Total estimated cost was ₹5.61 crore. NABARD has sanctioned a loan of ₹5.33 crore. The work involves the construction of Village Knowledge Centre buildings using GFRG panel in 15 panchayat locations. The entire work is expected to be completed in March 2021.

6. KSITIL has been designated as the execution agency for all construction and connectivity activities under Electronics and Information Technology Department.

INTERNATIONAL CENTRE FOR FREE AND OPEN SOURCE SOFTWARE (ICFOSS)

Government of Kerala established ICFOSS as an international centre in collaboration with Free Software Organisations in India and abroad to promote development and application of free software and free knowledge. It is a nodal agency in all matters relating to free and open source software including consultancy, research and development, academics, studies and service, training, publishing, certification, international co-operation and collaboration. ICFOSS has carried out many FOSS-based training programmes, workshops, seminars, research programmes, projects, Malayalam computing activities, student internships and projects, summer camps, faculty development programmes, and fellowship programmes. The major achievements of ICFOSS in 2019-20 are the following:

- Completed first phase of Malayalam screen reader for visually challenged with DTE
- Conducted 5 women Hackathon sessions, 1 Winter School for Women, 2 Back to Work programme and 2 Faculty Development Programme.
- Hardware team conducted international workshops and conducted 2 summer camps for school students
- Designed a localised version of Tablexia, a modern educational application aiming to support the development of cognitive abilities, primarily for children with disabilities.
- Completed Gcompris Malayalam Website and Malayalam audio to Gcompris applications project work.
- Under fellowship programme, 8 out of 15 fellows joined ICFOSS and they are engaged in different research projects.
- Completed integration and functional testing of already implemented functionalities and completed installation and setting up iDempire.
- Developed a first level prototype having the

features for creating, modifying, transferring and closing an office file.

- Conducted training on “LoRaWAN and RISC-V for IoT” at CET and Summer School on IoT
- Conducted workshop on “LoRa In a Box” at Science Hack Day 2019, organised 2 day bootcamp on “creating a RISC-V Microcontroller using Chisel”, conducted workshop on “RISC-V CPU Design using Chisel” at TrEst Research Park.
- FOSS cell co-ordinators meet up has been conducted and 45 co-ordinators attended.
- Conducted one day workshop on product development using FreeCAD, at different colleges at 12 districts.

KERALA STARTUP MISSION (KSUM)

Kerala Startup Mission (KSUM) is the nodal agency of Government of Kerala for implementing the entrepreneurship development and incubation activities in the State. Kerala Startup Mission, formerly known as ‘Technopark Technology Business Incubator’ is India’s first successful non-academic business incubator. It started operations in 2007.

The objective of the Mission is to identify and develop entrepreneurial talents among youth and students in Kerala, address the technology based entrepreneurship development requirements in the traditional sectors of Kerala, build appropriate training programmes suitable for Kerala’s socio-economic culture, identify market niche for technology products and services, interfacing and networking among academic, R&D institutions, industries and financial institutions and establishing a platform for speedy commercialisation of the technologies developed in the institutes to reach the end-users.

Since 2016, number of registered startups are 2200, employment generated are 20,400 numbers, more than 3.2 lakh square feet of incubation space, more than 230 Innovation and Entrepreneurship Development Cells (IEDC), all of which are evenly distributed across various districts and cities such as Kochi,

Trivandrum and Calicut. Many of these facilities also house advanced labs that focus on sectors such as hardware, biotechnology, electronics and advanced computing. Out of 2200 startups, 13 per cent were registered in the first three quarters in 2019 alone.

During the Plan Period 2017-20, there has been a substantial increase in number and quality of startups. The startups have increased from 300 to more than 2800. KSUM received international recognition as World #1 Public Business Accelerators in the world and national recognition as top performer (Top 3) in Government of India State startup ranking, 2019. There was a significant increase in infrastructure; over 4 lakh square feet incubation area and specialised incubators.

GoI had started the startup rankings to encourage states to create an environment that is conducive to the growth of entrepreneurs. As per the Nasscom report, Gujarat took the best performer ranking, while Karnataka and Kerala are top performers. Kerala has been recognised for its institutional support particularly to the women entrepreneurs and robust venture funding mechanism for the startups.

The number of startups in Kerala has increased even during the Covid-19 period. This is because of increase in return emigrants, the interest of youth in ventures and the quality of Government facilities offered for startups. In 2020, so far 399 startups have been registered in Kerala, showing a growth of 18 per cent over the last year. Currently among startups, Maharashtra tops with 5,477 active startups. Kerala is ninth with 1292 active startups.

In January 2019, KSUM launched the Integrated Start up Complex in Kochi, a sprawling complex, spread over 1.80 lakh square feet with dedicated facilities for various tech sectors. It also hosts

1. Maker Village – India’s largest electronic hardware incubator and ESDM facility
2. Bionest – State of the art biotechnology

- instrumentation platform to promote and develop new entrepreneurs
3. BRING – India’s first international accelerator for hardware startups
 4. BRIC – an incubator dedicated to developing solutions for cancer diagnosis and care
 5. Centre of Excellence established by UNITY and CERA

The startup companies at Maker Village, which is the largest exclusive hardware incubator in the country, are developing state-of-the-art hardware electronic products in divergent areas namely, automation, robotics, drones, Internet of Things, autonomous vehicles, biomedical instrumentation and energy management. Most of the startups are leveraging cutting edge technologies-machine learning, Artificial Intelligence, Augmented Reality/Virtual Reality to make their products innovative and globally competitive.

Technology Innovation Zone is the global innovation incubator hub for many technology sectors. TIZ will create world class infrastructure facilities for multi sector technology incubators to incubate their startups and to support home grown enterprises. TIZ is being established in the 13.2 acres of land at KINFRA Hitech Park, Kalamassery. The Zone comprises of built-up

start up modules, high end fabrication labs, R&D lab facilities, commercial office spaces, dormitories, SOHOs, malls. TIZ will create a total built up area of approximately 5 lakh square feet facilities. The infrastructure for TIZ will be built in different Phases. Currently the Phase I is operational.

KSUM has collaborations with Government, PSUs and corporates to enable and empower startups and youth with opportunities in the tech industry and the digital economy.

Major Events

Huddle India is the focal point for startups and tech talent as well as top-tier investors, executives and media. The conference features stage programmes, side-events such as networking sessions, round table discussions and facilitates workshops to help startups connect with the right investors and corporates. The philosophy behind Huddle India is to help the next-generation world-conquering startups come forward and succeed. Huddle primarily focuses on emerging sectors such as blockchain, crypto currency, IoT, gaming and e sports, cyber security, digital entertainment, AR/VR, AI, UI/UX and e-governance.

Table 5.1.7 Major physical achievements of KSUM

Sl No	Particulars	Achievements 2017-18	Achievements 2018-19	Achievements 2019-20
1	Number of tech startups in Ecosystem	800	1500	2500
2	Incubators / Accelerators (nos)	8	13	13
3	Value creation (₹ crore)	28000	50000	100000
4	Employment creation (no)	10000	15000	25000
5	External investment (₹ crore)	280	500	1500
6	Ranking of Ecosystem	Top 5 (Top performer by GoI)		Top performer as per 2019 ranking
7	Startups from other parts of India (nos)	20	30	30
8	Incubation Space (lakh sq.ft)	150500	315,500	400263

Source: KSUM

Seeding Kerala: It's a two-day investor-focussed event.

Meetup Café is the place for startups, industries, institutions and investors to come together, share their knowledge and develop a community whose focus is the overall development of the ecosystem. The café is developed as a mentorship and investment centre for startups across the state, as well as a one-stop centre for all technology awareness. Meetup Cafe is hosted every month in the three cities of Kerala namely Thiruvananthapuram, Kochi, and Kozhikode.

Investor café is an opportunity for startups looking for funds to connect with investors and get funded.

Women Startup Summit is a KSUM initiative to encourage aspiring women professionals to take up the entrepreneurial journey and develop an inclusive entrepreneurship ecosystem in Kerala.

Major physical achievements of KSUM for the last 3 years are given in **Table 5.1.7**

Achievements of KSUM in 2019-20

- Conducted IEDC Summit 2019. Over 4000 students from 226 academic IEDCs across 14 districts of Kerala had attended the summit.
- Established Super Fab Lab at Kochi in association with MIT, which is the 1st of its kind in the Country.
- Set up an Incubator and Mini Fab Lab at the Polytechnic College, Palakkad.
- Organised 5th edition Seeding Kerala 2020 in Kochi. The Summit was attended by a select cohort of 150 Investors and HNIs and is the flagship event for the Angel Investor Community in the State.
- Conducted Huddle Kerala 2019. Kerala Startup Mission (KSUM) has signed Memorandum of Understanding with Oppo, Future Group, Wadhvani Foundation and Orbit.
- Conducted Women Startup Summit 2019, an event with an aim to promote women entrepreneurship
- Conducted K-WINS Workshop, a programme that aims to enable qualified women who are on a career break (or not under full-time employment) to take up flexible freelance assignments. 55 women who took a career break participated in this programme.
- Supported 6 startups and 2 students for obtaining 9 Indian patents and 7 International patents under Patent Support Scheme
- Disbursed Seed Loans to 18 Startups in 2019-20
- Organised Inspire'19, an IEDC zonal meet by Kerala Startup Mission and about 720 students from various districts attended the program
- Organised second edition of Fail Fast or Succeed on February 1, 2020. Third edition on Fail Fast or Succeed was online because of Covid-19 pandemic on March 12, 2020
- Conducted ISBACON 2019, the biggest gathering of startup incubators in India and organised Biotech Boot camp 2019
- Establishment of Technology Innovation Zone at Kalamassery, Kochi is in progress
- Organised InQ Innovation hackathon – As many as 18 teams took part in the InQ Innovation hackathon organised jointly by Incubate IND and KSUM
- Organised Entrepreneurship Development program with the proactive support of C-DAC
- Hosted Global South Tech 1st meet at Kochi on January 30, 2020
- Hatch 2020 – Investor Education Programme-Organised an Investor education programme to encourage the professional community to angel invest into startups
- Seven startups under KSUM took part in the Innovfest Unbound in Singapore
- Accelerator Programs like K-Accelerator Program, BRINC Hardware Accelerator Program, LogX: Logistics Accelerator running successfully
- Conducted IGNITE Angel Investment master class, an education programme to create awareness about angel investing in startups and 27 startups attended the programme.

CENTRE FOR DEVELOPMENT OF IMAGING TECHNOLOGY (C-DIT)

C-DIT has been functioning as an Information and Communication Technologies (ICT) solutions provider in the Government sector. The major programmes undertaken by C-DIT are:

- Carried out Hologram embedded Tax Label Production for Kerala State Beverages Corporation for affixing in Indian Made Foreign Liquor bottles. Besides, hologram embedded security documents such as RC Book, driving license were also supplied to Motor Vehicles Department.
- The Security Design Lab set up at Lottery Directorate for the designing of lottery tickets incorporating security features, security forensic for preventing counterfeit is being managed by the technical support of C-DIT.
- As a cross border security measure, the project of fixing high security-registration boards for sea going vessels have been taken up for the Fisheries Department
- Successfully carried out Facility Management System for all the RT offices under MVD Vehicles Department
- Completed digitisation of documents in Sub Registrar Offices in six districts. Besides, completed digitisation of old Registration Cards in Employment Directorate, Digitisation of Palm leaves and archaeological documents in Sree Padmanabhaswami Temple
- Completed Online examination Software for Entrance Examination Commissionerate, fare value application software for Registration Department, online payment gateway system for Registration Department and Kerala State Chalachithra Academy, Recruitment Management System for SIMET, e-monit system for Irrigation Department, WINGS project for Public Works Department, e-suraksha software for Social Security Mission.
- Carried out video documentation of 112 Local Self Government Institutions for the Chief Minister's Award instituted by Haritha Keralam Mission. Completed documentation of agriculture initiatives in 18 Co-operative Banks, video documentation of various activities of Haritha Keralam Mission, video documentary and advertisement film for the Transgender community, advertisement films for Lottery Department, video documentation of best practices in waste management in 8 LSGDs for Suchitwa Mission, production of corporate video for Kerala State Housing Board, animation logo production for Kerala Bank, video documentation of Marad Flat demolition and awareness video on cleaning staff in Trivandrum Corporation
- Facilitated Nammal Namukkai under Rebuild Kerala Initiative and Transgender Advocacy Campaign. Creative support for the Break the Chain Campaign to prevent spread of Covid-19 pandemic
- Animation Video Production series for Sampushtakeralam for Women and Child Development Department, Navakeralam weekly television show, Sign Language bulletin, TV news monitoring project, Social Medial Campaign of Haritha Keralam Mission, Rebuild Kerala Initiative, GST, Food Safety Commissionerate, Suchitwa Mission, Arogyakeralam, Live Streaming of various programmes of Chief Minister and other Ministers, Technical support for the various projects of KIIFB, K-DISK, KSFE Pravasi Chitty and technical facilitation of Chief Minister's Public Grievance Redressal System are the major other projects of C-DIT.
- Creative support and technical facilitation of Break the Chain Campaign for Kerala Social Security Mission, 'Koodu' the portal for the Covid-19 affected patients, Technical Support for the creation of lessons for preschool learning titled 'Kilikonchal', tutorial video for the Samoohika Sannadha Sena are the major other projects of C-DIT in 2020-21.

WAY FORWARD

To stay competitive as an IT destination, the IT sector in Kerala must significantly enhance the value addition it brings to the State economy. It must attract investment in emerging areas in the IT sector and not rely solely on established IT/ITES activities. As the Indian IT sector as a whole grapples with issues of the changing focus and emerging issues within the global IT sector, Kerala must also keep pace with these changes. At the same time, the considerable advances that have been made in the digital empowerment of the population and the spread of IT awareness and use must continue to be built upon and developed with further investment in appropriate infrastructure that will continue to serve the State's needs over a period of time and not risk early obsolescence.

Though information technology infrastructure sector has achieved a remarkable progress in the State in the hub and spoke model, a proper unified mechanism has to be evolved for the integration of the sector. Education enabled ICT, research and development and innovations need to be identified and promoted to strengthen the State's economy. Our leap forward in IT related areas is dependent on attracting substantial investment in this sector and identifying and promoting young entrepreneurs through startups.

CONCLUSION

Even though Kerala has achieved remarkable progress in creating infrastructure for IT sector and generated employment opportunities during the last five year plans; the State lags behind in creating research and development infrastructure for establishing a knowledge economy. In the coming years, the State shall focus on developing competitive advantages in new avenues of IT. ICT enabled education, research and development and innovations in the sector needs to be identified and promoted to strengthen the State economy. Moreover, the thrust of Government in infrastructure development, human resource development and overall economic development will open up large opportunities for the meaningful use of Information Technology.

5.2 SCIENTIFIC SERVICES AND RESEARCH

Science and technology institutions have an important role to play in every society for the promotion of excellence in science and technology through learning, research and development with the participation of academia, industry and research organisations and to benefit society through interventions for the improvement of infrastructure, livelihood, amenities and environment, thereby realising sustainable development and constantly enhancing the quality of life.

The Department of Science and Technology (DST), Government of India is the nodal department to promote new areas of Science and Technology (S&T) and to strengthen national capacity in science, technology and innovation. The department provides research and development support to scientists of various institutions and disciplines to strengthen national S&T capacity and capabilities. It also supports implementation of several planned initiatives focused on enabling the Indian S&T community to increase its scientific and technological output in both quality and quantity.

The Department of Science and Technology, Government of Kerala plays the key role in promotion of science and technology in the State. The department helps to identify and implement programmes to achieve excellence in various branches of science and technology and to promote sustainable development through the application of science and technology.

The State of Kerala has been a pioneer in such State-level efforts, alongside the role of the Central Government. The mission of the State's Department of Science and Technology includes capacity building within the academic and research institutions in the State, carrying out research and development of specific relevance to the State through R&D centres, identification and facilitation of projects and programmes in the biotechnology sector, conservation and sustainable use of biological resources, augmentation of laboratory and scientific infrastructure in educational institutions and research centres, nurturing young talents and promoting them to take up projects, activities, research and development in the field of science and technology, promoting innovation at the grass root level and development of rural technology for the benefit of the masses, development of incubators for translational research, technology transfer and pilot scale development of industrial applications and promoting high priority areas in research, conservation, protection and management of physical environment and ecosystems, through R&D and management action plans. Various schemes and programmes implemented in the sector contribute to enhancing the capabilities of researchers to improve the quality of their research output while motivating talented students and youth to undertake higher studies and research in science.

In the last two years, two outstanding developments towards excellence in S&T deserve special mention. The first is the scaling up of the activities of the Kerala School of Mathematics (KSoM) through initiation of an integrated M.Sc/Ph.D. programme as well as strengthening the post-doctoral scholars recruitment. These, together with the planned national and international conferences, should enable the KSoM to progress to being one of the front-rank mathematical institutions in the country. The second is the initiation of the activities of the Institute of Advanced Virology, Thiruvananthapuram that is a world-class institution in the making. The relevance of such an institution to Kerala and the nation as a whole cannot be sufficiently emphasised especially in the background of the Covid-19 pandemic and the new relevance of emerging zoonotic diseases. Apart from these, the various scientific institutions under the KSCSTE have actively contributed to the State's efforts to deal with the number of natural calamities and disasters that have visited the State in the last three years.

The two major institutions in the Science and Technology sector in the State are the Kerala State Council for Science, Technology and Environment (KSCSTE) and the Regional Cancer Centre (RCC), Thiruvananthapuram.

I. Kerala State Council for Science, Technology and Environment (KSCSTE)

KSCSTE is an autonomous body under the Department of Science and Technology, GoK. It is governed by the State Council (SC) with the Chief Minister of Kerala as the President and an Executive Council (EC), chaired by the Executive Vice President of KSCSTE. Presently, there are seven full-fledged Research and Development (R&D) centres, two emerging research centres and three grant-in-aid institutions under the umbrella of KSCSTE.

The main objective of KSCSTE is to plan and formulate science, technology and innovation

policy pertaining to the development of the State. The council promotes and activates programmes for increasing the stock of knowledge in science, and fine tunes policies which are significant and for the sustained development of humanity. The council prepares the road map for development through scientific research and innovation in technologies.

(a) R&D centres under KSCSTE

The KSCSTE also drives the research and development efforts of the R&D Centres and offers assistance for the creation of physical infrastructure and procurement of scientific infrastructure through development and selective augmentation of R&D activities. There are seven R&D centres under the Council which conduct research and development activities in specific mandated domains. They are: Kerala Forest Research Institute (KFRI), National Transportation Planning and Research Centre (NATPAC), Centre for Water Resources Development and Management (CWRDM), Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Kerala School of Mathematics (KSoM), Srinivasa Ramanujan Institute for Basic Sciences (SRIBS) and Malabar Botanical Garden and Institute for Plant Sciences (MBGIPS).

(b) Schemes and Programmes of KSCSTE

The schemes and programmes of the Council are aimed at the development of high quality science education system in the State. With a view to identify and implement programmes to achieve excellence in S&T within the State and to provide service to the society at large, the Council is implementing various schemes and programmes focusing science popularisation and promotion, research and development, ecology and environment, technology development and transfer, biotechnology development, school level promotional activities and science programmes for women.

Box 5.2.1 Achievements of R&D Centres

KFRI – Envisioned as a centre of excellence in tropical forestry to provide scientific support for decision making on matters related to forestry, with particular emphasis on conservation, sustainable utilisation and scientific management of natural resources. Working in collaboration with the forest department and other stakeholders, the institute continues to play a key role in improving the science foundation of forest management.

- Initiated research programmes towards restoration of landscapes affected by floods and landslides.
- Assessed landslide vulnerability of forest systems.
- Conducted historical review of ecological and development trajectory of various sectors in high ranges of southern western ghats.
- Established permanent monitoring plots in all forest types for providing information on climate change.

CWRDM – A premier R&D institution in the water sector under KSCSTE. It provides research inputs for water resources development and management, especially in the humid tropic areas and has expertise in tackling different problems pertaining to watershed development, wetland management, water management for agriculture, forest and urban hydrology, estuarine management, groundwater development, water quality management, water related environmental issues and irrigation and drainage issues. Presently, CWRDM has 9 scientific divisions and 3 sub-centres.

- Developed spectral library for different paddy varieties of Kerala.
- Conducted tracer study on origin of suspected contamination of well water in Kannur.
- Completed study on analysis of climatic parameters in Kozhikode.
- Identified community based water supply schemes in different local bodies with the objective of evaluation of impact of such schemes in the State.
- Developed regional flood frequency model for the west flowing rivers of Kerala.
- Published 35 papers in refereed journals, 2 books, 30 papers in conferences, produced 5 Ph.Ds, 21 research and 3 technical human power were trained and organised 8 scientific meet/conferences.

NATPAC – NATPAC undertakes research and consultancy works in the fields of traffic engineering and transportation planning, highway engineering, public transport system, alternate options for transport system, transport energy, inland water transport, tourism planning and rural roads. It is the only R&D centre in the country which works on all modes of transport. The activities of NATPAC range from surveying to preparation of techno economic studies, feasibility analysis, detailed project reports for infrastructure development projects involving multi-modal system of transportation covering road, rail, water, ports/harbours and airports.

- Carried out 31 research/19 consultancy projects and 5 need based/innovative studies.
- Prepared Traffic Operation Plan for NH66 Bypass.
- Conducted traffic safety awareness programmes on 80 km safe corridor demonstration programme by Kerala State Transport Project and World Bank.
- Published 22 journal and 16 seminar papers.

JNTBGRI – Undertakes research programmes for the sustainable utilisation of resources. The institute is currently conserving more than 4000 species of flowering plants and about 300 species of non-flowering angiosperms, which is the highest number of plant species conserved among the botanic gardens in Asia. The institute has an extension centre namely, Saraswathy Thangavelu Centre at Puthenthope, Thiruvananthapuram where the Bioinformatics Centre is established. The GoI has recognised the JNTBGRI as a national centre of excellence.

- Discovered an anti-viral molecule from one medicinal plant with significant activity against Chikungunya virus.
- Developed Antidiabetic molecules from a ficus species.
- Conducted self employment training on quality planting materials
- Established mango research station at JNTBGRI.
- Conducted ethnomedical survey and systematic documentation of traditional knowledge in 7 grama panchayats
- Published 10 journal papers, awarded 7 Ph.Ds and number of externally funded projects were undertaken.

KSoM – A joint venture between KSCSTE, GoK and Department of Atomic Energy (DAE), GoI for carrying out advanced learning and research in Mathematics. .

- Imparted training for maths olympiad and maths talent search
- Organised summer/refresher courses and orientation programmes for college teachers
- Initiated an integrated M.Sc/Ph.D programme with recognition from the University of Calicut.
- Strengthening of post-doctoral research programme aimed at having 10 world class scholars at work at any point of time.
- Regular national and international meetings and conferences of high quality and excellence.

MBGIPS – An institution dedicated to the conservation and research on aquatic plant diversity, lower group plants, endangered plants of the erstwhile Malabar Region, as well as disseminating knowledge on various facets of plant sciences.

- Plan database digitization
- Recorded 1632 entries in Plan database

SRIBS - A capacity building institute envisaged for research, teaching and learning in basic science

- Organised colloquia, seminars for students, teachers and researchers in various areas of science

Achievements of Schemes and Programmes of KSCSTE

1. Human Resource Development in Science and Technology

i. Science Research Scheme (SRS)

It is one of the flagship activities of the Council operating under the Science and Technology Promotion Division (STDP) of the Council. SRS aims towards the promotion of R&D activities in the State both in fundamental and applied research. Under the scheme, research projects in emerging areas of science and engineering are supported by providing financial assistance for implementation. Research projects are supported in University departments, colleges and R&D institutions. In 2019-20, 7 new projects were granted, and 5 patents filed, 145 papers in

refereed journals and 94 papers in conference/seminars were published, trained 346 technical and 144 research man human, conducted 39 outreach programmes and 6 books were published from supported projects under this programme.

As part of the programme, a regional fungal herbarium which comprises approximately 500 specimens with great emphasis on plant pathogens and microfungi collected from many parts of Kerala with bibliographic citations was established.

ii. KSCSTE Emeritus Scientist Scheme

The objective of the scheme is to tap knowledge and to provide support to superannuated outstanding scientists to pursue research in their respective field of specialisation and to

utilise their talent and experience in addressing important issues at the State level. In 2019-20, 20 conference/seminars were conducted, 16 papers were published in refereed journals from supported projects under the programme and 1 PhD was awarded.

iii. Student Project

Under this project, financial support is being given to the students of University departments and colleges in the State to conduct scientific projects. In 2019-20, 505 projects were sanctioned in subjects ranging from pharmaceuticals, ayurveda, physics, chemistry, geology, optoelectronics, microbiology, zoology, botany, health sciences and different fields of engineering.

iv. Scheme for Promotion of Young Talents in Science (SPYTis)

The programme is for giving awards for the students of Class VIII-IX for doing a science project (SPYTis I) and for giving financial assistance to those students who have innovative ideas in science and technology and enrolled in polytechnic colleges and undergraduate courses in colleges for conducting projects (SPYTis II). In the year 2019-20, projects were based on themes such as organic farming, lifestyle diseases, water pollution and energy/environmental conservation.

v. Crafting Young Scientists for Tomorrow (CRYSTAL)

CRYSTAL is the programme to identify students' talents in science at an early age and nurturing them and the target group is State level winners of National Science Congress. In 2019-20, training was provided to students at different R&D institutions of the State.

vi. KSCSTE Research Fellowships

In 2019-20, 10 PhDs were awarded under the programme and number of publications is 52.

vii. KSCSTE Post Doctoral Fellowship

With the objective of attracting doctorate holders to remain in Science and Technology, to motivate

PhD holders to pursue research and to develop career as scientists, to motivate fellowship recipients and impart the skills needed for them to become lifelong learners and to develop technical and leadership skills, KSCSTE gives post doctoral fellowships. One patent filed, 15 papers in refereed journals and 20 papers in Conference/Seminars were published under the programme in 2019-20.

2. Technology Development and Transfer

i. Engineering and Technology Programmes (ETP)

ETP intends to encourage and promote research talents for the implementation of high quality research projects in the emerging areas of Engineering and Technology. The scheme is instituted for the faculty of engineering colleges and scientists of R&D institutions in the State. In 2019-20, patent was filed and 5 Ph.Ds were awarded, published one book, 30 papers in journals and 55 conference papers under the programme.

ii. Rural Technology Programme (RTP)

RTP scheme is instituted for the purpose of providing assistance in the form of grants to promote and support the traditional rural technology and upgrade them, so that it could be perfected for wider applications and employment generations and to reduce the drudgery of the rural households. The main objectives of this scheme are to encourage and promote grass root innovators and individuals to support them so as to perfect their innovative ideas in rural technology sector and provide technical support to raise their innovations to an enterprise level. In 2019-20, one patent was filed, published 3 conference papers and 2 journal papers under the programme.

3. Biotechnology Development

The various programmes taken up for promoting biotechnology development include Young Investors Programme in Biotechnology,

Industry Linked Biotechnology Research Scheme, Biotechnology Innovations for Rural Development, Biotechnology Training and Workshop Programme, Post-Doctoral Fellowship, Biotechnology Young Entrepreneur Award, Kerala Biotechnology Re-entry Fellowships and Biotechnology Education Programme. In 2019-20, 14 papers were published in peer reviewed journals under this programme and number of books published was 2 and book chapters are 3. The number of technical human power trained were 7 and 6 outreach programmes were also conducted.

4. Ecology and Environmental Programmes

Programmes on ecology and environment focus on environmental conservation, pollution mitigation and awareness creation. In 2019-20, 5 papers were published, one Ph.D was awarded and environment management training was given to various institutions under various ecology and environment programmes. The number of human power trained is 20.

5. Support for Women in Science

In Kerala, though the State has the highest number of women literates, their representation at higher levels in science research is low. In order to provide a support system to attract and retain women and girls in science and encourage them to take up science as a career, the women scientists division at KSCSTE has initiated several schemes and programmes to increase their participation in science, technology, engineering, agriculture and medicine. These programmes facilitated re-entry of women taking a career break. The important programmes carried out by the Council in this area are as follows.

- i. Back to Lab Research Fellowship Programme – 3 back to lab projects were sanctioned under the programme in 2019-20. The total number of publication from the supported projects was 5, 3 awards were given and number of Ph.Ds. were 5.

- ii. Project on Preparation of database of 'Women in Science in Kerala'. – 114 registrations were made in the online directory which is developed for obtaining base-line data on the status of women in various sectors of Science in the State. The total number of registrations as on March 2019 is 3035.

6. Science Popularisation

Science Popularisation programmes of KSCSTE include Science Awards, Science Media Support, Documentation and Publication to promote science writing, Technology Festival (TECHFEST) conducted for engineering students from the State, NITs and IITs with the objective of providing opportunity to present and exhibit their inventions and innovations, Programmes related to observation of National Science Day and National Technology Day and Rural Innovators Meet (RIM) conducted for unorganised rural innovators and grass root innovators for exhibiting their products.

Kerala Young Scientists Awards were given to three scientists in 2019-20.

7. Infrastructure Development in Science and Technology

In order to provide sufficient infrastructure facilities in universities, colleges and schools for the promotion of scientific activities and augmenting research, the Council has been providing financial assistance for the creation of lab and related facilities in the institutions. Selective Augmentation of Research and Development (SARD) and Sastraposhini are the two schemes implemented by the Council for this purpose. SARD is envisaged to create facilities in colleges and Universities for augmenting research in specified areas. Under this programme, grants will be paid for strengthening the laboratory infrastructure by procuring equipment and also for its maintenance. So far, 72 science post graduate laboratories and research institutions

Box 5.2.2 Institute of Advanced Virology

The Institute of Advanced Virology established in 2019 in the Bio 360 Life Sciences Park, Thonnakkal, Thiruvananthapuram by the Government of Kerala is envisioned as an institute of global standard networking with other global virology institutes, with State-of-the-art laboratories focusing on research, diagnosis and management of emerging and re-emerging infectious viral diseases. Its vision is to harness the best and eliminate the worst of viruses for a better human life and to work as a centre of excellence in collaboration with international institutions for training and education in the context of research covering basic science and translational research, providing sufficient scientific inputs to enable the prevention and control of viral infections. Its mission is to develop State-of-the-art infrastructure, skilled scientific and technical personnel, and services and products in virology to serve local, national and global needs. The institute with a total project cost of ₹202.00 crore aims to work for industrial transfer/facilitation of technology and Kerala State Industrial Development Corporation will be a partner in providing land and infrastructure. The construction of the campus at Thonnakkal, Thiruvananthapuram, spread over 25 acres of land is in two phases, Phase I and Phase II consisting of Phase 1, A Prefab building (25,000 square feet) of 2 floors housing Administrative block, Bio labs, Common Instrumentation room, Bio-safety level facilities and Diagnostic facilities and Phase IB main building (78,000 square feet) of 3 floors with Administrative block, Bio labs, Bio safety level facilities and functional division.

The Institute of Advanced Virology has been virtually inaugurated in October 2020 and is affiliated to the Global Virus Network, which has 45 centres of excellence in over 29 countries. The clinical virology and viral diagnostics divisions became operational in the pre-fab building of 25,000 square feet in area.

in the State have been augmented. . Sastraposhini scheme aims to establish model science laboratories in physics, chemistry and biology to create a better ambience in high schools.

2. Regional Cancer Centre (RCC), Thiruvananthapuram

Globally, about 1 in 6 deaths is due to cancer. The disease was responsible for about 96 lakh deaths in 2019. Approximately, 70 per cent of the deaths from cancer occur in low and middle income countries. Tobacco use is the most important risk factor of the disease and is responsible for about 22 per cent of cancer death.

In India, estimated number of people living with cancer disease is around 22.7 lakh and total number of deaths in the country in 2018 was 7.84 lakh, of which 4.13 lakh were men and 3.71 lakh were women. Oral cancer is the most common cancer in the country among men which accounts for 16 per cent of all cancers and breast cancer is the most common type affect women that

accounts for 14 per cent of all cancers as 1 in 28 women is likely to develop breast cancer during her lifetime.

In Kerala, RCC, Thiruvananthapuram carries out innovative and pioneering work in cancer control, treatment, research and training. In 2019-20, a total number of 15,474 new cases and 2,67,349 review cases were registered in the centre. Of the new cases registered, 7,408 were male (48 per cent) and 8,056 were women (52 per cent). RCC, Thiruvananthapuram is one of the top rated comprehensive cancer centres in the country, with 350 bed capacity offering diagnostic and treatment facilities for cancer. Its main objective is to undertake basic, applied and statistical research in various specialities of oncology. It undertakes basic, translational and clinical research and disseminates knowledge.

It is rated amongst the top three of the 28 Regional Cancer Centres in the country and maintains a working relationship with international bodies such as the WHO,

Table 5.2.1 Profile of RCC in 2018-19 and 2019-20 at a glance

	2018-19	2019-20
New Cases Registered	15,627	15,474
Review Cases Registered	2,58,838	2,67,348
In-patient Admissions	11,568	11,397
Radiotherapy	7,071	6,499
Brachytherapy	1,766	1,616
Surgical Procedures	5,756	6,075
Endoscopic Procedures	2,969	2,719
Chemotherapy Administered	11,939	12,323
Bone Marrow Transplantations	37	33
Ongoing Research Projects	179	215

Source : Regional Cancer Centre, Thiruvananthapuram

International Agency for Research on Cancer (France), International Atomic Energy Agency (Vienna), National Cancer Institute (USA), Institute for Cancer Research (UK), University of Leeds (UK), Health Research Foundation (Japan) and a host of other reputed organisations.

Over the past thirty nine years, RCC has been able to contribute significantly to the increasing needs of cancer care of the people of the State of Kerala and adjoining areas of Tamil Nadu and Karnataka providing State-of-the-art diagnostic and treatment facilities at the lowest possible cost. In addition, RCC is committed to cancer control activities among the public, human resource generation in various specialities of oncology as well as cancer research expected to result in new treatments for cancer.

In addition to RCC, there are two other cancer

centres, namely, Malabar Cancer Centre and Cochin Cancer Research Centre. The details of these two centres are covered in the Health section of this Review.

RCC-Profile

The vision of RCC is to emerge as a global leader in cancer control. In 2019-20, 15,474 new cases were registered in RCC and the number of daily average patient visit was 892. Table 5.2.1 provides the profile of the RCC in 2018-19 and 2019-20.

Cases Registered in RCC

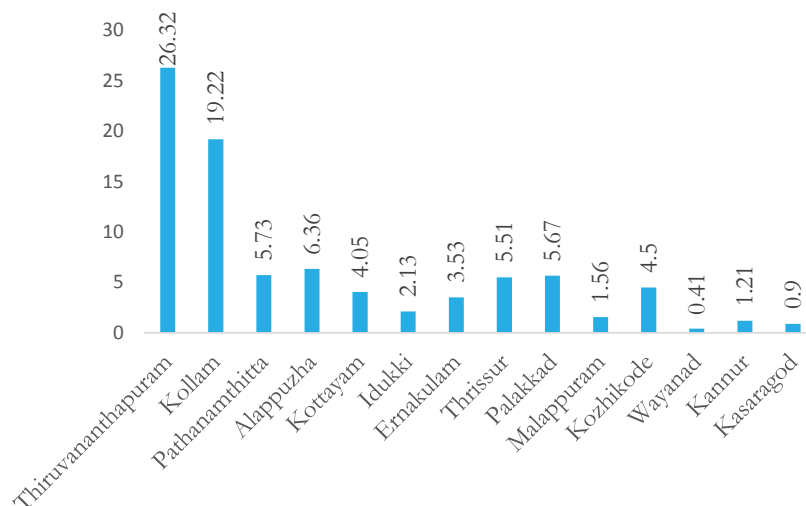
The details regarding cases registered in RCC during the last 10 years show that the number of new cases is increasing every year, till 2017-18. But during the last three years, the number is

Table 5.2.2 New cases registered in RCC during the last 5 years from 2015-16 to 2019-20

Year	No. of new cases registered
2015-16	16,042
2016-17	16,255
2017-18	16,443
2018-19	15,627
2019-20	15,474
Total	79,841

Source: Regional Cancer Centre, Thiruvananthapuram

Figure 5.2.1 New cases registered in 2019-20 District-wise, in per cent



Source: Regional Cancer Centre, Thiruvananthapuram

decreasing. The total number of registered cases during the period 2015-16 to 2019-20 is 79, 841. In 2019-20, 15,474 new cases were registered which was 0.97 per cent lower than previous year. In 2018-19, the number was 15, 627. New cases registered during the last 5 years are given in **Table 5.2.2**.

Out of the total 15,474 new cases registered in 2019-20, 13,482 cases (87 per cent) were reported from within the State and rest of the numbers were from other States and outside the country. Out of the total new cases, more numbers were reported from Thiruvananthapuram (26.32 per cent) and least

number from Wayanad (0.42 per cent). **Figure 5.2.1** represents number of new cases registered in the Districts of Kerala.

Cases Registered in Speciality Clinics

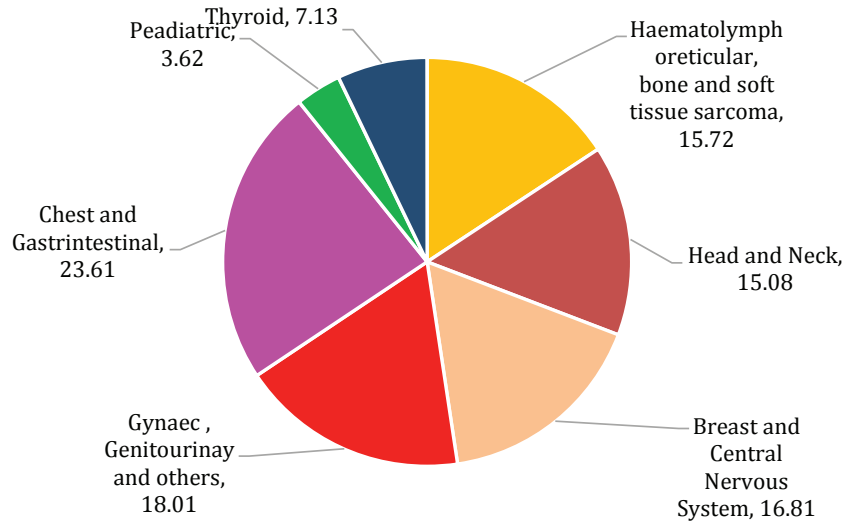
The highest per cent of new cancer cases registered were Chest and Gastrointestinal clinics(3,654 cases) in 2019-20 followed by Gynaec, Genitourinary and Others (2,788 cases) and Breast and Central Nervous System speciality clinic (2,601 cases). The lower number of cases were registered in Pediatric clinic (531 cases).The number of new cases registered in speciality clinics in 2018-19 and 2019-20 shown in **Table 5.2.3**.

Table 5.2.3 New cases registered in RCC in 2018-2019 and 2019-20, Speciality Clinic- wise

Sl. No	Clinic	2018-19	2019-20
1	Haematological, Lymphoreticular, bone and soft tissue sarcoma	2,382	2,432
2	Head and Neck	2,569	2,334
3	Breast and Central Nervous System	2,558	2,601
4	Gynaec, Genitourinary and Others	2,690	2,788
5	Chest and Gastrointestinal	3,763	3,654
6	Paediatric	537	561
7	Thyroid	1,128	1104
Total		15,627	15474

Source: Regional Cancer Centre, Thiruvananthapuram

Figure 5.2.2 Speciality clinic-wise number of new patients registered in 2019-20, in per cent



Source: Regional Cancer Centre, Thiruvananthapuram

Figure 5.2.2 gives the incidence of cancer to human body parts detailed as per cent of new patients registered in speciality clinics in 2019-20.

illustrates age and sex-wise new cancer patients registered for treatment in RCC in 2019-20.

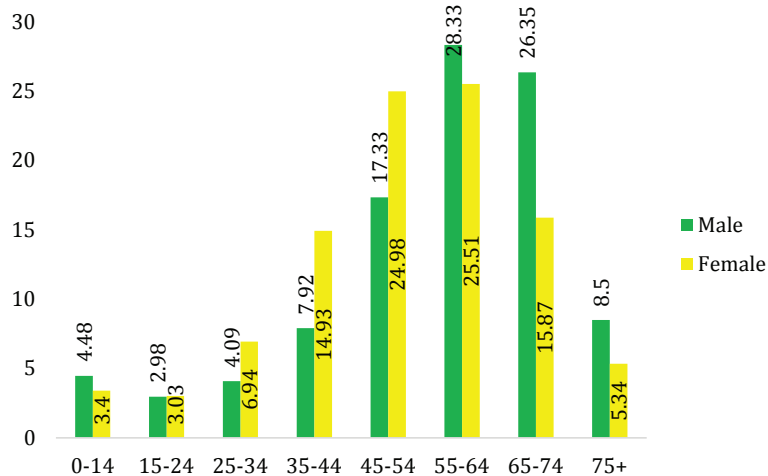
Cases Registered (Age and Gender-Wise)

Gender-Wise New Cases Registered in Speciality Clinics

The details of age and sex-wise number of new cases registered in 2019-20 reveals that people in the age group of 55-64 (26.86 per cent) are more prone to cancer diseases (28.33 per cent of male and 25.51 per cent of female). **Figure 5.2.3**

Out of the total male cases registered in 2019-20, about 34.57 per cent were registered in chest and gastrointestinal clinic. In the case of females, out of the total cases registered, 29.68 per cent were registered in breast and central nervous system clinic.

Figure 5.2.3 Age and gender-wise new cases registered in 2019-20



Source: Regional Cancer Centre, Thiruvananthapuram

Table 5.2.4 Number of cases referred to RCC in 2018-19 and 2019-20

Sl.No.	District	No. of cases referred	
		2018-19	2019-20
1	Thiruvananthapuram	4,013	4,073
2	Kollam	3,014	2,973
3	Pathanamthitta	830	886
4	Alappuzha	992	984
5	Kottayam	544	627
6	Idukki	323	330
7	Ernakulam	605	546
8	Thrissur	873	853
9	Palakkad	906	877
10	Malappuram	211	242
11	Kozhikode	751	697
12	Wayanad	72	63
13	Kannur	213	191
14	Kasaragod	140	140

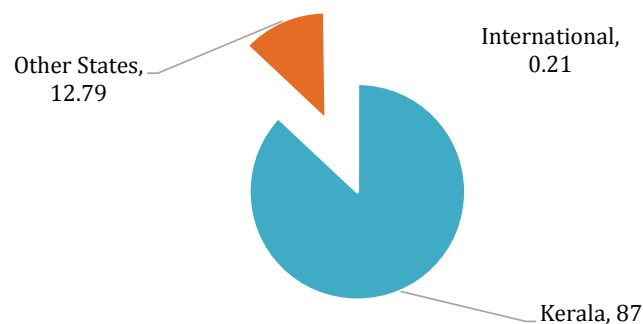
Source: Regional Cancer Centre, Thiruvananthapuram

Referral System

RCC is a tertiary level referral hospital and patients to which are referred from other Government and private hospitals. As in the previous year, most of the cases in 2019-20 were referred from Thiruvananthapuram (26.32 per cent) followed by Kollam (19.22 per cent) and the least number of cases were referred from Wayanad (0.41 per cent). The number of cases referred from Thiruvananthapuram in 2019-20 was 4,073 and 4,013 cases were referred in 2018-19. Details are given in **Table 5.2.4**.

In addition to this, 1,798 cases in 2019-20 were referred from Tamil Nadu, 11 from Karnataka, 12 from Lakshadweep and 138 from other Indian States and 33 persons from Maldives were also referred. In the previous year, the number of cases was 1924 from Tamil Nadu, 5 from Karnataka, 10 from Lakshadweep, 161 from other Indian States and 40 from Maldives. **Figure 5.2.4** presents number of referred cases from within the State, outside State and international cases in 2019-20.

Figure 5.2.4 Number of referred cases in 2019-20



Source: Regional Cancer Centre, Thiruvananthapuram

Table 5.2.5 Central and State Government schemes, 2018-19 and 2019-20

Scheme	Patients enrolled (new cases)		Total no. of people benefitted		Amount spent (in crore)	
	2018-19	2019-20	2018-19	2019-20	2018-19	2019-20
Central Government Schemes						
Prime Minister's Relief Fund	420	136	1,542	2056	3.44	1.11
Health Minister's Rashtriya Arogya Nidhi (RAN)			2,074	2,019		
Health Minister's Discretionary Fund	7		18	25	0.0011	
Health Minister's Cancer Patient Fund (HMCFP- CSR Scheme)	42	25	81	92	0.44	0.05
State Government Schemes						
Cancer Suraksha Scheme	472	500	5389	5,932	5.78	4.88
Chis Plus	7635	591	40780	41920	19.55	0.80
Karunya Benevolent Fund	6162	745	27686	24344	41.59	3.88
Sukrutham	175		8489	8607	2.07	
Thalolam	8	14	99	117	0.03	0.03
Scheduled Tribe Patient Fund	23	36	354	424	0.19	0.24
Snehasanthwanam for indosulfan Victim	10	1	53	61	0.07	0.01

Source: Regional Cancer Centre, Thiruvananthapuram

Central and State Government Schemes

Both Central and State Governments have initiated various schemes to ensure free or subsidised treatment for cancer patients. Details are given in **Table 5.2.5**.

Major Initiatives of RCC in 2019-20

In addition to the Government supported schemes, RCC provides support to patients and families through various other schemes as detailed below:

1. Free Drug Bank – The Free Drug Bank functions according to specific guidelines and is monitored by a committee constituted by the Director, RCC. The drug bank provided

full or partial help to 2344 patients during the reporting period and 3108 patients were supported during the previous year.

2. Free Food ('Akshayapathram') – Free food was provided to 5016 patients belonging to vulnerable socio-economic groups during the report period and 6923 patients in 2018-19 with the support of many philanthropic organisations.
3. Indian Cancer Society Support Scheme – RCC, along with four other cancer centres in the country had been receiving financial support from the Indian Cancer Society for treatment of cancer. In 2019-20, 27 patients received support through the scheme.

Human Resource Development

1. International School of Colposcopy – 30 doctors were given hands on training and 91 BSc (MLT) students and 15 nurses were given one day orientation programme on low cost Cervical Screening Strategies such as r VIA, VILI and Pap smear.
2. Trainer-Trainee Programmes – A total number of 1483 people were trained in 2019-20 through trainer-trainee programmes conducted for health care providers which included doctors, post graduate medical students and paramedical staff from governmental and non-governmental institutions, Community Volunteers like NSS and ASHA. In 2018-19, the number of people trained was 4,192.
3. House Surgeon's Training Programme – A total number of 67 house surgeons participated in the training programme for House Surgeons of Government Medical College and Government on cancer prevention and control.

Cancer Control Activities

Early cancer detection

In 2019-20, 4,909 persons attended the early cancer detection clinic of RCC. As a result, 391 cancers and 1392 pre-cancers were detected.

Cancer Outreach Programmes

A total number of 72 cancer detection camps were conducted in various parts of the State in which 5613 people underwent screening. Details are given in **Table 5.2.6**. A total number of 3,125 trainees were sensitised in cancer control through 31 cancer awareness programmes.

Apart from these, 20 camps were conducted as part of the bi-weekly cervical cancer detection clinic for the women residing at Mangalapuram in Thiruvananthapuram and of the 140 women screened, 1 cervical cancer, 10 cervical pre cancers and 13 HPV infections were detected. 86 tobacco users attended the Clinic for Tobacco Cessation.

Research and Development Activities

The RCC as a pioneer research institution in cancer research has produced several Ph.Ds in cancer research. In the year 2019-20, around 31 scholars were pursuing Ph.D., 34 residents undertook specialisation in medical, paediatric and surgical oncology super speciality courses and 42 residents undertook postgraduate courses in Anaesthesia, Pathology, Radio diagnosis and Radiotherapy in the centre. The number of on-going research projects is 215.

Integrated research with other systems of medicines published 85 articles, 22 book

Table 5.2.6 Details of Cancer detection through Camps

Sl. No	Type of Cancer	No. of Cases detected
1	Oral	12
2	Oral Pre – cancer	160
3	Breast	11
4	Cervical	1
5	Cervical pre-cancer	28
6	Other sites	3
7	HPV Infections	314
8	Benign breast lesions	341

Source: Regional Cancer Centre, Thiruvananthapuram

chapters/conference papers, one book and filed one patent.

32,191 microbiology investigations, 62,883 imaging, 72,006 nuclear medicine and 3,365 FISH and RT – PCR based diagnostic studies were also carried out.

RCC had received 30 awards/honours, of which 3 are international.

Infrastructure Development in RCC

i. Expansion of Physical infrastructure

The preliminary works of the construction of a State of the art building of 14 floors with 2.75 lakh square feet built up area hosting radiotherapy block, new Blood Bank, 10-bed Bone Marrow Transplant Unit, Modular Operation Theatres, 8-bed Nuclear Medicine Ward, Robotic Surgery Unit, Advanced Microbiology Laboratory, ICUs, Surgical and Medical Wards, Pay wards and hostels costing 18722 lakh has been started by RCC in a phased manner with the target of improved space for patient care facilities.

ii. Diagnostic and Treatment Facilities Added in 2019-20

- Inaugurated new casualty
- New facilities were added to various divisions such as Radiodiagnosis, Radiation Physics, Microbiology, Pathology, Anesthesia, Bone Marrow Transplantation Unit, Transfusion medicine, Surgical Oncology, new Casualty, research and information system division.

Covid-19 related activities

- Decentralisation of cancer care in all Districts through RCC trained doctors in District and Taluk hospitals
- Effective containment of Covid infection in RCC through formation of Covid monitoring cell
- Distribution of cancer drugs worth ₹47.00 lakh to patient homes through Kerala Fire Services.

Outlay and Expenditure of Science and Technology Sector

The details of outlay and expenditure of Science and Technology sector from 2015-16 to 2019-20 are given in **Table 5.2.7**.

Way Forward

The development of science and technology in the State faces important challenges despite the high levels of educational achievement, and the general awareness among the population on the importance of science. Major challenges in the sector are (i) need of rapid improvement of the quality of science education and scientific research in the State (ii) enhancing the quality of scientific institutions in the State such that these institutions become the institutions of choice for study and research for young scientists from all over the country (iii) develop centres of excellence in various disciplines in the State (iv) promoting income enhancing and employment generating activities in the State and provide S&T support to the State's development.

Table 5.2.7 Outlay and Expenditure of Science and Technology sector, 2015-16 to 2019-20, in ₹ crore

Year	Outlay	Expenditure
2015-16	153.29	66.29 (43.24 %)
2016-17	159.15	86.01 (54.08 %)
2017-18	175.07	82.00 (46.84 %)
2018-19	194.08	90.59(47%)
2019-20	225.15	65.36 (29%)

Source: Planspace, State Planning Board

The advancement in Science and Technology coupled with liberalisation of the economy and progressive globalisation has brought in new challenges to the Science and Technology sector. New technologies to position Kerala among top States in basic research/technology needs to be developed by focusing technology driven agriculture development, developing new technologies for research and development in energy and technology business incubators. An agency for State level planning and promotion of Science and technology, KSCSTE shall explore the possibility of promoting and supporting private industrial research.

As per the reports of WHO, between 30 to 50 per cent of cancers can currently be prevented by avoiding risk factors, adopting preventive strategies and disease burden can be reduced through early detection and treatment. The decrease in number of new cases registered in RCC during the last few years shows the impact of efforts made by the institution in cancer control activities and improvement of treatment facilities available there. The role of upcoming cancer institutes and other hospitals engaged in cancer treatment and technologies available will also enable the State in reducing disease burden in the future.

5.3 TOURISM

Tourism sector is interconnected with other spheres of development, creates employment, promotes traditional industries, brings in income and opens society to the rest of the world. Kerala is an internationally recognised tourist destination and one of the most popular tourist destinations in India. In Kerala, tourism industry is featured by its world renowned brand, consistent growth, diverse products and presence of local entrepreneurs. Public spending in Kerala focuses on infrastructure development, marketing, human resource development, publicity and hospitality. The State is actively promoting tourism in domestic and international markets.

The State Government has been actively supporting tourism sector from the second Five-Year Plan onwards. The major chunk of Government spending has been on infrastructural projects like development of basic amenities in tourism destinations, beautifications, quality wayside and waterside amenities, State of the art information centres, visitor lounges, infrastructure for land and water based adventure tourism, erecting international quality tourism signage at destinations and en-route, tourism transportations and safety and security aspects of tourists. The second focus area in Government spending has been marketing.

Tourism is a lifeline for many rural communities, most notably in the developing world. Globally, tourism sector is facing a crisis because of

Covid-19 pandemic. According to UNWTO, international tourist arrivals could fall between 60 per cent and 80 per cent in 2020. This will have a massive impact on livelihoods and businesses. As per the estimates of UNWTO, domestic tourism will revive prior to international tourism. UNWTO has made available recommendations for action and guidelines to restart tourism. This action plan for a sustainable and resilient future emphasises the importance of tourism to rural communities, particularly in the context of the Covid-19 crisis.

Performance of the Tourism Sector

International tourist arrivals across the world grew 4 per cent to reach 1.5 billion in 2019. Europe recorded +4 per cent, Asia and Pacific +5 per cent, America +2 per cent, Africa +4 per cent and Middle East +8 per cent growth in international arrivals in 2019.

(Source: United Nations World Tourism Organisation).

In Kerala, the tourism sector rebounded strongly in 2019 after the 2018 lull and the year 2019 witnessed the highest growth rate in domestic and foreign tourist arrivals in the last 24 years. There was 8.52 per cent growth in foreign tourist arrivals and 17.81 per cent growth in domestic tourist arrivals in 2019 over 2018 in the State.

(Source: Department of Tourism, GoK)

Box 5.3.1 2020 – UNWTO Year of Tourism and Rural Development

- UNWTO has designated the year 2020 as the Year of Tourism and Rural Development
- Rural communities are much less prepared to deal with the direct and indirect impact of the Covid-19 crisis
- Youth in rural communities are three times more likely to be unemployed than adults
- The year been designated as an opportunity to promote the potential of tourism to create jobs and employment opportunities.
- Tourism in rural areas offers opportunity for recovery, by supporting rural communities facing the economic and social impacts of Covid-19 pandemic.

Tourist Arrivals

Foreign Tourists

The number of foreign tourists who visited the country in 2019 was 10.56 crore, 5.20 per cent higher than the tourist arrivals in 2018. A total number of 11.89 lakh foreign tourists visited the State in 2018 as compared to 10.96 lakh in the previous year.

Figure 5.3.1 reveals the trends in the arrival of foreign tourists in India and Kerala during the period 2010 - 2019

From 2010 to 2013 and in 2015, the growth rate in Kerala with respect to foreign tourist arrivals was higher than that of India. It was lower than the national average in 2014, 2016, 2017 and 2018. The State has been witnessing a declining growth rate after 2010.

The number of foreign tourists who visited Kerala in 2019 was 11,89,771 as against 10,96,407 foreign tourists in 2018 recording 8.52 per cent growth in foreign tourist arrivals in the State as compared to 2018. **Appendix 5.3.1** shows the foreign tourist arrivals in India and Kerala and annual growth rate from 2010 onwards.

Figure 5.3.1 Annual growth rates in the arrival of foreign tourists in India and Kerala from 2010 to 2019, in per cent



Source: Department of Tourism, GoK

Table 5.3.1 Month-wise foreign tourist arrivals in India, Kerala in 2018 and 2019, in number

Sl. No.	Month	No. of FTAs in 2018		No. of FTAs in 2019	
		India	Kerala	India	Kerala
1	January	10,45,027	1,67,980	11,11,040	1,60,588
2	February	10,49,259	1,52,003	10,90,516	1,48,024
3	March	10,21,539	1,20,711	9,78,236	11,3857
4	April	7,45,033	85,493	77,4651	86,693
5	May	6,06,513	4,5427	6,15,136	49,952
6	June	6,83,935	36,746	7,26,446	45,675
7	July	8,06,493	68,868	8,18,125	7,80,34
8	August	7,85,993	60,121	8,00,837	74,210
9	September	7,19,894	44,769	7,51,513	62,942
10	October	8,90,223	73,263	9,45,017	94,205
11	November	10,12,569	99,271	10,92,440	1,20,848
12	December	11,91,498	1,41,755	12,26,398	1,54,743

Source: Department of Tourism, Kerala

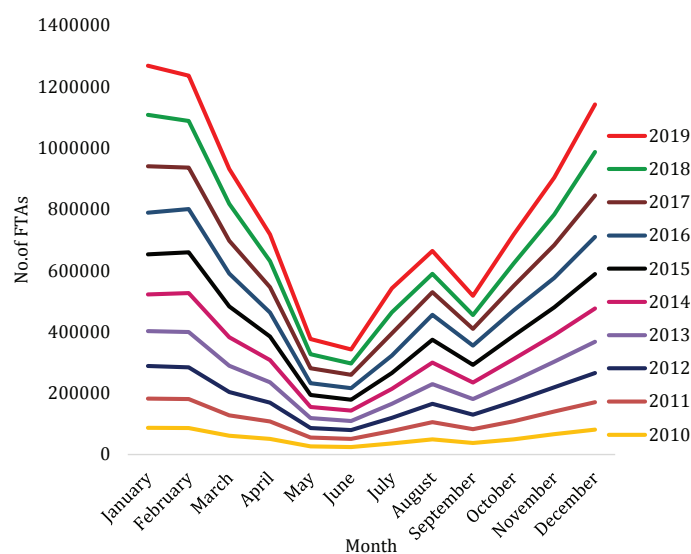
Seasonality in Foreign Tourist Arrivals

In 2019, around 14 per cent of the total foreign tourists visited the State in January followed by December (around 13 per cent). January 2018 also witnessed maximum number of foreign tourist arrivals in the State followed by December. The lowest foreign tourist traffic in 2019 was registered for the month of June (3.83 per cent)

and this trend has been continuing for the last 12 years.

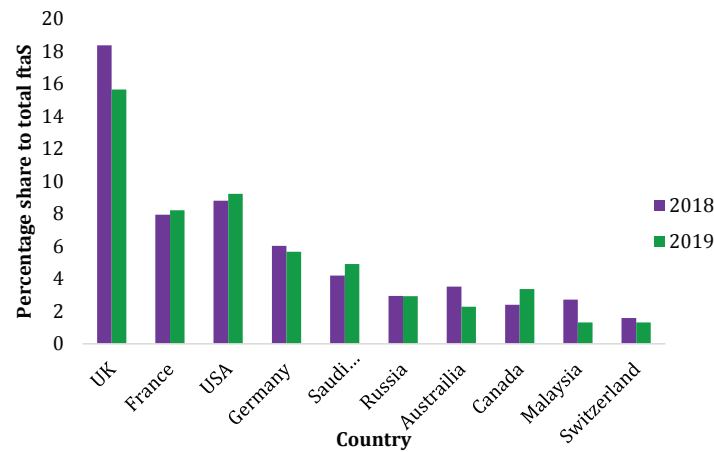
Figure 5.3.2 depicts the month-wise comparison of foreign tourist arrival in Kerala from 2010 to 2019. Month-wise foreign tourist arrival in India and Kerala in 2018 and 2019 is given in **Table 5.3.1**.

Figure 5.3.2 Month-wise comparison of foreign tourist arrival in Kerala from 2009 to 2019, in number



Source: Department of Tourism, GoK

Figure 5.3.3 Share of foreign tourist arrival from top ten countries of the world to Kerala in 2018 and 2019, in per cent



Source: Department of Tourism, GoK

Source Market of Foreign Tourist Arrivals

In 2019 United Kingdom, with a percentage share of 15.63 per cent remains at the top of list of the countries from where foreign tourists come to the State. USA occupied the second position with 9.23 per cent share. In 2018 also, these two countries remained at the top two positions. In 2019, France (8.22 per cent) and Germany (5.66 per cent) contributed the next major shares of foreign tourist arrivals. These two countries were in 3rd (France 7.95 per cent) and 4th (Germany 6.03 per cent) position in the previous year also. **Appendix 5.3.2** gives the share of major international source markets of Kerala tourism in 2018 and in 2019 and **Figure 5.3.3** illustrates the share of foreign tourist arrival to Kerala from top ten countries in 2018 and 2019.

Foreign Tourist Arrival – District-Wise

For the last few years, the two Districts which recorded largest foreign tourist arrivals in the State are Ernakulam and Thiruvananthapuram. In 2019, 5,22,232 foreign tourists visited Ernakulam and 3,68,437 visited the District in 2018. In the case of Thiruvananthapuram, 310,451 foreign tourists visited the District in 2019. The Districts with least number of foreign tourist arrivals were

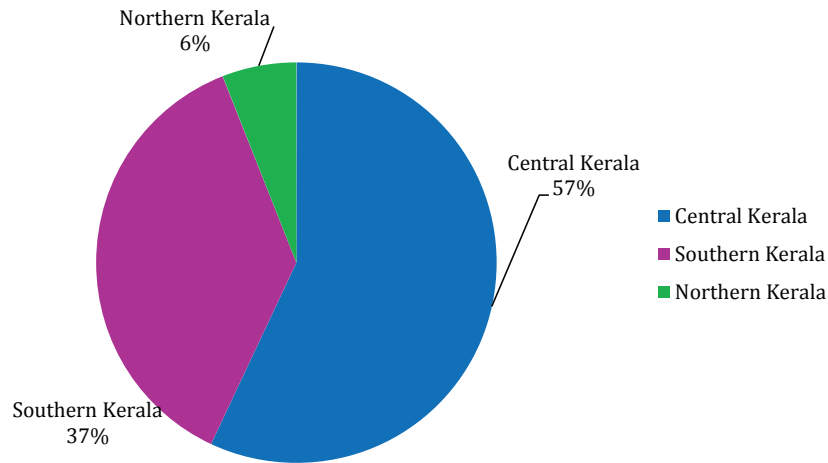
Pathanamthitta (2042) and Palakkad (2147) in 2019. The scenario is the same in 2018. Details are given in **Appendix 5.3.3**. Region-wise figures of foreign tourists visiting in the State shows that in 2019, about 57 per cent of the total foreign tourists visited central part of Kerala, 37 per cent visited southern part of the State and only 6 per cent visited northern Kerala. **Figure 5.3.4** presents the region-wise arrival of foreign tourists in Kerala in 2019.

Domestic Tourists

The number of domestic tourist arrivals to Kerala in 2019 was 1,83,84,233, which is 17.81 per cent higher than the previous year. In 2018, the domestic tourist arrival to Kerala was 1,56,04,661. **Appendix 5.3.4** gives the details of domestic tourist arrivals to Kerala from 2010 to 2019. **Figure 5.3.5** reveals the trends in the arrival of domestic tourists in Kerala during the period 2010-2019.

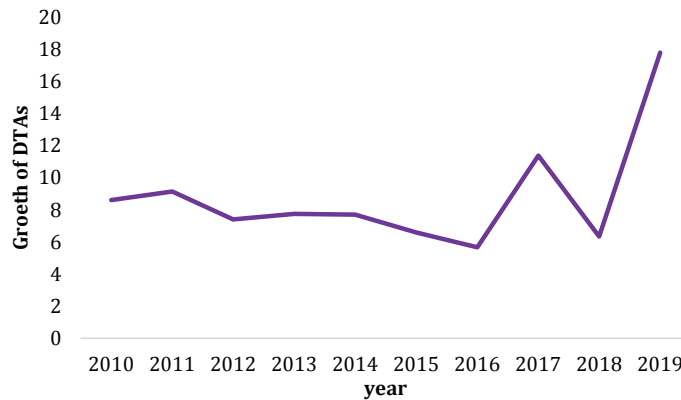
From 2009 to 2011, the growth rate in Kerala with respect to domestic tourist arrivals was increasing and then began to decrease. The State had been witnessing a steady growth rate during 2012-2014. In 2015, the growth rate was 6.59 per cent, which dropped to 5.67 per cent in 2016. But the year 2017 recorded 11.39 per cent growth in

Figure 5.3.4 Region-wise foreign tourist visits in Kerala in 2019, in per cent



Source: Department of Tourism, GoK

Figure 5.3.5 Annual growth rates in the arrival of domestic tourists in Kerala from 2010 to 2019, in per cent



Source: Department of Tourism, GoK

the arrival of domestic tourists in the State which dropped again in 2018 and reached 6.35 per cent. But in 2019, the State witnessed 17.81 per cent growth in domestic tourists' arrival.

Seasonality in Domestic Tourists Arrivals

The month-wise data on the arrival of domestic tourists in Kerala in 2019 shows that the highest inflow of tourists was for the month of December and the lowest was in the month of August. Details are given in **Table 5.3.2**.

Figure 5.3.6 portrays the month-wise arrival of domestic tourists in Kerala from 2010 to 2019.

Source of Domestic Tourism

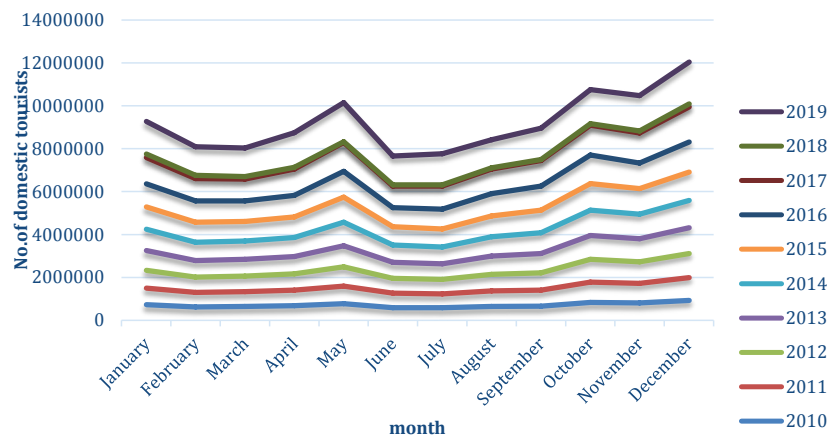
The statistics on the distribution of domestic tourist visits in Kerala by State of origin in 2019 reveals that about 64.36 per cent originated within the State. With respect to the distribution of other States, Tamil Nadu ranks 1st with a share of 9.47 per cent of domestic tourist visits. Karnataka (6.16 per cent) and Maharashtra (3.55 per cent) were the other important States. These States remained as top source areas for domestic

Table 5.3.2 Month-wise arrival of domestic tourists in Kerala in 2018 and 2019

Sl. No.	Month	No. of Domestic Tourists Arrival	
		2018	2019
1	January	14,22,483	15,15,551
2	February	12,26,778	13,35,665
3	March	12,28,451	13,39,252
4	April	14,70,552	16,13,257
5	May	15,94,332	18,18,986
6	June	10,84,238	13,41,496
7	July	11,76,994	14,30,508
8	August	9,95,577	13,21,175
9	September	11,19,445	14,68,337
10	October	12,81,028	15,94,093
11	November	13,64,805	16,52,880
12	December	16,39,978	19,53,023
	Total	1,56,04,661	1,83,84,233

Source: Department of Tourism, GoK

Figure 5.3.6 Month-wise arrival of domestic tourists in Kerala from 2010 to 2019, in number



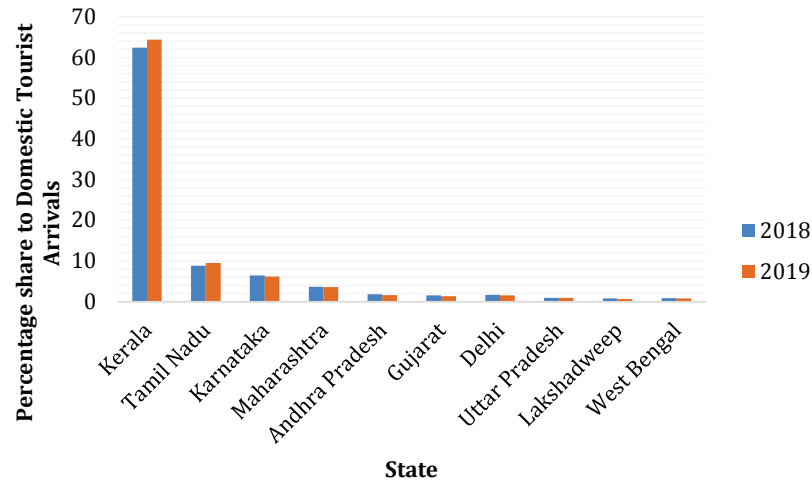
Source: Department of Tourism, GoK

tourist arrivals in the State in the previous year also. **Appendix 5.3.5** gives the details of top 15 State-wise share of domestic tourist arrival in Kerala. **Figure 5.3.7** shows State-wise share of domestic tourist arrivals to Kerala from top 10 States in 2018 and 2019.

District-Wise Arrivals of Domestic Tourists

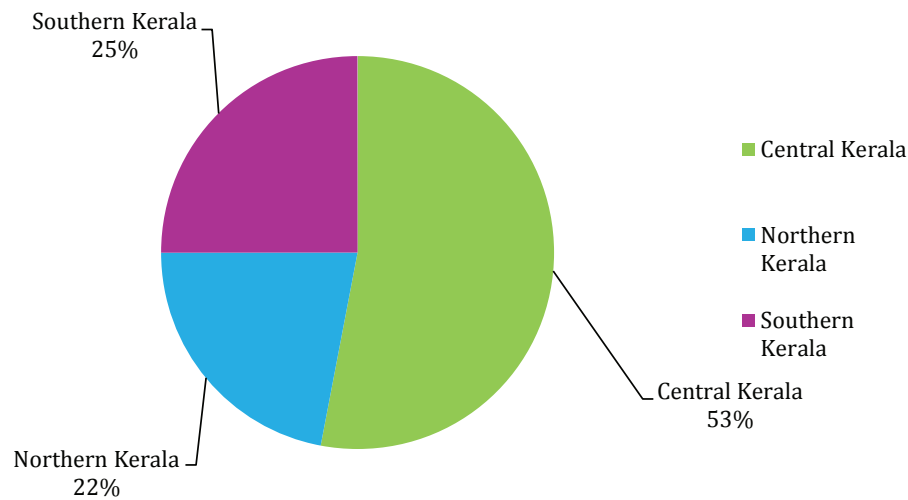
Regarding the District-wise domestic tourist arrivals in Kerala, Ernakulam and Thiruvananthapuram were the leading Districts in 2019. In 2018 also these two Districts were in the top position. Pathanamthitta attracts the lowest number of domestic tourists. Details are

Figure 5.3.7 Share of domestic tourist arrival from top ten States to Kerala in 2018 and 2019, in per cent



Source: Department of Tourism, GoK

Figure 5.3.8 Region-wise domestic tourist visits in Kerala in 2019, in per cent



Source: Department of Tourism, GoK

given in **Appendix 5.3.6**. Region-wise details show that more number of domestic tourists visited central parts of Kerala in 2018 and 2019. **Figure 5.3.8** illustrates region-wise domestic tourist visits in Kerala in 2019.

Accommodation Units in Kerala

The total number of tourist accommodation units in the State as in September 2020 is 7,022 with, 88,773 numbers of rooms.

Alappuzha is the District having highest number of accommodation units (1,173) and Kasaragod District has the lowest number (85) of accommodation units. Details are shown in **Appendix 5.3.7**.

Economic Impact of Tourism

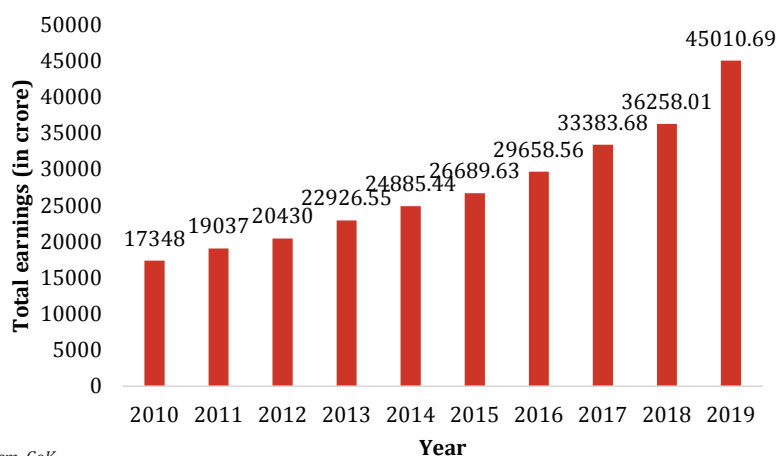
The foreign exchange earnings from tourism in the year 2019 was ₹10271.06 crore and domestic tourist earnings was ₹24785.62 crore. Details are

Table 5.3.3 Total earnings from tourism (Direct and Indirect) in Kerala from 2010 to 2019 in ₹ crore

Year	Total Earnings from Tourism (Direct and Indirect)	Percentage change
2010	17348.00	31.11
2011	19037.00	9.73
2012	20430.00	7.31
2013	22926.55	12.22
2014	24885.44	8.54
2015	26689.63	7.24
2016	29658.56	11.12
2017	33383.68	12.56
2018	36258.01	8.60
2019	45010.69	24.13

Source: Department of Tourism, Government of Kerala

Figure 5.3.9 Total earnings from tourism during 2010 to 2019, in ₹ crore



Source: Department of Tourism, GoK

Box 5.3.2 Impact of Covid-19 in Tourism Industry

The Covid-19 pandemic had brought business of all tourism stakeholders to a standstill affecting the livelihood of all entrepreneurs as well as employees of the industry. As per industry feedback, this situation may extend up to another six months. The tourism industry in the State is facing unprecedented losses due to lockdown situation in the wake of Covid-19. The State Planning Board made an assessment of losses in tourism sector. The loss is estimated using the following two methodologies:

- Estimated loss based on the difference between the number of tourist arrivals projected for 2020 (before Covid-19 pandemic) and estimated figures of 2020 (after Covid-19 pandemic)

Anticipating 10 per cent growth over 2019, the number of foreign tourists arrivals estimated for the period from January 2020 to September 2020 was 9,01,971. However, as per estimations by the Department after the onset of Covid-19 pandemic, the number of foreign tourists arrivals is

only 3,49,575 in this period, showing a 61 per cent decline in numbers. Similarly, assuming a 20 per cent growth in domestic tourist arrivals, the projected number of tourist arrivals between January to September, 2020 was 1,58,21,071. However, the estimated number of domestic tourists in this period is only 39,31,591. The decline in numbers is almost 75 per cent. The total loss in the sector from January to September 2020 is ₹24,971 crore. Out of this ₹20,303 is loss in direct earnings and ₹4,668 is loss in indirect earnings. The loss in earnings from decline in foreign tourist arrivals is estimated to be ₹5,274 crore and from domestic tourist arrivals is ₹19,697 crore.

- *Estimates based on the difference in number of estimated figures of 2020 (after Covid-19 pandemic) and actual figures of tourist arrivals in 2019.*

The number of foreign tourist arrivals and domestic tourist arrivals in the State from January to September in 2019 was 8,19,975 and 1,31,84,227 respectively. However, the estimated figures of tourist arrivals, foreign and domestic, in these months in 2020 are 3,49,575 and 39,31,591 respectively. The decline in arrivals as compared to 2019 is 57 per cent in foreign tourists and 70 per cent in domestic tourists. The total loss in the sector from January to September 2020 is ₹20,115 crore. Out of this, ₹16,178 crore are losses in direct earnings and ₹3,937 crore are losses in indirect earnings. The loss in earnings from decline in foreign tourist arrivals is ₹4,403 crore and from domestic tourist arrivals is ₹15,712 crore.

The loss in earnings in tourism is in the range of ₹20,000 crore to ₹25,000 crore over the nine months of 2020

Source: Assessment of the impact of Covid-19 pandemic and lockdown on Kerala economy, April to June, 2020, State Planning Board

given in **Appendix 5.3.8**. Total earnings including direct and indirect means in 2019 was ₹45,010.69 crore show an increase of 24.13 per cent over 2018. Details are shown in **Table 5.3.3**.

Figure 5.3.9 presents total earnings from tourism in Kerala from 2010 to 2019.

Awards and Acclams in 2019 and 2020

- UNWTO Award for Emerging Global Destinations – Accessible Destination award 2019 for Barrier-free Tourism Project implementation.
- PATA Grand Award for Kerala Tourism “Human By Nature” Campaign
- DAS GOLDENE STADTTOR 2020 FOR BOTH PRINT AND FILM for Kerala Tourism “Human By Nature” Campaign
- PATA Gold award for Kerala Tourism Campaign “Come Out and Play”
- PATA Gold 2019 Award for Kerala Tourism Website
- PATA Gold 2019 Award for Woman empowerment for the Ethnic Restaurant at Kumarakom.
- ASIA-SPA India Award for Best Wellness Destination Award for Kerala.
- ASIA-SPA India Award for India’s Leading Boutique Hotel 2019 – The Malabar House
- Pacific Asia Travel Association (PATA) Award for Women Empowerment, Travel Advertisement Broadcast Media and for Website (2019)
- MCUBE 2019 Digital Award
- DIGIES 2019 Digital Award
- ‘Second Best Mountain Destination Award’ 2020 for Munnar
- PATA Grand Award 2020 for Marketing

Table 5.3.4 State Plan outlay and expenditure, 2015-16 to 2019-20, in ₹ crore

Year	Outlay	Expenditure
2015-16	223.04	203.63 (91.29%)
2016-17	311.56	285.76 (91.72%)
2017-18	342.73	308.32 (90%)
2018-19	379.00	289.31(76 %)
2019-20	372.37	192.62(59%)

Source: Planspace, State Planning Board

Financial Performance

The details of Plan outlay and expenditure of tourism sector during the period 2015-16 to 2019-20 are given in **Table 5.3.4**. The utilisation of outlay, though high is showing a downward trend during the last few years.

Departments/Agencies under the Tourism sector

- Department of Tourism
- Kerala Tourism Development Corporation
- Kerala Tourism Infrastructure Ltd
- Bekal Resorts Development Corporation
- Kerala Institute of Travel and Tourism Studies
- State Institute of Hospitality Management
- Food Craft Institute
- Directorate of Ecotourism

Major Achievements

Covid loss assistance scheme: Scheme to support the stakeholders in the tourism industry for the revival of the tourism sector in the wake of Covid-19. The Government of Kerala has announced Chief Minister's Tourism Loan Assistance Scheme (CMTLAS) in a bid to support the State's travel and tourism sector, which is badly hit by the Covid-19 pandemic.

While entrepreneurs/establishments in the travel and tourism sector can opt for Tourism Working Capital Support Scheme (TWCSS) to stay afloat, employees engaged in the industry can avail of short-term personal loans under Tourism Employment Support Scheme (TESS). Houseboats owners can make use of Tourism Houseboats Support Scheme (THSS) to get financial assistance for executing urgent repairs and maintenance to the assets. Under the Tourism Guides Support Scheme (TGSS), eligible tourist guides will be given a one-time financial assistance. Through these relief measures, the Government of Kerala intends to help all the stakeholders of the industry to tide over the current crisis and start functioning as soon as the pandemic gets contained.

IT Initiatives

- Kerala tourism YouTube channel with more than three crore subscribers
- Developed Kerala tourism Microsites based on particular themes
- Post flood campaign resulted in bringing 4.4 million visits from more than 15000 cities around the world
- 1575 accommodation units were listed in the website of Kerala tourism with an independent page for each of the major properties and tour operators
- Geotagged mobile camera photographs for QR code

- E-catalogue of Kerala tourism videos
- Kerala tourism resource mapping for selected destinations

Marketing Initiatives

- New and innovative marketing campaigns : Inorder to retain market supremacy Kerala Tourism launched innovative marketing campaigns like digital and social media campaigns resulted in attracting more number of visitors and succeeded in branding Kerala.
- ‘Human by Nature’ campaign - Internationally acclaimed campaign which showcased the culture and daily life of the people of Kerala and the strategy behind the campaign was the revival of the tourism sector that had suffered a severe knocking in the wake of 2018 flood and the outbreak of Nipah virus. Campaign which has given a huge stimulus to the tourism industry in the State that is grappling with the adverse aftermath of the Covid-19 pandemic.
- Biennale Promotion Campaign
- Kerala Blog Express
- Off-season Promotion Campaign Advertisement Campaign –Come Out and Play

Human Resource development through KITTS, SIHM and FCI

- Around 50 youth who had undergone training programme conducted by KITTS have been posted as trainees in various tourism information centres across the State and outside.
- 114 regional and State level tourist guides underwent training programmes conducted by KITTS.
- More than 80 per cent of the students from KITTS, SIHM and FCI got placement.

Infrastructure and Destination Development

- Launched first phase of Barrier free tourism project for making 70 destinations across the State disabled and elderly friendly.
- Miniature Railway Project in Veli
- Completed renovation of 7 tourism information centres
- Conducted Champions Boat League in 12 centres.
- Houseboat Installation and Virtual Reality Tourism Development in North Malabar
- Launched online portal for NRKs to book vehicles of tour operators to travel back to State during lock down.
- Kerala has emerged as the best performing State in India in the category of tourism according to 2019 State of the States study conducted by India Today Magazine.
- Kerala has been featured in the exalted list of 19 places across the globe that CNN Travel has recommended for a visit in 2019
- Sound-and-Light Show covering the vibrant history of the 17th century Bekal Fort at Bekal
- Miyawaki Forest set up in Kollam
- Farming on Fallow Land - Extending support to the State Government’s Subiksha Keralam project, an initiative to ensure food security in view of Covid-19 pandemic, Kerala Tourism has turned a one-acre unused plot at Akkulam in Thiruvananthapuram into a banana farm

Eco tourism Development

- Expansion of ecotourism activities at Silent Valley and Meesapulimala
- Improvement of facilities for visitors at Thekkadi, Upgradation of Deer Rehabilitation Centre at Thenmala, Modernisation of

tourism facilities at Eravikulam National Park, Modernisation of Amphitheatre at Thenmala

Initiatives by Kerala Tourism Infrastructure Ltd

- As part of converting Veli as a Tourism Hub, the construction of the Tourist Facility Centre and Convention Centre and conceptualisation of Urban Wetland Nature Park has been initiated
- Completed Tourist Facilitation Centres in Guruvayoor under Centrally Sponsored Scheme 'PRASAD'
- Preparation of Tourism Infrastructure Investment Plan for North Malabar for planning systematic development of tourism infrastructure and investments for the next 30 years in the region
- The first phase of the project Development of Madavoorpara Tourism Zone co-ordinated by KTEL has been completed. KTEL has also been instrumental in planning further eco-friendly and conservational tourism initiatives at Ponmudi for which an initial discussion has already been held in co-operation with Forest Department.

Responsible Tourism Mission

At present there are 17008 individual/group units, out of which 13567 women owned/leading units, are registered with RT Mission under various categories, 92980 local community members are directly or indirectly linked with tourism and generating income and the registered units of RT Mission generated ₹25.50 crore. 850 families are linked with the Experiential Tour Packages of RT Mission; 60 packages are operational. RT Mission launched Clean Kerala Initiative to keep prime tourism spots across the State plastic and garbage free. As part of the Kuttanad Package second phase, various tourism projects are getting expanded to the Kuttanad project area. Aimanam Village

which comes under the Kuttanad project area has been declared as the first Model RT Village. Model RT Village project of RT Mission aims to develop a village as responsible tourism village practicing responsible tourism with 100 per cent support of LSG and local community. Out of the 13 villages selected for the implementation of Model RT Village project Aimanam is the one which successfully implemented all the activities for a Model RT Village as a convergence project. Way Forward

The tourism industry in the State is facing unprecedented losses because of Covid-19. The tourism units in the State have no business and there is no generation of income for the last eight months. The employees in the sector face layoffs/unpaid leave and salary cut and the business entrepreneurs are in need of working capital for survival and revival. It is essential to reboot the sector with focus on domestic tourism and safety at every point of destination in the present situation. Kerala has to market itself as a safe and healthy destination to revive tourism in the post Covid scenario.

Kerala, being a State with rich historical and cultural traditions needs to focus on ensuring safe and eco-friendly tourism destinations that offer visitors world class recreation facilities. Another important area of concern is the development and popularising of lesser known tourist destinations in the State. The sector is facing competition from neighbouring States and countries like Sri Lanka and other Asian countries. The State needs qualified personals with for delivering high quality services in the industry. It is essential to explore and utilise the full scope of tourism for encouraging the development of non-traditional tourist destinations and products. The number of tourism establishments and service providers needs to be developed.

5.4 EXTERNAL TRADE

Covid-19 pandemic has disrupted global supply chains affecting trade across the world. Weak global growth and persistent trade and technology tensions between the United States and China had already slowed down trade across the globe in 2019. Adoption of trade barriers, especially export restrictions on medical supplies and food products, further dampened trade volumes. Closing down of ports and borders, constraints on air travel as well as delay in customs processing adversely affected the trade flows in the pandemic period.

The World Trade Organisation in its forecast in October 2020¹ estimates a 9.2 per cent decline in the volume of world merchandise trade in 2020. Global merchandise trade recorded its sharpest ever one-period decline in the second quarter, falling 14.3 per cent compared to the previous period, but the impact differed strongly across regions. The decline in services trade during the pandemic has been as strong as the fall in merchandise trade. As per the WTO, although the trade decline during the Covid-19 pandemic is similar in magnitude to the global financial crisis of 2008-09, the economic context is very different. The contraction in GDP has been much stronger in the current recession while the fall in trade has been more moderate.

External Trade in India

India's merchandise export in 2019-20 was US \$314.3 billion registering a negative

growth of (-)4.8 per cent in dollar terms as against US \$329.5 billion in 2018-19. Service exports in 2019-20 were US \$214.1 billion as against US \$204.8 billion in 2018-19 recording a positive growth of 4.1 per cent. India's overall exports (merchandise and services combined) in 2019-20 were US \$528.5 billion, registering a negative growth of (-)1.4 per cent as against \$534.3 billion in 2018-19.

In April-September 2020-21, India's overall exports (merchandise and services combined) are estimated to be US \$221.9 billion, registering a negative growth of (-)16.7 per cent over the same period in 2019-20. Out of this, merchandise and service exports are estimated to be US \$125.3 billion and US \$96.6 billion with a negative growth of (-)21.3 per cent and (-)9.8 per cent respectively².

India's merchandise imports in 2019-20 were US \$ 467.2 billion as against US \$513.1 billion in 2018-19 recording a negative growth of (-)8.9 per cent. India's service imports were US \$131.4 billion in 2019-20 as against US \$126.4 billion in 2018-19 exhibiting a growth of 4.0 per cent. The overall imports of India (merchandise and services combined) in 2019-20 were US \$598.6 billion as against \$640.4 billion in 2018-19 registering a negative growth of (-)6.5 per cent.

Overall imports in April-September 2020-21 are estimated to be US \$204.1 billion, exhibiting

¹ Press Release 862, October 6, 2020, World Trade Organisation

² India's Foreign Trade, September, 2020, Press Release dated October 15, 2020, Ministry of Commerce and Industry

Table 5.4.1 India's Overall Exports and Imports: 2015-16 to 2020-21, Value in US\$ Billion

Year	Exports			Imports		
	Merchandise Exports	Services Exports	Overall Exports	Merchandise Imports	Services Imports	Overall Imports
2015-16	262.3	155.1	417.4	381.0	85.7	466.7
2016-17	275.9	160.7	436.5	384.4	95.5	479.8
2017-18	303.5	174.8	478.3	465.6	105.2	570.8
2018-19	329.5	204.8	534.3	513.1	126.4	640.4
2019-20#	314.3	214.1	528.5	467.2	131.4	598.6
2020-21 (up to September 2020)#	125.3	96.6	221.9	148.7	55.4	204.1

Source: Ministry of Commerce and Industry GoI
Provisional

a negative growth of (-)35.4 per cent over the same period in 2019-20. Out of this, merchandise imports are estimated to be US \$148.7 billion and service imports US \$55.4 billion registering a negative growth of (-)40.1 per cent and (-)18.5 per cent respectively as compared to corresponding period in 2019-20. **(Table 5.4.1)**

External Trade in Kerala

In 2019-20, Cochin Port handled a total traffic, coastal and foreign, of 340.4 lakh MT, as compared to 320.2 lakh MT in 2018-19, showing an increase of 6.3 per cent as against 9.9 per cent increase in the previous year. Out of this, coastal traffic was 111 lakh MT in 2019-20 as against 109.4 lakh MT in 2018-19. The growth in coastal traffic in 2019-20 was only 1.5 per cent, significantly lower than the 26.3 per cent

growth recorded in 2018-19. Total foreign traffic increased by 8.8 per cent and was 229.4 lakh MT in 2019-20 as against 210.8 lakh MT in 2018-19. **(Table 5.4.2)**

Total export, both coastal and foreign, through Cochin Port was 67.3 lakh MT in 2019-20 as against 66.5 lakh MT in 2018-19 recording a growth of only 1.2 per cent compared to 15 per cent in the previous year. Out of this, coastal export accounts for 39.2 lakh MT in 2019-20 as against 40.2 lakh MT of exports in 2018-19 recording a negative growth of (-)2.5 per cent. This is lower than 46.8 per cent growth in the previous year. Tea, coffee, cashew kernels, seafood, coir products and spices are the major items of export through Cochin port. Details are given in **Appendix 5.4.1**.

Table 5.4.2 Cargo handled at Cochin Port, 2017-18 to 2019-20, Quantity in lakh MT

Traffic	Export			Import			Total		
	2017-18	2018-19	2019-20	2017-18	2018-19	2019-20	2017-18	2018-19	2019-20
1	2	3	4	5	6	7	8	9	10
Coastal	27.4	40.2	39.2	59.2	69.2	71.8	86.6	109.4	111.0
Foreign	30.4	26.3	28.1	174.4	184.5	201.3	204.8	210.8	229.4
Total	57.8	66.5	67.3	233.6	253.8	273.1	291.4	320.2	340.4

Source: Cochin Port Trust

There is a significant decline in export of seafoods, tea, coir products, coffee in 2019-20 as compared to 2018-19. Export of cashew kernels has registered a slight increase in this period. This is in contrast to the negative growth in export of cashew kernels registered in the last three years.

Total import traffic, both coastal and foreign, through Cochin port rose to 273.1 lakh MT in 2019-20 as against 253.8 lakh MT in 2018-19 registering a growth rate of 7.6 per cent compared to 8.6 per cent in the previous year. Out of total import traffic, coastal imports traffic was 71.8 lakh MT in 2019-20 as against 69.2 lakh MT in 2018-19 registering a much lower growth rate of 3.8 per cent as against 17 per cent in the previous year. Foreign imports traffic was 201.3 lakh MT in 2019-20 as against 184.5 lakh MT in 2018-19 recording a growth rate of 9.1 per cent as against 5.8 per cent in 2018-19. Fertilisers and raw materials, iron, steel and machinery and miscellaneous items including Petroleum, Oil, and Lubricants (POL) were the major items of import in 2019-20. Details of major items of import through Cochin port are given in **Appendix 5.4.2**.

Export of Marine Products

India exported 12.9 lakh MT valued ₹46,662.9 crore of marine products in 2019-20 as against 13.9 lakh MT valued ₹46,589.4 crore in 2018-19 recording a negative growth of (-)7.2 per cent in quantity and 0.2 per cent increase in

value. Export of marine products from Kerala also witnessed a decline in 2019-20. Kerala exported 1.5 lakh MT valued ₹5,020.3 crore of marine products in 2019-20 as against 1.8 lakh MT valued ₹6,014.7 crore in 2018-19 registering a negative growth of (-)16.7 per cent and (-)16.5 per cent in terms of volume and value respectively (**Table 5.4.3** and **Figure 5.4.1**).

The year-wise growth of export of marine products from India and Kerala shows a fluctuating trend during the period from 2014-15 to 2019-20. The growth of export of marine products from India was 6.9 per cent in terms of quantity in 2014-15. It declined to (-)10.0 per cent in 2015-16. In 2016-17 and 2017-18, the growth rate increased by 20.0 per cent and 21.3 per cent respectively. However the growth declined to 1.1 per cent in 2018-19 and to (-)7.4 per cent in 2019-20. Kerala's marine exports also witnessed a fluctuating trend reflecting the all India trend. Exports recorded a growth of 0.6 per cent in 2014-15. It declined to (-)10.6 per cent in 2015-16. In 2016-17 and 2017-18 it increased by 6.7 per cent and 12.3 per cent respectively. However, export growth declined to 2.5 per cent in 2018-19 and to (-)19 per cent in 2019-20.

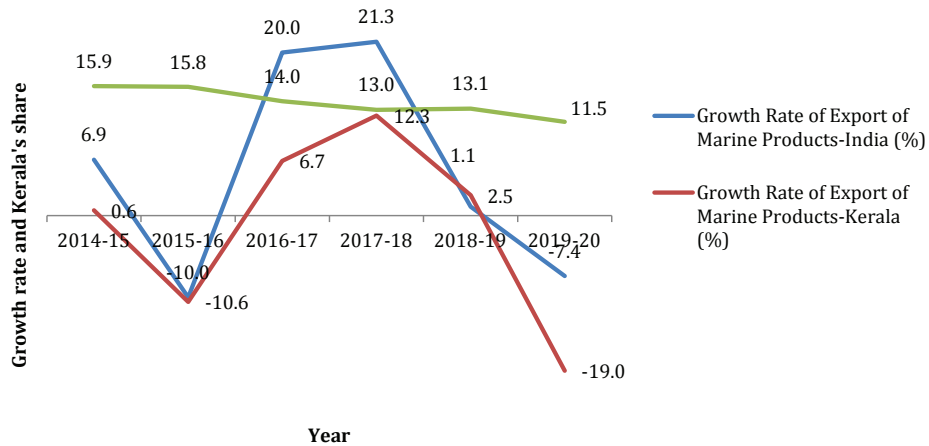
The share of exports from Kerala in export of marine products from India (in quantity terms) has declined from 15.9 per cent in 2014-15 to 11.5 per cent in 2019-20.

Table 5.4.3 Export of marine products in India and Kerala 2014-15 to 2019-20, quantity in MT and value in ₹ crore.

Year	India		Kerala		Kerala's share (%)	
	Quantity	Value	Quantity	Value	Quantity	Value
2014-15	10,51,243	33,441.6	1,66,754	5,166.1	15.9	15.5
2015-16	9,45,892	30,420.8	1,49,138	4,644.4	15.8	15.3
2016-17	11,34,948	37,870.9	1,59,141	5,008.5	14.0	13.2
2017-18	13,77,244	45,106.9	1,78,646	5,919.0	13.0	13.1
2018-19	13,92,559	46,589.4	1,83,064	6,014.7	13.1	12.9
2019-20	12,89,651	46,662.9	1,48,226	5,020.3	11.5	10.8

Source: The Marine Products Export Development Agency (MPEDA)

Figure 5.4.1 Trend in the quantity of export of marine products, India and Kerala, 2014-15 to 2019-20

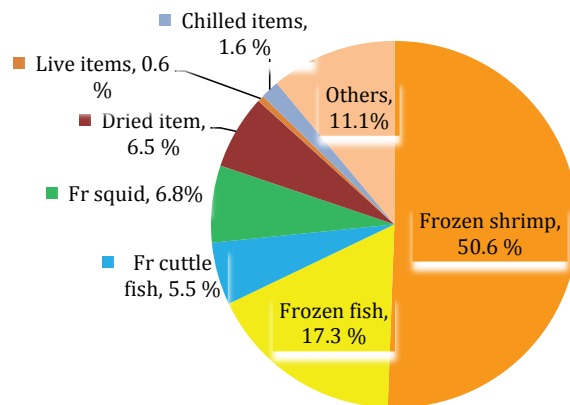


Source: The Marine Products Export Development Agency (MPEDA)

Frozen shrimp continued to be the top export item of marine products from India in 2019-20 with a market share of 50.6 per cent in quantity and 73.2 per cent in value, followed by frozen fish with a share of 17.3 per cent in quantity and 7.7 per cent in value. India exported frozen shrimp to the tune of 6.5 lakh tonnes valued ₹34,152 crore registering a growth of 6.2 per cent in terms of quantity and 7.4 per cent in terms of value in 2019-20 (**Appendix 5.4.3**). **Figure 5.4.2** depicts the market share of item-wise export of marine products from India in 2019-20.

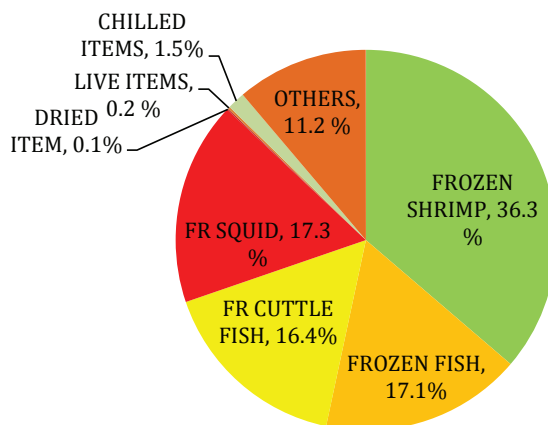
In 2019-20, marine products exports from Kerala was 1.5 lakh MT valued ₹5,020.3 crore registering a negative growth of (-)19 per cent and (-)16.5 per cent in terms of quantity and value as against 1.8 lakh MT valued ₹6,014.7 crore in 2018-19. Frozen shrimps maintained its position as a major item in the export basket accounting for 36.3 per cent in quantity and 51.7 per cent for earnings. But compared to the previous year, it shows a decline of (-)17.3 per cent in quantity and 14.8 per cent in value in 2019-20. **Figure 5.4.3** shows the market share of item-wise exports of marine products from Kerala in 2019-20.

Figure 5.4.2 Market share of item-wise export of marine products from India in 2019-20, in per cent



Source: The Marine Products Export Development Agency (MPEDA)

Figure 5.4.3 Item-wise export of marine products from Kerala 2019-20, in per cent



Source: The Marine Products Export Development Agency (MPEDA)

In 2019-20 the largest market for India's marine products was China (3.3 lakh MT) followed by USA (3.1 lakh MT), South-East Asia (2.2 lakh MT), European Union (1.7 lakh MT), Japan (0.8 lakh MT), Middle East (0.6 lakh MT), and other countries (1.3 lakh MT). Major markets of India's marine products and their share are depicted in **Figure 5.4.4**.

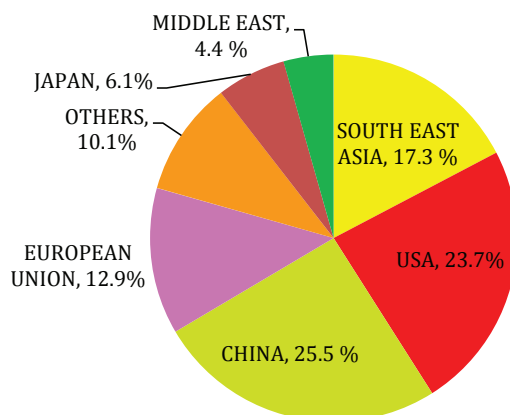
The largest market for Kerala's marine products was European Union (46,178 MT) followed by South-East Asia (35,513 MT), China (24,302 MT), USA (14,135 MT), Japan (8,399 MT), Middle East (6,767 MT), and other countries (12,931 MT). Major markets of Kerala's marine products and their share are depicted in **Figure 5.4.5**.

Export of Cashew

In 2019-20, export of cashew kernels from India was 67,647 MT valued ₹3,867.2 crore as against 66,693 MT valued ₹4,434.0 crore achieved in 2018-2019 recording a growth of 1.4 per cent in volume and a decline of (-)12.8 per cent in terms of value. India exported cashew kernels mainly to U.A.E, USA, Netherlands, Japan, Saudi Arabia, Germany, Spain, France, and Kuwait.

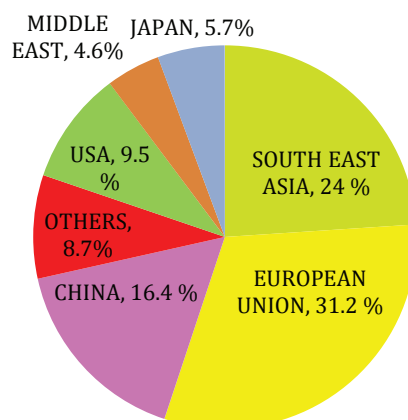
The export of cashew kernels from Kerala increased to 30,478 MT valued ₹1,742.5 crore in 2019-20 as against 29,062 MT valued ₹ 1,892.6 crore in 2018-19 registering an increase of 4.9 per cent in volume and a decline of (-)7.9 per cent in value. The trend in export of cashew kernels

Figure 5.4.4 India's market-wise export of marine products in 2019-20, in per cent



Source: The Marine Products Export Development Agency (MPEDA)

Figure 5.4.5 Kerala's market-wise export of marine products 2019-20, in per cent



Source: The Marine Products Export Development Agency (MPEDA)

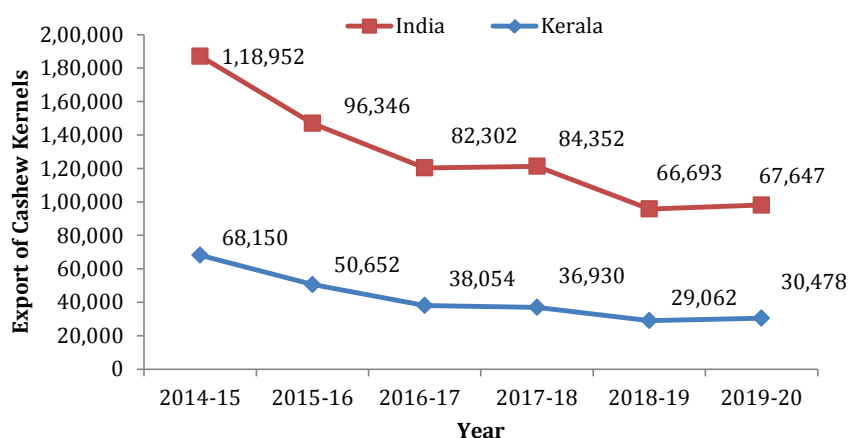
from India and Kerala is depicted in **Figure 5.4.6**. Kerala's share in total export of cashew kernels from India in volume has declined from 57.3 per cent in 2014-15 to 43.6 per cent in 2018-19. In value terms it declined from 57 per cent in 2014-15 to 42.7 per cent in 2018-19. The share increased to 45.1 per cent in terms of quantity and value in 2019-20. (**Table 5.4.4**).

The export of cashew nut shell liquid from India declined in 2019-20 as in 2018-19. It was 4,606 MT valued ₹23.1 crore in 2019-20 as against 5,300 MT valued ₹26.9 crore in 2018-19 registering a sharp decline of 13.1 per cent in quantity and 14.1 per cent in value. The export of cashew shell liquid from Kerala also shows a sharp decline in 2019-20. In 2018-19, Kerala

exported 699 MT valued ₹3.3 crore of cashew shell liquid, but in 2019-20, Kerala exported 1.00 MT only. (**Appendix 5.4.4**).

India is one of the largest producers of raw cashew nuts in the world. The other main raw cashew nuts producing countries are Vietnam, Brazil, Tanzania, Ivory Coast, Guinea Bissau, Mozambique, and Indonesia. In 2019-20, India produced 6,91,056 MT of raw cashew nuts as against 7,42,714 MT in 2018-2019, registering a negative growth of (-)7.0 per cent. The production of raw cashew nuts in Kerala also witnessed a decline in 2019-20. It was 69,624 MT in 2019-20 as against 82,889 MT in 2018-19 recording a decline of 16.0 per cent.

Figure 5.4.6 Trend in export of cashew kernels from India and Kerala, quantity in MT



Source: Cashew Export Promotion Council of India

Table 5.4.4 Export of cashew kernels, Kerala and India, 2014-15 to 2019-20, in ₹ crore

Year	Kerala		India		Share of Kerala (%)	
	Quantity (MT)	Value	Quantity (MT)	Value	Quantity	Value
		(₹ crore)		(₹ crore)		
1	2	3	4	5	6	7
2014-15	68,150	3,098.8	1,18,952	5,432.9	57.3	57.0
2015-16	50,652	2,579.5	96,346	4,952.1	52.6	52.1
2016-17	38,054	2,415.3	82,302	5,168.8	46.2	46.7
2017-18	36,930	2,580.4	84,352	5,871.0	43.8	44.0
2018-19	29,062	1,892.6	66,693	4,434.0	43.6	42.7
2019-20	30,478	1,742.5	67,647	3,867.2	45.1	45.1

Source: Cashew Export Promotion Council of India

In 2019-20, India exported 15,826 MT of raw cashew nuts worth ₹140.5 crore as compared to 11,378 MT worth ₹143.5 crore in 2018-19 recording a growth of 39.1 per cent in volume and a decline of (-)2.1 per cent in value. Kerala did not export raw cashew nuts in 2018-19 and 2019-20.

India imported 9,38,038 MT of raw cashew nuts valued ₹8,861.6 crore in 2019-20 as against the import of 8,35,463 MT valued ₹10,929.3 crore in 2018-19 recording an increase of 12.3 per cent in volume and a decline of 18.9 per cent in value. Out of the total import of raw cashew nuts into India, Kerala's share was 13,202 MT valued ₹125.5 crore in 2019-20 as against 43,341 MT valued ₹622.4 crore in 2018-19.

Export of Coir and Coir Products

In 2019-20, India exported 9,88,996 MT valued ₹ 2,757.9 crore of coir and coir products from India as against 9,64,046 MT valued ₹2,728.1 crore in 2018-19 registering a growth of 2.6 per cent in terms of quantity and 1.1 per cent in terms of value. The Covid-19 pandemic and reduced price of coir fibre are the major reasons for not achieving the desired results.

In 2019-20, exports of coir pith, tufted mats, coir geo-textiles, coir rugs and carpets, coir other sorts, coir rope and powerloom mats registered growth both in terms of quantity and value,

whereas handloom mats, coir yarn, rubberised coir and power loom matting showed decline in terms of quantity and value. Coir pith with export earnings of ₹1,349.6 crore constituted 49 per cent of the total export of coir products from the country. The value added items from coir put together constituted 33 per cent of the total exports. Tufted Mats topped among the value added products. Tufted Mats constituted 5.9 per cent in quantity and 20.4 per cent in terms of value and it is one of the major items of coir products exported from India. Coir fibre constituted 31 per cent in quantity and 18 per cent in value.

In 2019-20, 111 countries imported coir and coir products from India. USA topped among the importing countries with 25.3 per cent in value and 14.4 per cent in quantity. China was the second largest importer of coir products from India with a share of 21.9 per cent in value and 35.9 per cent in quantity. The other countries, which imported substantial quantities of coir and coir products, were Netherlands, South Korea, UK, Spain, Australia, Italy, Germany, and Canada.

In 2019-20, a total of 2,17,390 MT of coir and coir products were exported through Cochin Port as against 2,25,463 MT in 2018-19. Export trend of coir and coir products from India and Kerala is given the **Figure 5.4.7**.

Export of Tea

India exported 2,41,344 MT valued ₹5,457.1 crore of tea in 2019-20 as against 2,54,502 MT worth ₹5,506.8 crore in 2018-19 registering a negative growth rate of (-)5.2 per cent in terms of quantity and (-)0.9 per cent in terms of value. Export of tea from Kerala ports also decreased from 80,683 MT worth ₹1,434.4 crore in 2018-19 to 76,983 MT worth ₹1,470.82 crore registering a negative growth of (-)4.6 per cent in terms of quantity and a growth rate of 2.5 per cent in terms of value. (Table 5.4.5)

Export of Coffee

Export of coffee from Kerala through Cochin Port was 31,750 MT in 2019-20 as against 40,670 MT in 2018-19 registering a decline of 22.0 per cent. Export of coffee through Cochin port has been declining continuously. It is only half of the amount exported in 2013-14 (75,631MT)

Export of Spices

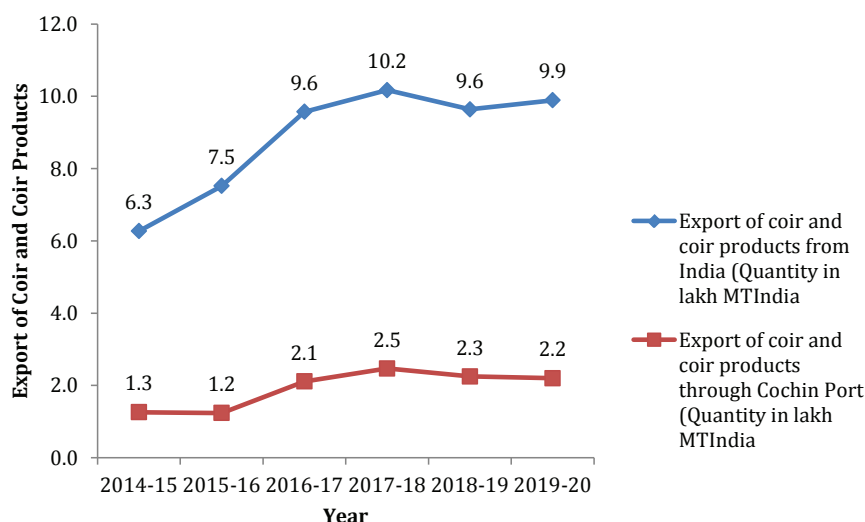
Despite the Covid-19 pandemic, spices from India continued its upward trend in 2019-20 and has crossed the 3 billion US\$ mark in the first time in the history of spices export. In 2019-20 11,83,000 MT of spices and spices products

Table 5.4.5 Export of tea from Kerala ports and India, 2014-15 to 2019-20, quantity in MT, ₹ in lakh

Year	Kerala		India	
	Quantity (MT)	Value (₹ in lakh)	Quantity (MT)	Value (₹ in lakh)
2014-15	69,343	94,879	1,99,077	3,82,364
2015-16	69,706	1,02,534	2,32,920	4,49,310
2016-17	67,431	1,13,935	2,27,634	4,63,250
2017-18	75,741	1,23,294	2,56,572	5,06,488
2018-19	80,683	1,43,440	2,54,502	5,50,684
2019-20	76,983	1,47,082	2,41,344	5,45,710

Source: Tea Board

Figure 5.4.7 Export trend of coir and coir products from India and Kerala (through Cochin Port), 2014-15 to 2019-20, quantity in lakh MT



Source: Coir Board and Cochin Port Trust

worth ₹21,51,540.4 lakh was exported from India as against 11,00,250 MT worth ₹ 19,50,581.2 lakh in 2018-19 registering a growth of 7.5 per cent in volume and 10.3 per cent in value.

The export of spices from Kerala through Cochin and Thiruvananthapuram ports was 1,03,635 MT valued ₹4,05,861.8 lakh in 2019-20 as against 93,036.5 MT valued ₹3,77,427.2 lakh in 2018-19 registering a growth of 11.4 per cent in volume and 7.5 per cent in value.

The share of Kerala in Indian export of spices and spices products recorded a slightly fluctuating trend in the last several years. In 2019-20, the share of Kerala increased to 8.8 per cent as against 8.5 per cent in 2018-19 in terms of quantity. In terms of value, it declined to 18.9 per cent in 2019-20 from 19.3 per cent in 2018-19. (Table 5.4.6).

The growth of export of spices and spice products, in quantitative terms, from India and Kerala registered fluctuating trend for the last several years. The growth of export of spices and spice products from India was 9.4 per cent in volume in 2014-15. The growth declined to (-)5.7 per cent in 2015-16. In 2016-17, it increased by 12.4 per cent. However, it again decreased to 7.0 per cent in 2018-19. In 2019-20, the growth increased to 7.5 per cent in 2019-20.

Kerala's export of spices and spice products, in quantitative terms, also recorded a fluctuating growth. It was 0.2 per cent in 2014-15, rose to 22.7 per cent in 2015-16, went down to a negative growth rate of (-)15.6 per cent in 2016-17, increased by 13.1 per cent in 2017-18 and recorded a negative growth of 2.5 per cent in 2018-19. In 2019-20, export of spices and spices products shows a remarkable growth of 11.4 per cent. Figure 5.4.8 depicts the trend in growth of export of spices and spice products from India and Kerala.

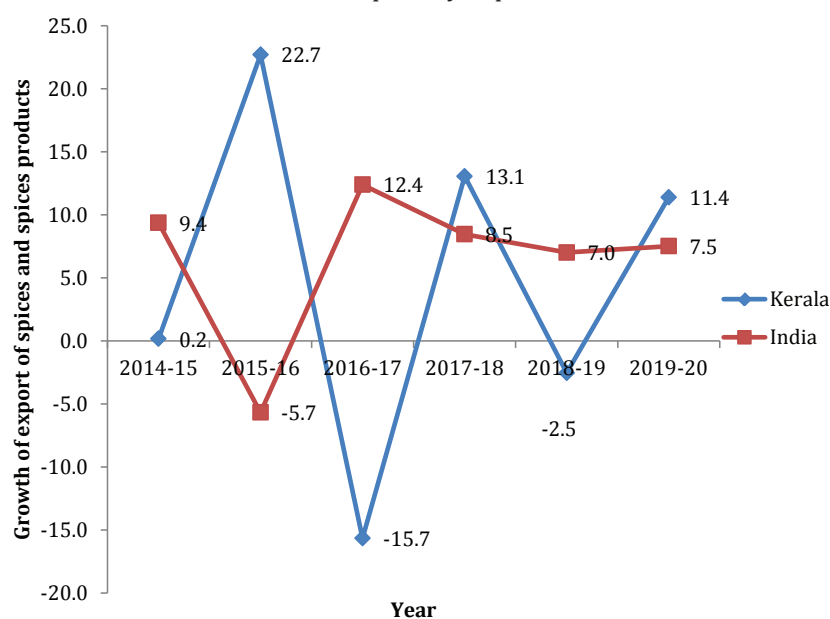
As far as individual spices are concerned, in 2019-20, export of chilli, turmeric, coriander, cumin, celery and fennel from Kerala showed an increase both in volume and value as compared to previous year. A total volume of 883 MT of cardamom (small) valued ₹242.3 crore was exported from Kerala through Cochin and Thiruvananthapuram ports in 2019-20 as against 2,097 MT valued ₹273.2 crore in 2018-19, registering a decrease of 57.9 per cent in volume and 11.3 per cent in value. Export of chilli increased from 23,122 MT valued ₹418.0 crore in 2018-19 to 26,460 MT valued ₹469.68 crore registering a growth of 14.4 per cent in volume and 12.4 per cent in terms of value. In 2019-20, export of pepper was 14,198.2 MT valued ₹471.3 crore as against 12,503.9 MT valued ₹517.6 crore in 2018-19 registering a growth of 13.6 per cent in volume and a negative growth of (-)8.9 per cent in value.

Table 5.4.6 Export of spices, India and Kerala, from 2014-15 to 2019-20, quantity in MT and value in ₹ lakh

Year	Kerala		India		Kerala's share (%)	
	Quantity (in MT)	Value (₹ lakh)	Quantity (in MT)	Value (₹ lakh)	Quantity	Value
1	2	3	4	5	6	7
2014-15	81,555.3	3,28,534.0	8,93,920.0	14,89,967.5	9.1	22.1
2015-16	1,00,076.0	3,90,518.1	8,43,255.0	16,23,823.0	11.9	24.1
2016-17	84,418.8	4,27,120.1	9,47,790.0	17,81,223.6	8.9	24.0
2017-18	95,455.9	4,15,296.1	10,28,060.0	17,98,016.2	9.3	23.1
2018-19	93,036.5	3,77,427.2	11,00,250.0	19,50,581.2	8.5	19.3
2019-20	1,03,635	4,05,861.8	11,83,000	21,51,540.4	8.8	18.9

Source: Spices Board

Figure 5.4.8 Trend in growth of export of spices and spice products from India and Kerala, 2014-15 to 2019-20, in quantity in per cent



Source: Spices Board

In the case of value added products export of curry powder/mixture, mint products and spice oils and oleoresins also shows an increase in volume and value as compared to 2018-19. Export of curry powder/mixture in 2019-20 was 11,208 MT valued ₹251.9 crore as against 9,387.9 MT valued ₹220.1 crore in 2018-19 registering an increase of 19.4 per cent in volume and 14.4 per cent in value. A total volume of 9,560 MT of

spice oils and oleoresins valued ₹1,894.1 crore was exported in 2019-20 as against 8,127 MT valued ₹1,671.2 crore of previous year registering a growth of 17.6 per cent in volume and 13.3 per cent in value.

Box 5.4.1 Export Preparedness Index 2020

Niti Aayog, Government of India has developed the first-ever Export Preparedness Index (EPI) for Indian States. The Index ranks States and Union territories on critical parameters required for promoting the country's exports.

Export Preparedness Index 2020 examines the export ecosystem of Indian States and Union Territories. It is the first index that has been developed to study export preparedness and competitiveness at sub-national level. The Export Preparedness Index aims to assess the readiness of the States, in terms of their export potential and their performance. The primary goals of the index are to inculcate competition among States in order to achieve the following –

bring favourable export promotion policies, ease regulatory framework to prompt sub-national promotion of exports, create necessary infrastructure for exports, and help in identifying strategic recommendations for improving export competitiveness.

The Index includes four pillars and eleven sub-pillars. The four pillars are (i) Policy, (ii) Business Ecosystem, (iii) Export Ecosystem and (iv) Export Performance. Export Performance is the only output-based pillar and examines the reach of export footprint of States and Union Territories

The Index categorises States into three groups – Major States (Coastal and Landlocked), North Eastern and Hilly States, and Union Territories/City States/Small States, categorised based on the area in order to account for the spatial variations across States. Gujarat with a score of 75.19 has topped the index with Maharashtra (score of 75.14) and Tamil Nadu (score of 64.93) in second and third positions in the index.

Kerala, clubbed among coastal States, is ranked 10th in the overall ranking with a score of 54.11. Kerala is the only State that has performed exceedingly well in export diversification. However, as per the index export ecosystem is weak in the State.

Pillar	Kerala's score	Ranking
Policy	74.77	10th
Business Ecosystem	56.23	10th
Export Ecosystem	26.99	18th
Export Performance	56.30	4th
Overall score	54.11	10th

Note: All the values are scores on a scale 0-100. So, higher score represents better performance.

The Export Preparedness Index is expected to be useful to States and Union territories to benchmark their performance against their peers and analyse the potential challenges and prospects to develop better policy mechanisms to foster export-led growth.

Source: Export Preparedness Index 2020, NITI Aayog

5.5 PUBLIC SERVICES

Survey and Land Records

The Department of Survey and Land Records has been constituted for completing the re-survey process of the entire land holdings in the State within a stipulated period. Along with this, the department also works on land management, digitisation of land survey records, survey of land for facilitating distribution of pattayam (ownership deed of land), forest land survey, and survey of land for special projects. The department had completed re-survey of land in 908 villages till 2020, with the re-survey work of 756 villages remaining to be completed. Details of re-survey from 2017 to 2020 (up to August 31, 2020) are given in **Appendix 5.5.1**.

The department also acts as the authority on re-survey appeals and LA (Land Acquisition) appeals. The District Collector takes final decision on the recommendation of District survey superintendent on such appeals. In the year 2019, the District offices have finalised 2,41,344 cases (88.43 per cent) out of 2,72,903 appeals on re-survey. It also finalised 133 cases out of 161 appeals received on LA. Details are shown in **Appendix 5.5.2**

The Survey department imparts training to IAS officers, officials of Revenue department, officials of Survey department, and officials of Forest department. Details are shown in **Appendix 5.5.3**.

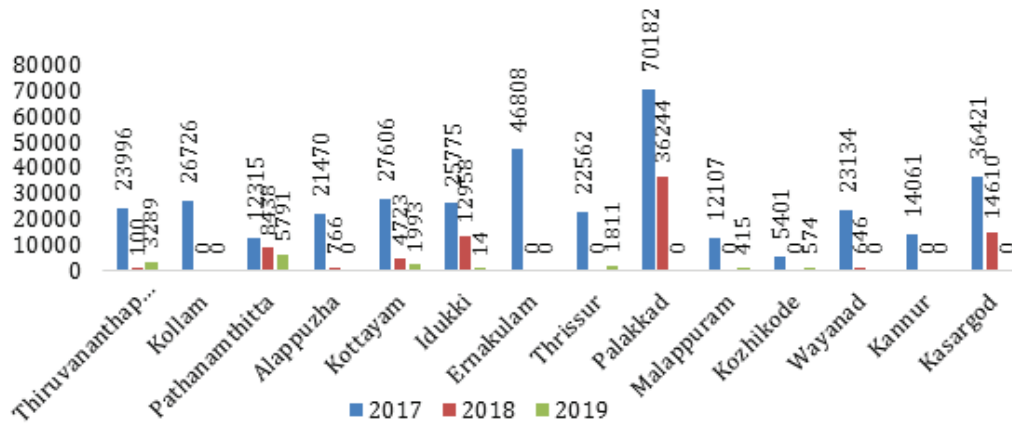
Digitisation of Land Records

The Survey department is entrusted with work of the digitisation of Survey records. 429 block maps were prepared in 2019. Details are given in **Appendix 5.5.4**. The existing land records are scanned and kept in digital form. In 2017, 2018 and 2019, the number of Field Measurement Book (FMB) scanned are 3,68,564, 78,485 and 13,887 respectively. During this period, the largest number of FMB was scanned in Palakkad District (1,06,426) and least number of FMB were scanned in Kozhikode District (5975). **Figure 5.5.1** shows the District-wise details of FMB scanned in three years.

Registration Department

The mandate of Registration department is to facilitate registration of documents. The department had successfully implemented e-payment system for the collection of registration fee. In 2019, the department collected a total of ₹94,006.57 lakh as document registration fee. Out of this ₹57,773.2 lakh is for sale conveyance which is the major component. Details of documents registered and fee collected are given in **Appendix 5.5.5** and **5.5.6**. Apart from the digitisation of old documents, the department has also started some new initiative like Digital Gehan and e-payment system.

Figure 5.5.1 No. of Field Measurement Book sheets scanned 2017-2019



Source: DSLR

Box 5.5.1 Digital Gehan

Digital Gehan is a system introduced for bringing about transparency and speed in the process and procedures of the Registration Department to issue certificates to people who want to avail agricultural and other loan from co-operative banks.

e-payment system

In 2019-20, e-pos machines were installed in all the 315 Sub Registrar Offices, which are now connected with e-payment system in 2019-20. This facilitates easy and safe cash transaction in Sub Registrar Offices.

Excise Department

The Excise department has 69 Excise circle offices, 138 Excise range offices, 41 Check posts and 19 Special Squads. 'Vimukthi' is one of the important programmes being implemented by the Excise Department for the eradication of substance abuse. It detects cases related to Abkari Act 1950, Narcotic Drugs and Psychotropic Substance (NDPS) Act 1958, Cigarettes and Other Tobacco Products (COTPA) (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act 2003. In 2020 (up to August 31, 2020), it registered 7,984 cases under Abkari act, 1,934 cases under NDPS Act and 24,523 cases on COTPA. It was 13,763, 7,099 and 76,833 respectively in 2019. District-wise case details for the year 2018, 2019 and 2020 are in **Appendix 5.5.7**. The Excise Department has implemented e-payment and e-licensing facilities.

In the State, number of Abkari cases were 10,634 in 2018 and in 2019, it increased by 29.42 per cent to 13,763. The rate of increase is highest in Idukki District (93.33 per cent). With respect to NDPS cases, there is an overall decline of 6.25 per cent from 2018. The number of cases has decreased in all Districts except Pathanamthitta, Palakkad, Kozhikkode, Wayanad and Kasaragod. The highest decline in cases was recorded in Thiruvananthapuram (35.38 per cent). In case of COTPA cases, an overall increase of 7.02 per cent was recorded. Ernakulam recorded 96.84 per cent increase (highest) and Kozhikkode showed 31.44 per cent decrease in COTPA cases. Details are given in **Appendix 5.5.8**.

The department seizes and destroys contrabands from various illegal sources. It includes spirit, arrack, IMFL, Toddy, arista, ganja and ganja plants. District-wise details for the year 2020 are in **Appendix 5.5.9**.

Excise department conducts public awareness campaign for Schools, Colleges and for Public. A total of 7,162 awareness campaigns were conducted in 2020. It was 22,272 in 2019. District-wise, sector-wise details are in **Appendix 5.5.10**.

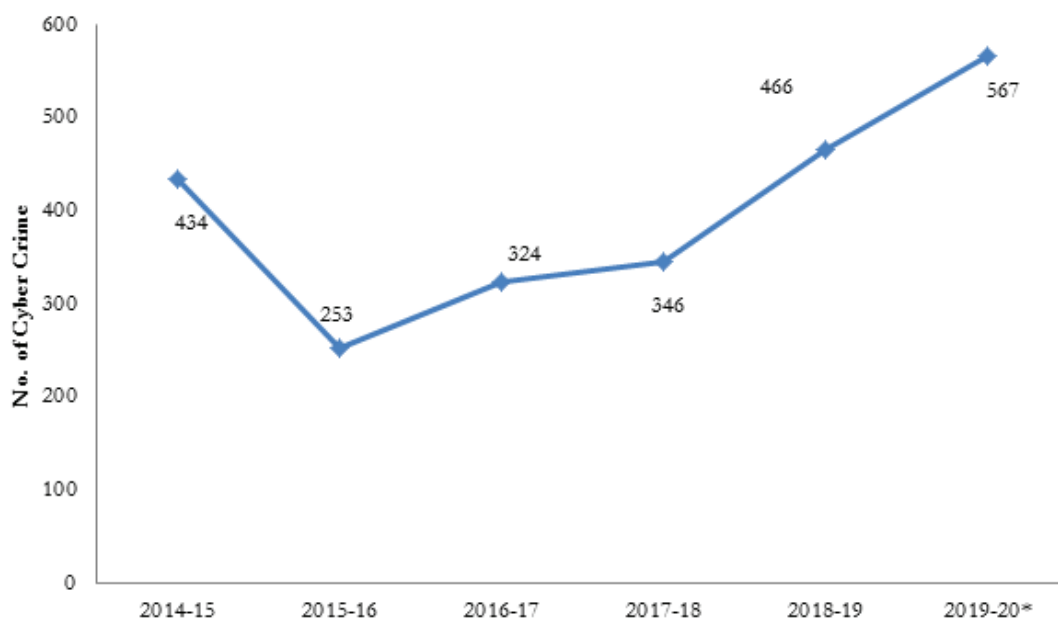
Police Department

Police Department is an important agency of State Government entrusted with the duty of maintaining law and order along with crime investigation. The department has different wings such as General Executive Wing, Crime Branch, Armed Police, State Crime Record Bureau, Training Wing, Special Branch and 11 specialised wings. The specialised wings include Forensic Division, Women Cell, Traffic Police, Watch and Ward, Highway Police, Coastal Police, Temple Police, Tourism Police, Mounted Police, Dog Squad, and Police Band. The General Executive Wing is working among people and it has a Head Quarter in Thiruvananthapuram, North and South Zones, four police ranges and 19 police Districts.

The State Government implements several Plan schemes through police department. The department implements gender sensitive schemes. It has 14 Pink control rooms and 19 Counselling Centres. There are 570 Nirbhaya Volunteers working along with Police Department. Details are in **Appendix 5.5.11**. The department works along with people through community policing schemes. All the 518 police stations have been converted as Janamaithri police stations. In the wake of Covid-19 pandemic, Janamaithri Beat officers are now exclusively engaged in the activities to alleviate the disease. Details are in **Appendix 5.5.12**.

The Student Police Cadet (SPC) Project is a school-based initiative by Kerala Police, implemented jointly by the Departments of Home and Education, and supported by departments of Transport, Forest, Excise and Local Self-Government. The project trains high school students in the fields of law, discipline and civic sense, and encourages students to develop empathy for vulnerable sections of society. It also strengthens commitment towards family,

Figure 5.5.2 No of Crimes Registered in Cyber Cell



*Up to 31.08.2020

Source: Police Department

Box 5.5.2 2020 – Year of Women Safety

The year 2020 was the Year of Women Safety 2020 to ensure safety of women including girls. Instructions were issued for the safety of women as well as their empowerment. In addition to the existing 8 Pink Control Rooms, 6 more new Pink Control Rooms were set up during this period. Pink Control Rooms are functioning 24x7 hours, aimed to extend police assistance for the security of women and children.

community, and the environment, enabling them to resist negative tendencies such as substance abuse, deviant behaviour, intolerance, and other social evils. The Project was launched on August 2, 2010 in 127 high schools/higher secondary schools across Kerala. Presently, there are 57,621 cadets in 701 schools in which SPC was implemented. Out of 701 schools, 409 are Government schools, 268 are aided schools and 24 are unaided schools. Details are in **Appendix 5.5.13** and **5.5.14**.

The NRI cell of police registered 33 cases in 2019-20 (up to August 31, 2020) Details are in **Appendix 5.5.15**. The Cyber and high-tech enquiry cell had registered 567 cases in 2019-20, which was 466 in 2018-19. **Figure 5.5.2** shows the increasing trend of cybercrimes reported during the period 2014-15 to 2019-20.

Social media abuse, Online cheating, Cyber offences done through smart phones, Hacking of Bank Accounts and e-mail ids, Creation, publishing and sharing of child pornography are the major cyber-crime cases reported during the period under report. Details are given in **Appendix 5.5.16**.

Jails

An efficient prison administration should be aimed at ensuring the return of the offender to the society not only as a law abiding citizen, but also as one who is able to lead a well-adjusted and self-supportive life. The basic duty and responsibility of prisons department is to provide safe custody of all prisoners in jails. All persons admitted to the jail are entitled to hygienic living conditions, adequate food, clothing and medical care, as envisaged in the law. Rehabilitation

of prisoners requires more importance and is a psycho social process of re-educating and restraining those who commit crimes. The ultimate aim is to reintegrate offenders into society so that they can live a dignified life.

Prison and its administration is a State subject in India as directed by item 4 under list 11, Schedule VII in the Constitution of India. Prison institutions are ruled by the Prison Rules of each State and are under the control of State Government. In Kerala, there are 55 jails including 3 Central prisons at Kannur, Viiyur and Thiruvananthapuram. There are 3 open prisons, 3 women prisons, 13 district jails, 15 special sub jail, 16 sub jails and one high security prison.

The present authorised capacity of all the jails is 7,200. As on March, 2020, there were 7,663 (7,056 and 607 parole) prisoners, of whom 193 are women. Prisoners are given parole or leave and this year as a precautionary measure against Covid-19 were granted bail by High Court of Kerala. Borstal School is situated at Thrikkakkara, Ernakulam, accommodating 41 inmates. Details of prisoners in jails are given in **Appendix 5.5.17** and number of prisoners for the period 2015-2020 is given in **Table 5.5.1**.

Modernisation of Prisons and Welfare of Prisoners are the two major schemes implemented by the Prison department. The mission of the department is to make all efforts to ensure that the prisoners are reformed and become self-sustainable individuals with acceptable social behaviour on release after their completion of sentence.

Strengthening of infrastructure facilities, modernisation and activities for the welfare of

Table 5.5 1 Number of prisoners as on 31st March for the year 2015 to 2020

Prisoners	March 2015	March 2016	March 2017	March 2018	March 2019	March 2020
Total	7,544	7,983	7,613	7,882	7,967	7,663
Female	201	213	200	196	181	193

Source: Prisons Department

prisoners are given due importance in the State. Setting up of visitor's room, toilet facilities, Video conferencing system, strengthening security of jails, Installation of CCTV Surveillance system, are some of the activities taken by the department as part of modernisation. Welfare and rehabilitation initiatives are aimed at improving basic education, vocational training, promoting the skills and interest of the prisoners in arts and sports to enable them to follow a vocation on release from jails for earning a dignified livelihood. It is an effective and futuristic step in correction and rehabilitation of prisoners.

Services Provided by Prisons Department

Kerala Prisons Department renders services to protect the following rights of prisoners subject to the provisions of law.

- To live with human dignity.
- Adequate diet, health and medical care, hygienic living conditions and proper clothing.
- Communication with family members, friends, legal advisors and other persons.
- Access to legal service and legal aid.
- Protection against unlawful aggression on his/her person or against imposition of ignominy in any manner not authorised by law.
- Protection against unreasonable discrimination.
- Protection against punishment or hardship amounting to punishment, except through procedure established by law and do with due opportunity of defense;
- Pursuing his/her religious faith.
- Protection against labour not authorised by law or in excess of the prescribed period or

without payment of wages at the prescribed rate.

- Enjoyment of fundamental rights under chapter III of the Constitution of India in so far as they do not become incapable of enjoyment following conviction and confinement.
- Effective training in socially demanding vocation; and
- Release on due date.

Legal Framework of Probation System

The legal and regulatory framework for the Probation system is based on Probation of Offenders Act, 1958, Kerala Borstal School Act, 1961, and the Kerala Probation of Offenders Rules 1960. The probation system was handled earlier by the Prisons department. The responsibility is now shifted to the Social Justice Department, as it was felt that probation was not only an approach of non-institutional correction and control, but also one of the welfare and care of the offender. As there is no State policy for probation, the legal and regulatory framework is based on the previous approach followed by the Prison Department. A draft State policy for probation and the legal and regulatory framework is submitted to Government for approval.

The Kerala Prisons and Correctional Services (Management) Act, 2010

This Act is to provide for the safe custody, correction, reformation, welfare and rehabilitation of prisoners and management of prisons and correctional services in the State and for related matters.

The Kerala Borstal School Act, 1961

The Act makes provision for the establishment and regulation of Borstal schools in the State for the detention and training of adolescent offenders. Borstal school means corrective institution where adolescent offenders are given such industrial or agricultural training and other instructions, and subjected to such disciplinary and ethical influences which would facilitate their reformation and the prevention of crime. It is the institution meant for housing adolescent offenders between the age of 18 to 21 for better rehabilitation and reformation.

Probation

Probation is a universally accepted, effectively tried out, widely practiced non-institutional method used by Judiciary at their discretion to treat and rehabilitate selected offenders, especially young or first time offenders, without sending them to prison. It is a non-institutional treatment method designed to facilitate the social re-adjustment of offenders. It developed as an alternative to imprisonment. Probation is a method of dealing with specially selected offenders and consists of the conditional suspension of punishment while the offender is placed under the personal supervision of the probation officer and given individualised treatment. The object of probation is the ultimate re-establishment of the offenders in the community. Probation helps to reduce recidivism, including incidence of sexual offences, and reduce other crimes. It also helps to reduce over-crowding of prisons and thereby provides a cost effective method of dealing with selected offenders.

Kerala Probation of Offenders Rules 1960

Following the Probation of Offenders Act, 1958, Kerala Probation of Offenders Rules 1960 came into force to exercise the powers conferred by the PO Act. The Rules provide for institutional arrangements and functional frameworks in the State for implementation of the Act.

State Institute of Correctional Administration (SICA)

State Institute of Correctional Administration, situated at Poojappura, Thiruvananthapuram, is an institution meant for imparting training to the personnel of the department, preference being given to correctional treatment.

Plan Schemes for the Welfare Activities of the Prisoners

Modernisation of Prisons

As part of providing better atmosphere to prisoners, various modernisation programmes are being implemented under this scheme. Construction of building for prisons, sub jails, kitchen blocks, weaving block, canteen building and other infrastructure works are the activities undertaken for improving the prison infrastructure.

Welfare of Prisoners

The scheme envisages projects for various welfare activities of prisoners aimed at improving their basic education and vocational training. The activities include projects for improving security of jails, organisation of jail welfare day, re-orientation course and State level seminars, continuing education programme and yoga class, installation of CCTV surveillance system, and productive projects such as working in a dairy farm or a goat farm. Priority is given to provide vocational training with a focus on skill development.

Assistance to After Care and Follow-up Services and Victim Rehabilitation implemented by Social Justice Department

It is the policy of the government to release the prisoners prematurely based on their good of prisoners might be denied education at a very early age itself because of financial constraints. This might have adverse repercussions later. Therefore, the government has initiated a

project that aims at bringing these children into the mainstream of the society. The monthly assistance (10 months) given is ₹300 for 1st to 5th standard, ₹500 for 6th to 10th standard, ₹750 for 11th and 12th standard and ₹1,000 for Degree/Professional course. Educational assistance was given to 201 children of prisoners in 2019-20.

Educational Assistance to Children of Prisoners

Once persons are lodged in jail, it is their families that suffer the most in many cases. The children of prisoners might be denied education at a very early age itself because of financial constraints. This might have adverse repercussions later. Therefore, the government has initiated a project that aims at bringing these children into the mainstream of the society. The monthly assistance (10 months) given is ₹300 for 1st to 5th standard, ₹500 for 6th to 10th standard, ₹750 for 11th and 12th standard and ₹1,000 for Degree/Professional course. Educational assistance was given to 201 children of prisoners in 2019-20.

Major Achievements in 2019-20

- Installation of Video conferencing System: This project reduces the expenditure in connection with the physical appearance of remand prisoners in courts and providing escorts/security for them. Sanction given for VC system connecting courts and jails in 470 locations (383 studios in courts and 87 studios in 53 jails). Video Conferencing

facility established in 324 locations of the courts and jails so far.

- Activities undertaken in the outbreak of Covid-19: As preventive measures against Covid-19 pandemic, 14 Covid First Line Treatment (CFLT) centres were started. Prisoners remanded from Courts are lodged at these centres as per the Covid protocol. The department also contributed in the prevention of spread of Covid-19 pandemic by manufacturing mask and sanitiser in jails for distribution to the public at low cost. More than 15 lakh masks and 15,000 litres of sanitisers have been produced so far for distribution.
- Various vocational training programmes were conducted to train prisoners in knowledge and skills which would strengthen their will to work. These also provide opportunities for the inmates to engage themselves in fruitful pursuits during the term of their sentence in jails and enable them to follow a vocation on release from the jails enabling them to earn a livelihood after their release from prison. Training is imparted in areas such as beautician course, driving, tailoring, fashion designing, electrical hardware, building construction, food processing, bakery food making, plumbing, screen printing, organic farming, computer hardware assembling and lift operation.
- Three new jails constructed under the 13th Finance Commission Award started functioning. High security prison and district jail, Palakkad, and special sub jail, Irinjalakkuda are the new jails.
- The online delivery of food items prepared in

Box 5.5.3 Establishing Indian Oil Corporation Petroleum Outlet in Jails

The department has started 4 petroleum outlets of Indian Oil Corporation Ltd. at the premises of Central Prison and Correctional Homes Thiruvananthapuram/Viyyur/Kannur and Open Prison and Correctional Home, Cheemeni. The fuel stations are named Freedom fuel filling stations. Around 65 inmates are employed in the 4 fuel stations. Most unique feature of these outlets is that reformed prison inmates are employed to serve the customers, which will be an effective and futuristic step in correction and rehabilitation of the prisoners. It is to make inmates of the prison equipped for re-employment on their release as well as to improve their self-worth.

Central prisons Thiruvananthapuram/Viyyur in tie-up with “Swiggy” and “Uber” has been started.

- The department started a mission “Jail Jyothi” to ensure total literacy to prisoners with the support of State Literacy Mission and provides facilities for continuing education and higher education to the inmates.
- Sanction received for establishment of a model cashew garden at Open Prison and correctional Home, Nettukaltheri with the financial and technical support of Kerala State Agency for the expansion of Cashew cultivation.
- Miyawaki model forests are being setup in various jails.
- Reverse Osmosis plant and Power laundry system installed at Central Prison and Correctional home, Thiruvananthapuram, Viyyur and Kannur started functioning
- Hand book regarding rights and duties of prisoners in jail have been distributed and a Newsletter has started being published.

5.6 OUTREACH TO PUBLIC

The Information and Public Relations Department (I&PRD) is the nodal agency of the GoK to disseminate information to the public through various media on Government policies, programmes, schemes, initiatives and achievements. Also feedbacks on public opinion are being given to the Government so as to maintain a communication flow between the State Government and its citizens.

The department has initiated new approaches and modes of public relations interventions in order to keep pace with changing times. Among them are the initiatives in social media and mobile journalism. Making use of mobile applications to reach target audience, effective promotional campaigns through social media handles and digital marketing have ensured wider audience reach and enhanced interactions. Effective online campaigns, which were creatively different, gave an impetus to the overall public relations and information dissemination activities of the department.

The Information and Public Relations Department (I&PRD) played a pivotal role in disseminating information in periods of crises, including floods and the present pandemic, by utilising the best of PR tools and information dissemination network and platforms. The department also strengthened its social media activities with timely interventions and live audience engagements. The traditional avenue of Outdoor Publicity too witnessed the

commencement of a State-wide network of Government owned hoardings.

Major achievements of the department in 2019-20

1. As part of Outdoor and Field Publicity activities, the department has erected 37 own hoardings in the Districts of Thiruvananthapuram, Thrissur, Malappuram, Kozhikode and Kannur. Advertisements on 'Loka Kerala Sabha' and Life Mission' project were given in these hoardings. Programmes were organised throughout the State in connection with events such as Gandhi Jayanthi, Vayanadinacharanam, and Official Language-Malayalam week celebrations.
2. Under Press Facilities wing special news desk was formed and multi-lingual press release given during the floods of 2019 and for the Rebuild Kerala initiatives. More than 4,800 press releases and 1,500 news were released to media through email and Whatsapp.
3. The Online division of I&PRD undertook following activities – (i) Launched GoK Direct mobile app (more than 10 lakh downloads) as part of Push SNS service with focus on 'Covid-19' and 'Break-the Chain' campaign, (ii) Published SSLC and Plus-Two examination results through 'PRD Live' mobile app, which reached 41 lakh people by using auto-scaling technology (first time by a Government agency) to avoid peak user-load interruptions (iii) Started a Fact-

Check division (IPRD Fact-Check Kerala) to identify fake news and messages appearing in social media, which could adversely affect the functioning of the Government and also public life (iv) Uploaded close to 20,000 GOs and Cabinet Orders, including Circulars, Notifications, Tenders, Reports, Government Policies, News, Videos, Pictures and Banner News in the Government portal – www.kerala.gov.in.

4. The Central News Desk division of I&PRD released news clippings to television channels through the online service called ClipMail. The division released 10,589 news clippings from all over the State, resulting in 25,942 downloads by national and regional news channels.
5. The Audio-Visual Documentation wing of PRD produced and telecasted 52 episodes of Government's premier weekly interactive television programme – Naam Munnottu – featuring the Chief Minister through 14 channels, including Doordarshan and also on YouTube channel. 52 episodes of other weekly television programmes viz. Priya Keralam (news roundup) and Nava Keralam (development-based) were also telecasted.
6. The Photography wing organised the 2018 State Photography Award; covered 1,175 programmes, 5,107 pictures were released to media and 1,02,509 pictures were taken for documentation purpose.
7. The Publication division released more than 25 titles pertaining to various aspects of the State Government; of which 42.5 lakh are copies of 'Letter to School Students' by Chief Minister; 25,000 posters during Vayana Pakshacharanam, 20,000 booklets titled 'Janakeeyam Athijeevanam'; 50,000 booklets on week-long Onam celebrations.

The department has also made the following achievements in their different divisions in 2019-20.

1. As part of Training and Capacity Building, two batches of I&PRD staff underwent training in Data Journalism at IIM, Kozhikode.
2. Modernisation works of District Information

Officers in Kasaragod, Idukki, Pathanamthitta and Kannur completed

3. Under IT Services, all District Information Officers were provided with broadband (FTTH) connectivity of BSNL and Leased-line connection at headquarters.
4. As part of Public Relations Information Service Management (PRISM) new panel of Information Assistants, Sub-Editors and Content Developers were formed and provided training in mobile journalism.

Schemes implemented by the Public Relations Department

Visual Media

Visual Media Division includes the News Wing, Programme Production, Audio-Video Documentation and Electronic Media Marketing. Distribution of video news clippings to television channels, production and distribution of television advertisements, short videos, radio advertisements, production of documentaries and short films, documentation and archiving of contents produced and released by the division are the activities undertaken by the Visual Media Division. Besides Naam Munnottu and Nava Keralam, this division also undertakes the production of the radio based programme Janapatham which is broadcast through All India Radio (all stations in Kerala).

Web and New Media

The Web and New Media division of I&PRD undertakes the content management of Government web portal – www.kerala.gov.in. This bilingual (English and Malayalam) portal provides relevant details on Governor, Council of Ministers, Departments, Government Officials. This portal is also the gateway to more than 40 e-services of the Government. For those interested in the demography, geographical, socio-cultural, economic and historic aspects of the State, the portal serves as a handy online reference. www.kerala.gov.in is also a repository of the documents and public can

search and download Government orders, Cabinet decisions, CMDRF orders, notifications, circulars, application forms, policy documents, publications, acts and rules, reports and tenders. It also comes with options for the public to rate the performance of Government departments. Work reports pertaining to best practices by various Government departments can be accessed. Daily Government press releases and announcements also feature as part of the portal. Various Government publications are also made available through this portal annually, the Web and New Media division publishes the results of SSLC, Higher Secondary and Vocational Higher Secondary through the Government web portal, the official website of I&PRD Web and New Media division also manages the social media accounts of I&PRD like Twitter, Facebook and YouTube.

Media Relations

Press release division of the department issues news reports, Government programmes and functions, and other official notifications regularly to the media. Convening press meets providing better facilities to media reporters for easy reporting are the major activities coming under media relations wing. The Scrutiny wing of I&PRD scrutinises the various policies programmes and other important subjects involving the Government.

Publications

Publications of reference books, magazines, newsletters, pamphlets are being done by the editorial wing of publications division. Circulation wing also functions under this division.

Advertisement

IPRD is the official agency for the release of Government advertisements. Advertisement division issues various Departmental advertisements to media and also the disbursal of advertisement charges. Production of print, visual and audio advertisements are also done

by this division. Other functions include fixing of the Government rate for advertisements in print, electronic and online media and maintenance of media list.

Outdoor Publicity and Culture

The Outdoor Publicity division organises various publicity and awareness campaigns in the State and District-level as well as outside the State, for giving adequate publicity to Government policies and initiatives. Exhibitions, seminars, workshops, social media and multimedia campaigns, art and cultural forms are used for these purposes.

Research and Reference

The Research and Reference (R&R) wing regularly maintains registers of newspapers and periodicals published in the State as per the directions in the PRB Act. The department started an in-depth training for capacity building, focusing on the new trends and various aspects of public relations like crisis communication, campaign planning, brand building, and new technological evolutions like Mobile Journalism (Mojo), Branding, and Infographics.

Kerala Media Academy

The Kerala Media Academy is the only autonomous institution working under this department. Kerala Media Academy, which was earlier known as Kerala Press Academy was renamed by Government of Kerala in 2014. The main objectives of the Kerala Media Academy are to promote and co-ordinate the study and research in the field of journalism, to organise training courses, workshops, seminars, to publish books and periodicals, to institute media awards, and to grant fellowships for conducting advanced research in journalism. The Institute of Communication the subsidiary institute of Kerala Media Academy, conducts four courses on media and more than 100 students are studying in these courses.

The major activities of the Kerala Media Academy were the following ;(i) Launched Internet Radio with studio in Thiruvananthapuram sub-centre, (ii) Opened 'Modern Media Skill Centre' for providing training to Government officials

in public relations, (iii) Organised 'Madhyama Charithra Yatra' in which students of journalism participated and (iv) felicitated senior journalists in each District.

Box 5.6.1 Activities undertaken by the Department in the wake of Covid-19 pandemic

- **Press release and media co-ordination:** Published multi-lingual press releases and undertook media coordination during the media briefing on Covid-19 by the Chief Minister.
- **Direct Mobile app:** In March 2020, the Online Division of I&PRD launched GoK Direct mobile app as part of Push SMS service with focus on 'Covid-19' and 'Break-the-Chain' campaign.
- **GOs, Circulars, Proceedings:** Government orders, circulars and proceedings issued by different departments on Covid-19 were uploaded in the official website www.kerala.gov.in
- **Covid helpline numbers:** Covid helpline numbers, State Covid call centres, Union Government guide lines were uploaded on www.kerala.gov.in.
- **Multilingual Campaign:** Press Releases, videos and digital posters were issued in English, Hindi, Tamil, Kannada, Odiya and Bengali aimed at guest workers and NRKs. This was widely appreciated by the outside media. The campaigns helped in presenting the initiatives by the State as a successful model nationally and globally.
- **Bulletins in Sign Language:** Weekly bulletins in sign language have been another new initiative of the department in the pandemic days.
- **Special Bulletins on Radio Kerala:** Special bulletins are being broadcast every day in Radio Kerala (Internet Radio Service), which has a wide reach, including NRKs. Chief Minister's press meets goes live on it.
- **Daily e-Editions of Periodicals and Bulletins:** Malayalam and English Bulletins both at District and State-level and Special e-Editions of 'Kerala Calling' and 'Samkalika Janapadham' were published daily.
- **Daily Intelligence Report:** The Department developed an 'intelligence based reporting' for enabling the Government to know the ground realities and potential problems that can lead to negative news and controversies and to intervene timely to resolve the same.
- **Social Media Engagements:** Department is effectively utilising the social media and its different tools at the State and District-level to reach out to people during the lockdown.

CHAPTER

06

HUMAN
DEVELOPMENT

HUMAN DEVELOPMENT

6.1 EDUCATION

“By education I mean an all-round drawing out of the best in child and man-body, mind and spirit. Literacy is not the end of education or even the beginning.” - MK Gandhi.

Kerala’s achievements in social and economic development and quality of life are inspiring and encouraging. As far as Human development index is concerned, the State’s performance is comparable to the developed countries of the world. The State has adopted commendable measures to address the needs and requirements of children in all segments with a special attention to marginalised and vulnerable sections. Specifically designed programmes, with professional expertise and assistance, are being implemented to address the requirements of children with disabilities. Likewise, special focus on extracurricular activities in the areas of sports and arts has been given, though they need further improvements in terms of coverage and scientific assistance. “Pothu Vidyabhyasa Samrakshana

Yajnam” (Education Mission) specifically contemplates on bringing holistic changes in the system to meet the varying demands of all stakeholders of school education.

The outbreak of pandemic Covid-19 has adversely affected all the sectors of the economy including the education sector. This situation forced the educational institutions to rise to a different level and opt for platforms and techniques, which have not been used before. It created many challenges and opportunities for the educational institutions to strengthen their technological knowledge and infrastructure, which resulted in a massive rise in teleconferencing, virtual meetings, and webinars and e-conferencing opportunities. In Kerala, the expansion of ICT enabled education over the last three years in school education enabled the transition to the process of online teaching and learning.

Box 6.1.1 National Education Policy 2020

The NEP 2020, is based on the Draft National Education Policy 2019, formulated under the chairmanship of Dr K Kasturirangan, former chairman of the Indian Space Research Organisation. The Policy was approved on July 29, 2020 by the Union Cabinet.

- The policy seeks to restructure school curricula and pedagogy in a new ‘5+3+3+4’ design, so that school education can be made relevant to the needs and interests of learners at different developmental stages – a ‘Foundational Stage’ (five years), a ‘Preparatory Stage’ (three years), a ‘Middle Stage’ (three years) and the ‘High Stage’ (four years, covering grades 9, 10, 11 and 12).
- It aims to achieve ‘universal foundational literacy and numeracy’ in primary schools by 2025.

- Public and private schools – except the schools that are managed, aided or controlled, by the central Government – will be assessed and accredited on the same criteria, benchmarks, and processes.
- The medium of expression until at least grade five – but preferably till grade eight or beyond – shall be the student’s mother tongue, or the local or regional language. The ‘three-language formula’ will continue to be implemented in schools, where two of the three languages shall be native to India.
- The policy seeks to standardise the school curriculum for Indian Sign Language across the country.
- The Government of India shall constitute a ‘Gender-Inclusion Fund’ to provide equitable and quality education to all girls and transgender students. States shall use this fund to implement the central Government’s policies for assisting female and transgender students, such as provisions for toilets and sanitation, conditional cash transfers and bicycles.
- The policy suggests establishing ‘school complexes’ consisting of a secondary school and other schools offering lower grades of education – including anganwadi centres – in a radius of 5 to 10 km.
- The policy says that all ‘higher education institutions’ (HEIs) shall aim to be multidisciplinary by 2040. By 2030, there shall be at least one multidisciplinary HEI in or near every District. The policy aims for the Gross Enrolment Ratio in higher education to increase to 50 per cent by 2035 from 26.3 per cent in 2018.
- HEIs shall have the flexibility to offer Master’s programmes of two years for those who have completed a three-year undergraduate programme, of one year for students who have completed a four-year undergraduate programme, or five-year integrated Bachelor’s and Master’s programmes.
- ‘High performing’ Indian universities shall be encouraged to set up campuses in other countries. Similarly, selected universities – such as those from among the top 100 universities in the world – shall be encouraged to operate in India.
- A National Research Foundation shall be established to facilitate “merit-based but equitable” peer-reviewed research funding.
- Centre and States shall work together to increase public investment in education to 6 per cent of the gross domestic product, from the current 4.43 per cent.
- National Testing Agency, established in November, 2017 shall conduct all entrance examinations for higher educational institutions.
- Higher Education Commission of India, (HECI) Bill 2019 was passed in the Parliament to create a single regulator for higher education, replacing the University Grants Commission (UGC) and the All India Council for Technical Education (AICTE).
- Discussions are going on among the States regarding the implementation of the New Education Policy 2020. States including Kerala have raised their concern on some of the clauses such as increased centralisation and privatisation of education institutions, less role of States, lack of clarity in pre-primary education and opening of doors for foreign universities.

Source: MHRD

Literacy

The most essential indicator of the quality of a country’s human capital is literacy. As regards literacy, Kerala ranks first in the country with literacy rate of 93.91 per cent closely followed by Lakshadweep (92.28 per cent) and Mizoram (91.58 per cent) (Census of India, 2011). Kerala’s literacy rate, which was only 47.18 per cent in 1951, has almost doubled by 2011. The male-

female literacy gap which was 22 per cent point in 1951 has narrowed down to 4.04 per cent in 2011. Kerala holds the first place in the country in female literacy with 92 per cent and Rajasthan records the lowest female literacy rate (52.66 per cent) (Census of India, 2011). Literacy rate of the State from 1951 to 2011 is shown in **Appendix 6.1.1**. Variation in literacy rate among the Districts of Kerala is not significant. While Pathanamthitta District (96.93 per cent) reports

the highest literacy rate in the State followed by Kottayam (96.4 per cent) and Alappuzha (96.26 per cent), Palakkad District has the lowest literacy rate in the State (88.49 per cent). Literacy rate by sex for Districts in 2001 and 2011 are given in **Appendix.6.1.2**.

Kerala State Literacy Mission Authority (KSLMA) has been implementing innovative programmes in the field of literacy and continuing education. Literacy is not merely the ability to read and write, but in broad sense it is the basic awareness of how to lead a healthy and progressive social life. Keeping this in mind, KSLMA has launched social literacy programmes in the field of health, environment, gender, renaissance of Kerala, Constitution of India and e-learning. KSLMA conducts focussed and specialised literacy programmes for SC/ST, migrant workers and transgender which are more relevant in the context of Kerala. The adult learners under literacy and continuing education are the direct beneficiaries of these programmes.

Changathi: This project aims to make migrant labourers literates in Kerala. In 2019-20, the programme was implemented in 14 local bodies and 1641 migrant labourers became literates. It

is expected that about 25 lakh migrant workers in Kerala will be benefitted in future. Apart from imparting the training for reading and writing, awareness on good health and hygiene practices is also given as part of the programme.

Number of persons who have passed literacy examination through various special literacy programmes is given in **Table 6.1.1**.

The number of people who attended 4th and 7th standard equivalency examination has been increasing for the last few years. But in 2020, the number decreased because of Covid-19 lockdown. Because of the focussed efforts of KSLMA, Preraks could identify the needy persons and enrol them into various levels of equivalency programmes. KSLMA is taking efforts to bring a large number of persons back to studies and to enrol them in 10th and Higher Secondary equivalency courses (**Table 6.1.2**). The details on the number of people benefitted from Equivalency programme of Kerala State Literacy Mission in 2020 is given in **Appendix 6.1.3**.

It is seen that out of the total number of persons benefitting from these programmes, SC-ST population constitutes a major portion.

Table 6.1.1 Status of Special Literacy Programmes, 2019-20

Sl.No.	Name of the Programme	No. of persons passed
1	Special Literacy Programme in marginalised settlements all over the State.	30,755
2	Special Project for Scheduled Tribe (Attapadi)	2,553
3	Special Project for Scheduled Tribe (Wayanad)	2,993
4	Special Literacy programme for Scheduled Caste (Navachethana)	3,060
5	Special Literacy programme for Scheduled Tribe (Samagra)	1,152
6	Literacy Programme for Coastal Areas (AksharaSagaram)	3,608
7	Literacy Programme for Thiruvananthapuram Municipality-(Aksharasree)	7,673
8	Literacy Programme for migrant labourers (Changathi)	1,641
9	Special Project for continuing education for Transgender (Samanyaya)	44
10	Environment Literacy Programme	More than 10 lakh people participated in various programmes

Source: KSLMA

Table 6.1.2 Number of persons who enrolled in higher secondary and 10th equivalency courses

Course	Year	Female	Male	Transgender	SC	ST	Differently abled	Total
Higher Secondary	2019	19,792	12,842	36	7,779	1,220	454	42,123
	2020	9,524	14,252	30	5,273	759	371	30,209
10th	2019	15,567	18,460	29	7,786	1,381	748	43,971
	2020	10,898	11,026	22	5,148	839	613	28,546

Source: KSLMA

Because of the special efforts of KSLMA for the last few years to include transgenders into the programmes, a total number of 52 transgenders could benefit from the 10th and higher secondary equivalency programmes in 2020. Likewise, a significant participation of persons with disabilities can also be seen.

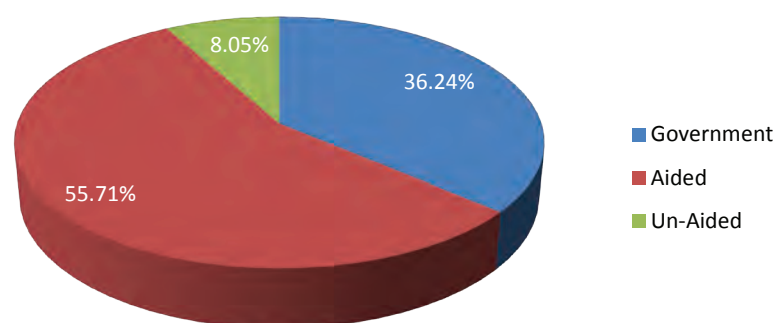
Elementary Education

There were 12,951 schools in Kerala in 2019-20, out of which 4,693 (36.24 per cent) are Government schools, 7,216 (55.71 per cent) are aided schools and 1,042 (8.05 per cent) are unaided schools. (Figure 6.1.1) More Government schools are functioning in lower primary (LP) section than upper primary (UP) or high school (HS) sections. Aided schools outnumber Government schools in all sections.

In 2019-20, Malappuram District had the highest number of schools (1,561) in the State followed by Kannur (1,308) and Kozhikode (1,279). Malappuram also has the largest number of Government (553) and unaided schools (201) in the State. But the largest number of aided schools is functioning in Kannur District (963). Details of District-wise, management-wise and stage-wise number of schools in Kerala in 2019-20 are given in **Appendix 6.1.4**.

In 2019-20, there are 1,529 schools in the State which are offering syllabi other than the one prescribed by the State Government. These include 1,315 CBSE schools, 164 ICSE schools, 36 Kendriya Vidyalaya and 14 Jawahar Navodayavidyalayas. One Jawahar Navodaya Vidyalaya school each is functioning in all the Districts. District-wise details of schools with syllabi other than State syllabus in the year 2019-20 are given in **Appendix 6.1.5**.

Figure 6.1.1 Management-wise percentage of schools in the State, 2019-20



Source: Directorate of Public Instruction

Physical infrastructure and facilities in Government Schools

Most of the Government Schools in Kerala are functioning in pucca buildings. 95 Government schools are working in rented buildings. District-wise details of Government schools having building facilities are given in **Appendix 6.1.6**. Local Self Government Institutions (LSGIs) and programmes like Sarva Shiksha Abhiyan (SSA) have contributed much to the overall development and improvement of physical infrastructure and common facilities in Government schools in the State. It is seen that 99.83 per cent of Government schools have access to drinking water and 100 per cent have urinals/latrines facilities. District-wise details of Government schools having drinking water/latrines/urinal facilities in Kerala in 2019-20 are given in **Appendix 6.1.7**.

Enrolment of Students

There is an increase in the enrolment of students in 2019-20 to 37.17 lakh from 37.04 lakh in 2018-19. The increase is more prominent in the enrolment in LP section. The stage-wise enrolment of students in schools in Kerala from

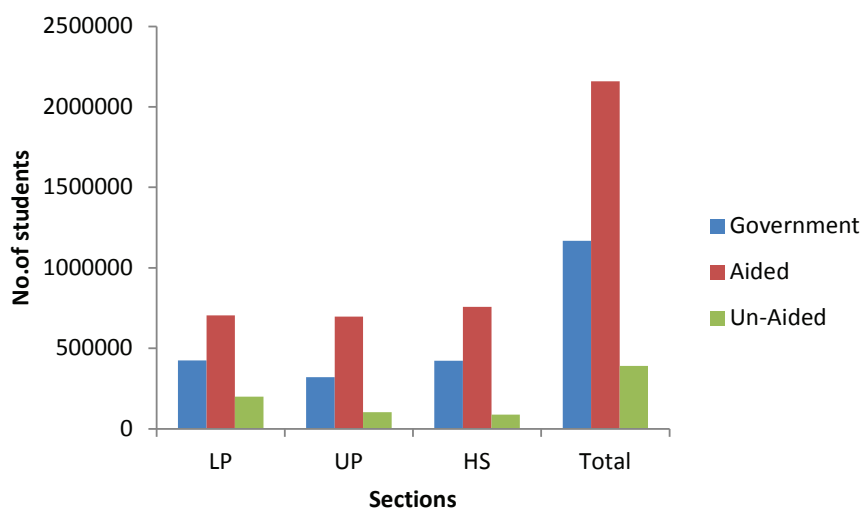
2013-14 to 2019-20 are given in **Appendix 6.1.8**. Details of management-wise and standard-wise enrolment of students in schools in 2019-20 are given in **Appendix 6.1.9**. In all sections, the students in private aided schools outnumber the students in Government and unaided schools (**Figure 6.1.2**). District-wise stage-wise and sex-wise enrolment of students in schools in the State in 2019-20 is given in **Appendix 6.1.10**. Except in LP section in Thrissur District, boys outnumber girls in all sections and Districts.

Through the programme “Pothuvidyabahsa Samrakshana Yajnam”, there has been a huge improvement in enrolment in Government and Government-aided schools in Kerala. Compared to previous years, around 1,56,565 new students sought admission in Government and Government aided schools in Kerala in the academic year 2017-18. This number increased further to 1,85,971 for the year 2018-19 and was 1,63,558 for the year 2019-20.

Enrolment of Girls in Schools

In 2019-20, girls constitute 48.96 per cent of the total student enrolment in schools. Boys outnumber girls in all the Districts. But the

Figure 6.1.2 Management-wise, section-wise enrolment of students



Source: Directorate of Public Instruction

Table 6.1.3 Proportion of SC/ST Students in Schools, 2019-20

Management	Others	SC	ST
Government	83.25	13.06	3.70
Private Aided	88.73	9.95	1.32
Private Unaided	95.47	4.06	0.47
Total	87.71	10.31	1.98

Source: Directorate of Public Instruction

gender gap is very narrow in Kerala in terms of enrolment.

Strength of Scheduled Caste and Scheduled Tribe Students

In 2019-20, Scheduled Caste (SC) students constitute 10.31 per cent of total students in the State. The percentage of SC students in Government schools, private aided schools and private unaided schools are 13.06 per cent, 9.95 per cent, and 4.06 per cent respectively. It is seen that the percentage of SC and ST students in Government schools is higher than that of private aided and private unaided schools (**Table 6.1.3**).

ST students constitute 1.98 per cent of total enrolment in schools in the year 2019-20. The percentage of ST students in Government schools, private aided schools and private unaided schools are 3.70 per cent, 1.32 per cent, and 0.47 per cent respectively in 2019-20. The standard-wise strength of SC/ST students in the State in 2019-20 is given in **Appendix 6.1.11**. Out of the total number of SC/ST students in the State, only 4.1 per cent of SC and 2.5 per cent of ST students are enrolled in private unaided schools. The rest are admitted in Government and private aided schools. Out of the total ST students, 58.8 per cent is enrolled in Government schools

Dropout rate

Kerala has achieved the distinction of having the lowest dropout rate of school students among the Indian States. In the year 2019-20, dropout ratio among school students in Kerala was 0.11 per cent. As per the MHRD report on Educational Statistics at a Glance, 2018, the all India average dropout rate of primary students is 4.13 per cent while it is 4.03 per cent in upper primary and 17.06 per cent in secondary levels. In Kerala the dropout ratios in lower primary stage and high school stages are higher compared to that of the UP stage. Dropout rate is highest among high school students. Drop-out ratio of high school has declined from 0.33 per cent in 2016-17 to 0.15 per cent in 2019-20 (**Table 6.1.4**). The decline is seen at all stages of school education.

Among the Districts, Idukki has the highest dropout ratio in the lower primary (0.33 per cent) section. Wayanad has the highest dropout ratio in the upper primary (0.25 per cent) sections followed by Idukki, Kasargod and Ernakulam (0.10 per cent). In high school section, Wayanad has the highest ratio with 1.14 per cent followed by Idukki (0.45 per cent) and Kasargod (0.21 per cent) respectively. District-wise/stage-wise dropout ratio in schools in 2019-20 is given in **Appendix.6.1.12**.

Table 6.1.4 Stage-wise Drop-out Ratio in Schools

	2016-17	2017-18	2018-19	2019-20
Total	0.22	0.16	0.12	0.11
L.P	0.2	0.15	0.12	0.11
U.P.	0.11	0.1	0.07	0.06
H.S.	0.33	0.22	0.17	0.15

Source: Directorate of Public Instruction

Table 6.1.5 District-wise Dropout Ratio in 2019-20

District	SC	ST	Others	Total
Thiruvananthapuram	0.17	0.52	0.12	0.15
Kollam	0.07	0.21	0.05	0.06
Pathanamthitta	0.00	0.11	0.00	0.00
Alappuzha	0.02	0.00	0.02	0.02
Kottayam	0.12	0.50	0.09	0.11
Idukki	0.44	1.58	0.14	0.30
Ernakulam	0.14	1.04	0.17	0.19
Thrissur	0.02	0.15	0.02	0.02
Palakkad	0.19	1.03	0.10	0.15
Malappuram	0.04	2.32	0.05	0.07
Kozhikode	0.10	1.57	0.08	0.10
Wayanad	0.06	1.77	0.08	0.50
Kannur	0.01	0.34	0.05	0.06
Kasaragod	0.44	1.59	0.04	0.12
Total	0.13	1.16	0.07	0.11

Source: Directorate of Public Instruction

The dropout ratio of SC-ST students has significantly declined over the years. The dropout ratios of SC and ST students are still higher than that of students from 'others' category (**Table 6.1.5**). Drop-out ratio among SC students in Kerala in 2019-20 has slightly increased to 0.13 per cent from 0.12 per cent in 2018-19 and that of ST students has slightly declined to 1.16 per cent from 1.29 per cent.

The dropout ratio of SC students is highest in Kasaragod District (0.44 per cent) and Idukki (0.44 per cent), whereas the dropout ratio of ST students is highest in Malappuram District (2.32 per cent) followed by Wayanad District (1.77 per cent). District-wise and management-wise details of drop out among SC and ST students in Kerala in 2019-20 are given in **Appendices 6.1.13** and **6.1.14**. The situation of ST students in Malappuram and Wayanad has to improve much to reach to the level of all Kerala average.

Number of Teachers

The number of school teachers in Kerala in 2019-20 was 1,62,045. Out of this 94,904 (58.57 per

cent) teachers are working in aided schools and 13,974 (8.62 per cent) teachers are working in private unaided schools. The remaining 53,167 (32.81 per cent) teachers are working in Government schools. 50.78 per cent of total teachers in the State are teaching in high schools, 24.37 per cent in upper primary schools and 24.85 per cent in lower primary schools. 72.29 per cent of total teachers in the State constitute women. Stage-wise and management-wise number of teachers in Kerala in 2019-20 is given in **Appendix 6.1.15**.

Schools with Less Number of Students

In 2019-20, the total number of schools with average strength of less than 25 students was 996 and out of these 382 were in Government sector and 614 were in the aided sector. There were 37 Government lower primary schools having average number of students with less than 10 while the number of schools in this category was 84 in aided sector. District-wise analysis shows that highest number of schools with less number of students was in Pathanamthitta (215) followed by Kottayam (118), Kannur (103),

and Alappuzha (103). The highest number of schools with less students in aided sector is in Pathanamthitta (154) followed by Kannur (90). In the Government sector, Pathanamthitta has the largest (61) number of schools with less number of students followed by Alappuzha (52). Lower primary schools constitute large chunk of the schools with less number of students. Among the Government schools with less number of students, majority (94.50 per cent) are lower primary schools. In the aided sector also 87.95 per cent of uneconomic schools is from lower primary section. District wise details of schools with less number of students in the State in 2019-20 are given in **Appendix 6.1.16**.

Kerala Infrastructure and Technology for Education (KITE)

Kerala Infrastructure and Technology for Education (KITE) is a State Government enterprise, setup to foster, promote and implement modernisation of educational institutions in the State of Kerala. KITE has revolutionised the education system of the State with its decade long operations and its spectrum include Information and Communication Technology, Capacity Building, Content Development, Connectivity, e-Learning, Satellite based education, Support and Maintenance mechanism, e-Governance or also physical infrastructure upgradation of schools. With the efforts of KITE, schools in the State now stand equipped with latest ICT gadgets supported by high speed broadband connectivity, necessary digital resource portals and trained teachers and thereby having a total ICT enabled eco-system.

KITE has successfully completed the implementation of ₹493.50 crore Hi-Tech school project in 4752 Secondary schools and ₹300 crore Hi-Tech Lab project in 11,273 Primary schools. By virtue of the Hi-Tech school project, 44,705 classrooms from standard 8 to 12 in 4,752 Government and Aided High School/Higher Secondary/Vocational Higher Secondary school in the State is now made Hi-Tech with a Laptop, Ceiling Mounted Projector, USB Speakers,

High Speed Broadband internet connectivity, Networking and access to SAMAGRA resource portal. 59,532 Laptops, 43,736 Multimedia Projectors, 42,055 Projector Mounting Accessories, 21,841 Projector Screens, 43,030 USB Speakers, 4,578 DSLR Cameras, 4,545 LED Televisions, 4,720 Full HD Webcams and 4,611 Multi-Function Printers have been provided to schools. Similarly as part of Hi-Tech Lab project, 11,273 Primary schools have been given Laptops, Projectors and USB Speakers in proportion to their student strength along with Broadband internet connectivity. A total of 56,248 Laptops, 24,382 Multimedia Projectors and 56,248 USB Speakers have been provided to these schools as part of this project.

In terms of ICT content, the SAMAGRA resource portal (www.samagra.kite.kerala.gov.in) provides access to a variety of multi-media materials, linked to the curriculum and syllabus for teachers and students alike. Students in schools are encouraged to form IT school clubs (Little Kites). With 2,060 units covering 1.80 lakh student members who engage in exploration and self-learning through ICT, Little KITES is the largest ICT network of students in India. They are given specific trainings in Animation, Cyber Safety, Electronics, Language Computing, Artificial Intelligence, Robotics and 3D Animation. Kite has also used its KITE VICTERS educational channel (www.victers.kite.kerala.gov.in) as medium for broadcasting educational content for students. The channel is now aired 24/7 and is now available in all cable and DTH networks. Through the MOOC (Massive Open Online Courses) model course for school teachers titled 'KOOL' (KITE's Online Open Learning-kool.kite.kerala.gov.in) teachers undergo mandatory certification courses without losing instructional hours. Up to March 31, 2020, over 10,000 teachers were trained through KOOL platform.

With the onset of Covid-19 pandemic in the second week of March 2020, as a precautionary measure all schools in the State were shut and the ongoing annual examinations were halted. However the Government was able to cope

Box 6.1.2 FIRST BELL by KITE

Despite the Covid-19 pandemic, this year's academic session commenced on 1st June itself, like in previous years, through the digital version of the classes through KITE VICTERS educational channel. The classes titled 'FIRST BELL' was broadcasted through the channel and was also telecasted live through its Facebook page www.facebook.com/victerseduchannel and uploaded in YouTube channel www.youtube.com/itsvicters for offline/deferred viewing. The effective implementation of the Hi-Tech projects in over 15,000 schools in the State by KITE had seen the deployment of over 1.20 Lakh Laptops and 70,000 Projectors along with other ICT equipment, which are being utilised for those students who are deprived of a Cable Connection or Television at their homes. In some classes, viewership exceeded 40 lakh. Apart from India, the classes were also viewed by hundreds of people from Middle East as well as from America and European region. In addition to English and Malayalam mediums, for the students who study in Tamil and Kannada mediums KITE developed Kannada and Tamil medium classes which were made available in the YouTube channels www.youtube.com/drcpkd and www.youtube.com/kitekasaragod, thus ensuring that not even a single student misses out on the learning opportunities. First Bell shall continue until the schools reopen.



With its limited resources and technology, KITE has been able to continue the digital classes for all standards in a pre-set time schedule. Social media platforms such as Facebook and YouTube has also been extensively used as part of this initiative. Initially there were some students who did not have access to these classes because of lack of equipment, but this was taken up successfully by the society through various levels of interventions by distributing televisions and smart phones

Source: KITE, 2020

with the challenges and to bridge the academic gap to the extent possible, through the various systems already in place in education as part of the projects implemented by KITE. In terms of Capacity Building, over 81,000 Primary teachers were given an online specific ICT training using SAMAGRA resource portal in a self-learning mode. A special programme for Kids called Avadikala Santhoshangal (Happy Vacation times) was conducted to recoup the lost class days in schools, with the intention to provide an opportunity for enabling a creative and intellectual environment for kids at homes. A unique programme Aksharavriksham was rolled out by which digital contents were developed in specific edutainment form so that the students can acquire the defined skills through various games and activities.

In terms of physical infrastructure upgradation, KITE has completed the projects of 56 school buildings under the ₹5 crore and ₹3 crore category, by which buildings with a total built-up area of 7.55 lakh sq.ft comprising of Hi-Tech classrooms, kitchen block, dining hall, toilet blocks, laboratories and auditoriums have been constructed.

Samagra Shiksha, Kerala (SSK)

The Samagra Shiksha is an integrated scheme on school education that envisages the 'school' as a continuum from pre-school to Senior Secondary levels. The creation of such a single administrative structure assists in developing a school sector-wide strategy stressing on improvement in quality of education. The common objectives of the Scheme are to enhance

Box 6.1.3 Major Initiatives of Samagra Siksha Kerala in 2019-20

Sasthrapadham

'Sasthrapadham' is a novel initiative of SamagraShiksha, Kerala to ignite the spirit of learning and enquiry among learners. This programme targets the higher secondary learners of the State and gives continuous support to students to familiarise with modern development in the discipline concerned. Association and interaction with prominent faculties in science and technology certainly help the learners to identify the prospects of each branch of knowledge. Separate programmes are given to Science, Humanities and Commerce students.

Local Resource Centres and Ooruvidyakendras

The National Achievement Survey report shows a visible gap in the learning levels between general students and those belonging to backward classes. Socio-economic aspects have resulted in the gaps in learning achievement. By providing academic support, Local Resource Centres, bridges this gap in academic achievement. The centres work in public places such as libraries and community halls close to the residences of the target group. The volunteers of Samagra Siksha, Kerala give support to the learners. The learners also get opportunities for developing their social skills, leadership qualities, media literacy skills, communication skills and skills in using ICT.

"**Ooruvidya Kendras**" are the tribal version of Local Resource Centres. Ooruvidya Kendras address two major academic issues of tribal learners. The first one, perhaps the prominent one, is the issue of retention. A sense of alienism caused by cultural factors and learning backwardness often tends these learners to abstain from schools. In addition to providing academic support, Ooruvidya Kendras aim to socialise these learners in multiple ways. Altogether 600 LRCs and 44 "Ooruvidya Kendram" are functioning in Kerala.

Ganitholsavam (The Festival of Maths)

It is an innovative programme to realise life-oriented and meaningful learning of Mathematics. The programme 'Ganitholsavam' was an enquiry on how the discipline of mathematics is reflected in human life.

Source: SSK, 2019

access through the expansion of quality school education; to promote equity through the inclusion of disadvantaged groups and weaker sections, to improve the quality of education for all, to bridge social and gender gaps in school education, to ensuring equity and inclusion at all levels of school education, and to promote vocationalisation of education.

All the activities by the SSK are undertaken in order to achieve the broader objectives of Pothu Vidyabhyasa Samrakshana Yajnam and to bridge the academic lacuna for ensuring age appropriate education as envisaged in the Right to Education Act.

Higher Secondary Education

Higher secondary courses were introduced in the State in 1990-91 to reorganise the secondary level of education in accordance with the National Education Policy 1986. There are 2,079 Higher Secondary Schools (HSS) in 2020 in the State. Out of these 819 (39.4 per cent) are Government schools, 846 (40.7 per cent) are aided schools and the remaining 414 (19.9 per cent) are unaided and technical schools. Among the Districts Malappuram has the largest number of HSS (248) in the State followed by Ernakulam (209) and Thrissur (203) respectively.

There are 7,250 batches of higher secondary classes in 2020. The enrolment in HSS was 3,81,755. Malappuram had the largest number of batches (1,067) with an enrolment of 58,930 students. District wise/Management-wise number of HSS and number of batches are given in **Appendix 6.1.17** and District wise enrolment of students in HSS are given in **Appendix 6.1.18**.

The pass percentage of students in higher secondary courses has increased from 84.28 per cent in 2018-19 to 85.14 per cent in 2019-20. In 2020, 18,668 students secured A+ for all subjects and 3,20,940 students were eligible for higher studies. The details are given in **Appendix 6.1.19**. The pass percentage of SC students increased from 66.33 per cent to 68.03 per cent and ST students decreased from 65.74 per cent to 63.59 per cent in 2019-20. Details are given in **Appendices 6.1.20** and **6.1.21**.

Vocational Higher Secondary Education

Vocational higher secondary education was introduced in the State in 1983-84. Vocational higher secondary education in the State imparts education at plus two level with the objective of achieving self/wage/direct employment as well as vertical mobility. In 2020-21, there are 389 Vocational Higher Secondary Schools (VHSS) in the State with a total of 1,101 batches. Out of these 261 are in the Government sector and 128 in the Aided sector. Kollam (52) followed by Thiruvananthapuram (41) has the largest number of Vocational Higher Secondary Schools in the State. District wise details of VHSS and courses in 2020-21 are given in **Appendix 6.1.22**.

76.06 per cent of students were eligible for higher education in VHS examination in 2020 March. The number of students who appeared and those who passed Vocational Higher Secondary examination from 2011 to 2020 and the results of school going students (2012-2020) are given in **Appendices 6.1.23** and **6.1.24**.

University and Higher Education

There are 14 State universities functioning in Kerala. Out of these, four universities viz. Kerala, Mahatma Gandhi, Calicut and Kannur are general in nature and are offering various courses. Sree Sankaracharya University of Sanskrit, Thunchath Ezhuthachan Malayalam University, Cochin University of Science and Technology, Kerala Agricultural University, Kerala Veterinary and Animal Science University, Kerala University of Health Sciences, Kerala University of Fisheries and Ocean Studies, Kerala Technological University offer specialised courses in specified subject areas. Besides these, the National University of Advanced Legal Studies (NUALS) established in 2005 and a Central University incepted in Kasargod District are also functioning in the State.

Arts and Science Colleges

There are 229 arts and science colleges in the State comprising of 163 private aided colleges and 66 Government colleges. Apart from these, various un-aided/self-financing arts and science colleges are also functioning in the State with the affiliation of universities. In 2019-20, Ernakulam and Thiruvananthapuram (26) had the largest number of arts and science colleges in the State followed by Kottayam (24). Thiruvananthapuram and Kozhikkode have the largest number of Government colleges (10) in the State. District-wise number of arts and science colleges in the State in 2019-20 is given in **Appendix 6.1.25**. The details of self-financing and autonomous colleges in the State are given in **Appendix 6.1.26**.

Enrolment of Students

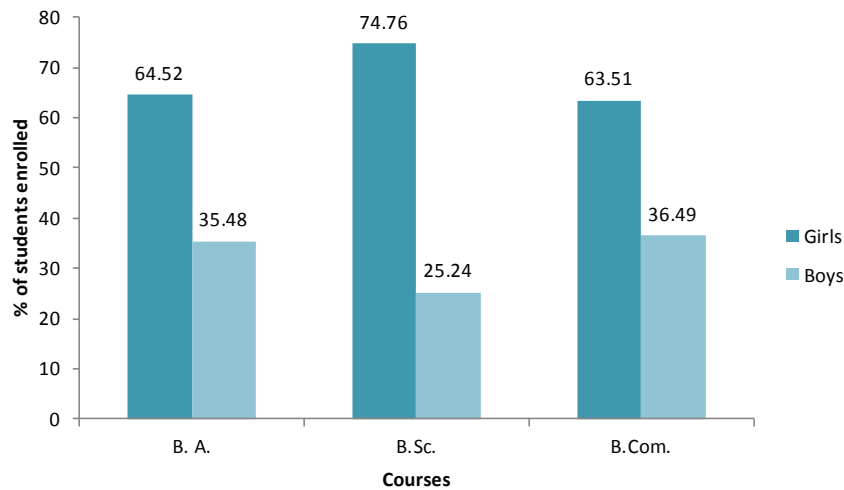
Total number of students enrolled in various arts and science colleges (excluding unaided colleges) under the four general universities in Kerala in 2019-20 is 3.32 lakh. Of this 2.25 lakh (67.7 per cent) are girls. (**Table 6.1.6**)

Table 6.1.6 Enrolment of Students in Arts and Science Colleges

Course	Total	Girls	Boys	per cent of Girls
B. A.	1,37,576	88,768	48,808	64.5
B.Sc.	1,05,545	78,908	26,637	74.8
B.Com.	46,403	29,472	16,931	63.5
Total	2,89,524	1,97,148	92,376	68.1
M.A.	15,924	10,167	5,757	63.8
M.Sc.	19,971	12,757	7,214	63.9
M.Com.	6,874	4,828	2,046	70.2
Total	42,769	27,752	15,017	64.9
Grand Total	3,32,293	2,24,900	1,07,393	67.7

Source: Directorate of Collegiate Education

Figure 6.1.3 Sex-wise proportion of students in degree courses



Source: Directorate of Collegiate Education

Out of the total students enrolled for degree courses, 47.5 per cent are enrolled for B.A degree courses, 36.5 per cent enrolled for B Sc and 16 per cent enrolled for B.Com degree courses. Girls constitute 68.1 per cent of total enrolment for degree courses. Gender-wise distribution of enrolment reveals that boys' proportion in B.Com course is higher than B.Sc and B.A.

27 subjects are offered for BA degree courses. Among the subjects, Economics followed by English has the largest number of enrolment of students. 31 subjects are offered for BSc course and Physics followed by Mathematics has the largest number of student enrolment. Details of

enrolment of students in arts and science colleges for BA, BSc and B.Com are given in **Appendices 6.1.27 to 6.1.29**. 2,1867 students are admitted to post graduate course in the State in 2019-20. 66 per cent of those enrolled in PG courses are girls. Details of enrolment of students in arts and science colleges for M.A, M.Sc and M.Com courses are given in **Appendices 6.1.30 to 6.1.32**.

Scheduled Caste/Scheduled Tribe Students

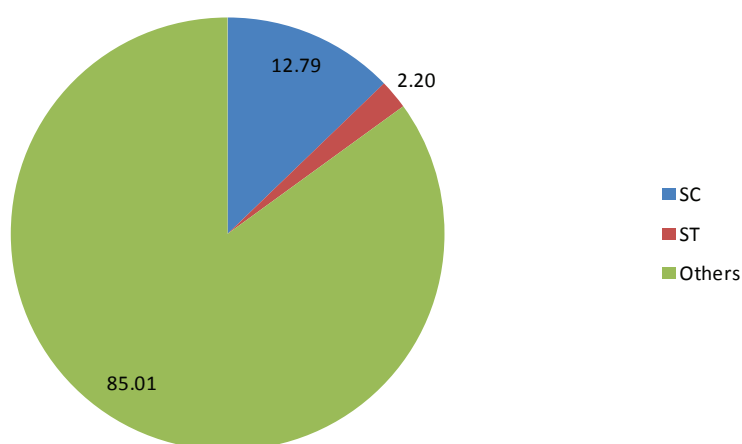
The enrolment of Scheduled Caste (SC) students in degree and post graduate course in the State is 42,486 which constitute 12.79 per cent of total

Table 6.1.7 Percentage of SC/ST students in higher education

Course	Total	% of SC	% of ST	% of Others
B.A	100	10.39	2.25	87.09
B.Sc	100	15.47	0.97	83.57
B.Com	100	13.35	1.85	84.8
Total	100	12.72	1.85	85.44
M.A	100	15.77	6.02	78.22
M. Sc	100	11.26	3.33	85.41
M.Com	100	13.30	4.90	81.8
Total	100	13.26	4.58	82.15
Grand Total	100	12.79	2.20	85.01

Source: Directorate of Collegiate Education

Figure 6.1.4 Percentage of SC/ST students in degree and PG courses



Source: Directorate of Collegiate Education

students in 2019-20. Scheduled Tribe students in degree and post graduate course in the State is 7,311 which constitute 2.2 per cent of the total students in 2019-20.

Enrolment of SC and ST students in arts and science colleges in Kerala in 2019-20 is given in **Appendix 6.1.33**. The number of SC students in arts and science colleges has increased from 41,547 to 42,486 and ST students from 6,956 to 7,311. It is also seen that the enrolment is increasing over the last few years and the proportion of SC-ST students' enrolment is higher than that of their population proportion. Percentage wise distribution of SC/ST students is shown in **Table 6.1.7** and **Figure 6.1.4**.

Scholarships

Central and State sector scholarships of 13 types are given to students. Various scholarships including post metric scholarships (65,626), District Merit Scholarship (20,409) and Kerala State Suvarna Jubilee Scholarship (4,473) were given in 2019-20. The details of scholarships offered from 2015-16 to 2019-20 are given in **Appendix 6.1.34**.

Teachers

The number of teachers in arts and science colleges in the State in 2019-20 was 9,955, out of whom 57.2 per cent constitutes women.

University-wise number of teachers in arts and science colleges from 2015-16 to 2019-20 is given in **Appendix 6.1.35**. 3,933 (39.5 per cent) teachers in arts and science colleges in the State have Ph.D degree. Details are given in **Appendix 6.1.36**. A total of 3,772 Guest Lecturers were working in arts and science colleges of the State in 2020. Details are given in **Appendix 6.1.37**.

Kerala State Higher Education Council

By recognising the importance of State-level planning and co-ordination for the effective implementation of national level policies in higher education, the National Policy on Education, 1986 suggested that State Council of Higher Education should be set up in all States and accordingly, Kerala State Higher Education Council came into existence on March 16, 2007. The Council is the principal higher education policy input provider of the State and it strives to bring about equity, access and excellence in higher education sector. The major responsibilities of the Council are:

- Act as an agency for formulating higher education policies of the State.
- Render advice to the Government, universities and other institutions of higher education in the State.
- Co-ordinate the activities of various agencies of higher education in the State.
- Initiate new concepts and programmes in higher education.
- Provide common facilities in higher education without impinging upon the autonomy of other institutions of higher education.

The major initiatives of the Council in 2019-20

e-Journal Consortium

It is the facility of free access to e-journals across institutions in the country provided by Information and Library Network Centres

through which expenditure can be reduced considerably. Almost all the journals and database in the relevant disciplines can be subscribed at a negotiated cost fully funded by the Government/Universities. Kerala State Higher Education Council acts as a nodal agency in the State with the participation of all the Universities in the State.

Kerala Academic Libraries Network (KALNET)

This initiative ensures the co-operation of the libraries attached to the Higher Education Institutions by forming a network in the State which would enable the sharing of resources among them. KALNET consist of two levels;

- i. Libraries of a University to be networked and to be known by the name of the University.
- ii. The network of the affiliated college libraries which in turn would be linked to KALNET

Kerala Council for Historical Research (KCHR)

KCHR is an autonomous academic institution, established in 2001, committed to scientific research in archaeology, history and social sciences. It is a recognised research centre of the University of Kerala and has academic affiliations with and has bilateral academic and exchange agreements with leading universities and research institutes in India and abroad. KCHR is planning to publish a comprehensive volume on the scientific history of Kerala from pre-historic to the present times.

In view of the Covid-19 pandemic, KCHR oriented academic extension programmes through online platforms. In this regard two series were started. The first is the KCHR Webinar Series where expert scholars in history and social sciences were included. These webinars are attended by researchers and scholars from different parts of the country. The second series is the KCHR Webtalk Series in Malayalam titled **Kerala Samoothathinte Parinamam**. This web talk

series target students from Higher Secondary School level onwards with an effort to make the academic discourse on Kerala history accessible both to students and to public.

Major initiative of KCHR in 2019-20

KCHR has taken initiatives for starting a project named the Cosmos Malabaricus. The aim of this project is to make available the extremely rich collection of historical records in Dutch Archives as well as in India for analysis. The entire duration of the project will be seven years. This project involves the University of Leiden (LU), National Archives of the Netherlands and the Kerala Council for Historical Research with the participation of Sree Sankaracharya University of Sanskrit Studies (SSUS) Kalady and the State Archives Department of the Government of Kerala.

Kerala State Skill Development Project and Additional Skill Acquisition Programme (ASAP)

ASAP, part of the State Skill Development Project (SSDP), was launched in 2012 jointly by the Higher and General Education Departments. It aims at tackling the problem of educational unemployment by introducing market-relevant foundation training, vocational training and career counseling alongside the general curriculum at the higher secondary and under graduate levels. The conducive environment set by ASAP has scaled up students employability and honed their professional skills. In 2019-20, ASAP focused upon strengthening the Advanced Skill Development Centres (ASDCs) established in Engineering Colleges and Polytechnic Colleges to close the skill gap of technical students and make them ready for the future industry. Advanced multi skill training centres, the Community Skill Parks (CSPs), were also operationalised for equipping community in demand based job roles in the industry.

Major initiatives of ASAP in 2019-20

Advanced Skill Development in Technical Institutions: To bridge the skill gap in Engineering and Polytechnic institutions and to connect students with future technologies, ASAP set up Advanced Skill Development Centres (ASDCs) in 66 Engineering Colleges and 45 Polytechnics across Kerala. ASDCs partner with industry leaders and offer advanced courses such as Artificial Intelligence and Machine Learning and Robotic Process Automation. Breaking from the traditional job roles, a huge interest is shown by female students in enrolling in these advanced courses. 9,180 students have enrolled in ASAP level 2 courses (ASDC courses), 249 enrolments in 2018-19 and 8,931 in 2019-2020. 96 students were placed in Artificial Intelligence and Machine Learning course.

Earn While Learning – Internship Programme for Graduate Students: State Government entrusted ASAP with the task of operating State Internship Portal to offer graduate students an opportunity to work while undergoing a conventional educational programme. The portal aims to implement the pedagogy of 'learning by doing'. The State Initiative on Internship for Employability Enhancement project is an online web platform designed in such a way that all stakeholders-students, academics and industries will meet at the same point. One of the salient features of the internship portal is that it connects students not only with industries but also with State departments that involve technical work.

Community Skill Parks: ASAP's flagship initiative Community Skill Parks (CSPs), conceived as an Industry led Public Private Partnership model of skill training, have been developed as multi skill training centres equipped with state of the art training facilities in various locations across the State. CSPs operate on a hub and spoke model and connect with academic institutions, vocational training institutions and the local industry to foster a skill development ecosystem. A total of 16 CSPs

are to be implemented in the State out of which 9 of them are already operational, while the construction works of the remaining 7 CSPs are in the initial phase.

National Qualification Register (NQR):

ASAP has acquired expertise and competence to develop Skill Qualifications as per National Skills Qualification Framework (NSQF). Over the last two years, ASAP has developed five NSQF Qualifications that are now available in the National Qualifications Register (NQR). With this ASAP has entered the domain of skill course curriculum development. ASAP qualifications in the NQR are:

- Communicative English Trainer (NSQF Level 6)
- Junior Correspondent Course (NSQF Level 5)
- Assistant Offset Printing Operator (NSQF Level 4)
- Air Cargo Management Executive (NQF Level 6)
- Certificate Course in Hi Tech Farm Management (NSQF Level 6)

In 2019, four more qualifications were developed. The qualifications have obtained approval of the NSQF and they are as follows;

- 3D Prototyping Manager-NSQF level 6
- Manager Pre press-NSQF level 6
- Binding Machine Operator-NSQF level 4
- AI-Machine Learning Developer-NSQF level 7

ASAP Community Colleges in Polytechnics:

The community college model, as conceptualised and operational under the All India Council for Technical Education (AICTE) aims to uplift the weaker sections of communities by identifying local employment and self-employment opportunities and provide relevant skill training. Trainings are conducted by skill knowledge providers who are the real industry people.

She Skills: She Skills is an exclusive training programme for women above 15 years of age for a period of three months. Improving living

standards by helping women, mostly home makers, to learn marketable skills, and promoting entrepreneurship to become economically self-sufficient is the mandate of this special drive. She-Skills 2019 offered 23 courses in 11 job sectors. Placement grooming, softs skills training are salient features of the programme. 5,529 women enrolled for the programme.

Reboot Kerala Hackathon 2020 – Promoting the culture of hackathons in Engineering Education

Reboot Kerala Hackathon 2020 is an opportunity for the students of higher education institutions of Kerala to contribute to the State’s development by finding creative solutions to the challenging problems being faced by different State departments. RKH 2020 involves a total of 22 hackathons across the State in two phases with each hackathon lasting for 36 hours without break on ten themes. Eight hackathons were held offline in the first phase of Reboot Kerala Hackathon series in the FY 2019-20. The hackathon aims to promote collaboration for product innovation and problem solving to produce sustainable changes.

Rashtriya Uchathaar Shiksha Abhiyan (RUSA)

The key objectives of RUSA are to improve access, equity and quality in higher education through planned development of higher education at the State level. Objectives include creating new academic institutions, expanding and upgrading the existing ones, developing institutions that are self-reliant in terms of quality education, professionally managed, and characterised by greater inclination towards research and provide students with education that is relevant to them as well nation as a whole.

Under RUSA phase I, an amount of ₹ 2.00 crore has been approved for improving the infrastructure facilities of 142 Government as well as Aided colleges across the State, in two phases. An amount of ₹ 5.00 crore has been

approved for improving the infrastructural facilities and quality improvement in 5 Autonomous colleges across the State, in the II phase of RUSA.

RUSA Research Network Group (RRNG) has been established for promoting research culture among the Academia. RRNG conducts meetings and workshops with participation from institutions across the State. RRNG submits proposals to UGC and MHRD and several proposals have been approved. Preliminary works started for the construction of Model Degree College in Wayanad.

In the context of NEP, the role of RUSA along with other higher education institutions is expected to change.

Technical Education

Technical education aims at human resource development by way of application of technology for the benefit of society, in terms of improving the quality of life, enhancing industrial productivity and improvising technologies for the overall development of the community. Technical education imparts education to young generation enabling them to contribute to the sustainable development and improvement of quality of life of the society.

Directorate of Technical Education is the nodal department for technical education in the State. The details of technical institutions under the administrative and financial control of Directorate of Technical Education are given in **Appendix 6.1.38**.

Box 6.1.4 Nodal Centre for Robotics and Artificial Intelligence (NCRAI)

Nodal centre for Robotics and Artificial Intelligence (AI), established at Govt. Engineering College, Thrissur, in 2019 was conceived with two fold objectives of facilitating frontline research in Robotics and AI and for organising training and skill development programmes for technical institutes in the field of Robotics and AI. NCRAI is conceived as a centre of interdisciplinary nature, intended to produce well trained and skilled manpower capable of meeting the industry standards. The facility is envisaged to be shared by various engineering colleges, polytechnic colleges and technical high schools under Directorate of Technical Education, Government of Kerala on a three-tier model and will function as a centre of excellence in Robotics and Artificial Intelligence.

Since its inception, the centre has undertaken externally funded research projects worth 39.3 lakh, besides 8 PG level student Projects. A training calendar is published and strictly adhered to, bringing faculty abreast of the latest developments in the field. There are 7 national level conference papers associated with centre activities and one international book chapter publication (by Springer Lecture Notes in Computer Science). As part of the Institute-institute interaction, the centre is in dialogue with Toyota Technological Institute Japan in optimising algorithms for Self driving car and Agricultural University Mannuthi for the development of a robotic pineapple harvester (MOU is about to be signed).

During the Covid-19 pandemic, like many other institutions under DTE, GEC Thrissur also had made significant technological contributions to the health care sector. The most prominent one, Sanitiser Kunjappan 2.0 robot was developed for both sanitisation of Covid wards and food/medicine transportation in the Covid isolation wards. Other significant contributions handed over to the health care authorities include pedal operated hand sanitiser, ventilator-splitter, aerosol box, all designed using FABLAB facility at the college by students and faculty.

Source: Directorate of Technical Education, Kerala

Engineering Colleges

There are 177 engineering colleges in the State with a sanctioned intake of 49,136 in 2019-20. Out of these engineering colleges 165 (93.2 per cent) are self-financing colleges (unaided), 9 (5.1 per cent) are Government colleges and 3 (1.7 per cent) are private aided colleges. Largest number of the unaided engineering colleges are functioning in Ernakulam (29) followed by Thiruvananthapuram (26). There is no Government engineering college in Kollam, Pathanamthitta, Alappuzha, Ernakulam, Malappuram and Kasargode Districts. The District wise and management wise details of engineering colleges and sanctioned intake are given in **Appendix 6.1.39**. The sanctioned intake of Government colleges in 2020 was 3,430 (7 per cent), aided colleges 1,844 (3.75 per cent) and unaided colleges 43,862 (89.3 per cent).

Of the engineering colleges in Kerala, the largest number of branch wise seats in 2020-21, was in Mechanical Engineering (9,780) followed by Computer Science and Engineering (9,222), Civil Engineering (8,814) and Electrical and Electronics (6,550). But in 2019-20, largest number of seats was in Electrical and electronics branch (16,120). Branch-wise distribution of seats in engineering colleges in 2020-21 is given in **Appendix 6.1.40**. At graduate level, the proportion of girls' intake was 37.8% in 2019-20 in Government and aided colleges. 1,356 students

have been admitted in Government and aided engineering colleges for post graduate courses in 2019-20. Girl students constitute 64 per cent of total students in Government and aided engineering colleges studying for post graduate courses. Details are given in **Appendices 6.1.41** and **6.1.42**.

Academic Excellence in Engineering Colleges

The academic excellence in Government engineering colleges is high and appreciable and this was due to the high pass percentage and increasing placement of students in reputed firms.

Government aided colleges performed better than others with 71.51 pass percentage followed by Government engineering colleges with 67.78 per cent. The pass percentage of Government self-financing colleges (54.3 per cent) is above the private self-financing engineering colleges which secured 46.56 per cent. Compared to boys, girls performed better with pass percentage of 65.82. It is to be noted that though the registered number of boys are more than girls, the passed number of boys are less than girls (**Table 6.1.8**). It is disturbing that the pass percentage of SC/ST students (29.2 per cent and 24.36 per cent respectively) is far below the State average (**Table 6.1.9**).

Table 6.1.8 B.Tech Result, 2020

Management	Boys			Girls			Total		
	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage
Government	2,088	1,259	60.3	1,252	1,005	80.27	3,340	2,264	67.78
Private Aided	1,270	844	66.46	594	489	82.32	1,864	1,333	71.51
GovtSelf Financing	2,725	1,159	42.55	2,423	1,636	67.52	5,148	2,795	54.3
Private Self Financing	12,645	4,499	35.59	8,871	5,512	62.21	21,516	10,011	46.56
Total	18,728	7,761	41.45	13,140	8,642	65.82	31,868	16,403	51.50

Source: Kerala Technological University, 2020

Table 6.1.9 Pass percentage of SC/ST B.Tech students, 2020

Management	SC			ST		
	Registered Students	Passed Students	Pass Percentage	Registered Students	Passed Students	Pass Percentage
Government	240	98	40.8	33	8	24.2
Private Aided	118	53	44.9	15	3	20
Govt-Self Financing	154	41	26.6	12	3	25
Private Self Financing	466	94	20.2	18	5	27.7
Total	978	286	29.2	78	19	24.36

Source: Kerala Technological University, 2020

The placement record of the students in various Government institutions is also relatively high. A large number of students are also being qualified for higher studies through competitive examinations like GATE and CAT. Most of the students get placement in multinational firms like WIPRO, MAHINDRA, TCS and BOSCH. Details of visiting faculty programmes and placement details of students of various Government engineering colleges in 2019-20 are given in **Appendices 6.1.43** and **6.1.44**. (Due to Covid-19 Pandemic, the admission process and timely conduction of examination and result announcement are delayed. So the details are available only for the year 2019-20.)

Polytechnics and Technical High Schools

There are 45 Government polytechnics and 6 private aided polytechnics in Kerala in the academic year 2019-20. The annual intake of students in Government polytechnics and private aided polytechnics in 2019-20 are 10,644 and 1,422 respectively. The total number of students in Government polytechnics in the year 2019-20 is 29,597 and that of private aided polytechnics is 4,376. Details of annual intake and student

strength in polytechnics for the year 2015-16 to 2019-20 are given in **Appendices 6.1.45** and **6.1.46**. Details of trade-wise annual intake of students in polytechnics of the State in 2019-20 are given in **Appendix 6.1.47**. Student intake is highest in the trade of Computer Engineering (2,020) followed by Electronics Engineering (2,010), Mechanical Engineering (1,670) and Civil Engineering (1,340).

Girls constitute only 28.3 per cent of the total strength in polytechnics while their proportion in Government and aided polytechnics are 29.2 per cent and 22.3 per cent respectively. Total number of teachers working in polytechnics of the State in 2019-20 was 1,512. The proportion of female teachers is also less (38.6 per cent). In aided polytechnics, female teachers constitute 28.3 per cent while the respective proportion in Government sector is 40.6 which is comparatively high.

Details of number of students and teachers in polytechnics are given in **Appendix 6.1.48**. Number of SC/ST students and SC/ST teachers in polytechnics in the reporting year are given in **Appendix 6.1.49**.

Table 6.1.10 Percentage of SC/ST students in Polytechnics

Type of Institution	2017-18				2018-19				2019-20			
	SC	ST	Others	Total	SC	ST	Others	Total	SC	ST	Others	Total
Government	6.9	0.7	92.4	100	7.1	1.0	91.9	100	8.0	1.1	91.0	100
Private (Aided)	5.1	0.5	94.4	100	4.6	0.5	94.9	100	5.1	0.5	94.4	100
Total	6.6	0.7	92.7	100	6.8	1.0	92.3	100	7.6	1.0	91.4	100

Source: Directorate of Technical Education

Thirty nine Government technical high schools are functioning in the State. Total number of students in technical high schools in the year 2020-21 is 7,771, and 542 teachers are working in technical high schools during this period. Women teachers constitute 29.5 per cent of teachers in technical high schools. Number of students and teachers in technical high schools in 2015-16 to 2020-21 are given in **Appendix 6.1.50**. Compared to the previous year, the percentage of SC students in technical high schools has declined slightly from 10.9 per cent to 10.4 per cent and the proportion of ST students almost remains the same as 0.8 per cent over the previous year. Details are given in **Appendices 6.1.51** and **6.1.52**.

Kerala's performance in the area of education has got wide recognition and has been intensely researched. As far as school education is concerned, Kerala is recognised as one of the highly advanced States in India in education. Even though the enrolment ratios in secondary education are considerably high, the performance of the State in higher education is not as impressive as in case of school education. The main problems related to higher education in Kerala are quality, cost and graduate unemployment level. Higher education in Kerala has been subject to significant policy shifts. The foremost among them is the opening of the self-financing colleges. Private participation had been encouraged in higher education in Kerala, like in other States.

The higher education sector needs to be changed according to the latest changes in society. Due to the increase in automation and use of artificial intelligence in every field, some jobs will become redundant while new jobs with entirely different skill requirements will emerge. Hence the vocational stream has to align itself to the demands of the changing economy. In order to ensure the quality of higher education, serious and focussed attempts have to be taken to ensure that the number of arts and science colleges with accreditation of National Assessment and Accreditation Council (NAAC) and engineering

colleges with accreditation of National Board of Accreditation (NBA) has to be increased.

Online education has proven to be very effective in overcoming the Covid-19 crisis induced restrictions. Nevertheless it involves serious issues when compared to the normal and conventional modes of education. The accessibility to online education is subject to the availability of digital gadgets. It also depends on the location of the students, given that several of our areas are still outside the network limits of service providers. Alongside this digital divide (especially among the students who pursue higher education), online education also involves serious health hazards for both teachers and learners. Both these issues have to be seriously addressed while we continue with online-digital education.

6.2 MEDICAL AND PUBLIC HEALTH

Kerala's health sector has been a model for other States of India not only in terms of gains in the sector but also in dealing with public health exigencies. The health system rose to the occasion in dealing with the Nipah virus in 2018 and the present Covid-19 pandemic.

It is well known that the State has made significant gains in health indices such as high life expectancy, infant mortality rate, birth rate, and death rate. The health standards in the State are comparable with countries of the developed world and the responsibility of the Government is to ensure that the gains made in the health sector are sustained. In fact, it is the strong public health

system in the State that made it possible to deal with the Covid-19 pandemic.

The State aims to make the best possible preventive, curative, and palliative care available in the public sphere. The main objective of the Government is to establish a people friendly States sector in health care. The thrust of the 13th Five-Year Plan policy is to transform the quality of the public sector in health, to improve access and affordability with respect to health care, to expand insurance coverage, to expand facilities for public health and sanitation, and, in general, to put into place schemes and programmes that are intended to tackle the health issues that confront contemporary Kerala.

Table 6.2.1 Demographic, socio-economic and health profile of Kerala as compared to India

Sl. No.	Indicators	Kerala	India
1	Total population (in crore) (Census 2011)	3.34	121.06
2	Decadal Growth (per cent) (Census 2011)	4.90	17.7
3	Sex Ratio (Census 2011)	1084	943
4	Child Sex Ratio (Census 2011)	964	919
5	Birth Rate #	13.9	20
6	Death Rate #	6.9	6.2
	Male	7.9	6.6
	Female	5.9	5.7
7	Natural Growth Rate #	7.1	13.8
8	Infant Mortality Rate #	7	32
	Male	9	32
	Female	5	33
9	Crude Death Rate*	6.9	6.2

10	Death Rate*		
	(a) Children (0-4)	2.1	8.9
	(b) Children (5-14)	0.2	0.5
	(c) Persons (15-59)	2.1	2.9
	(d) persons (60 and above)	41.2	42.6
11	Per cent of death receiving medical attention*		
	Government	42.8	29.4
	Private	36.8	18.5
	Qualified professional	15.4	33
	Untrained/others	5	19.2
12	Still Birth Rate*	5	4
13	Crude Birth Rate*	13.9	20
14	Total Fertility Rate*	1.7	2.2
15	General Fertility Rate*	48.6	70.4
16	Total Marital Fertility Rate*	5.1	4.9
17	General Marital Fertility Rate*	69.5	109.2
18	Gross Reproduction Rate*	0.9	1
19	Percentage of live births by type of medical attention received by mothers*		
	Government	44.9	54.5
	Private	54.9	28
	Qualified professional	0.1	9.7
	Untrained/others	0.1	7.8
20	Female mean age at effective marriage*		
	(a) Below 18	17	16.8
	(b) 18-20	19.1	19.2
	(c) Above 21	24.6	24
	(d) All age	23.2	22.3
21	Maternal Mortality Ratio**	43	113
22	Expectancy of Life at Birth***	75.3	69.4
	Male	72.5	68.2
	Female	77.9	70.7

Source: # SRS 2020 May/* SRS Statistical Report 2018

**Special Bulletin on MMR 2016-18

***SRS Life Table 2014-18

Health Indicators of Kerala

The achievements of Kerala's health status compared to national scenario are clearly reflected in the health and demographic indices. Maternal Mortality Ratio (MMR) is only 43 in Kerala whereas the all India ratio is 113.

Expectancy of Life at Birth in Kerala is much higher than the figures for India. Percentage of death not receiving medical attention of qualified professionals is only one-fourth compared to national average. However, still birth rate in Kerala is slightly higher than that of India. Fertility rates are lower than that of

national figure except for total Marital Fertility Rate. Percentage of live births without medical attention of qualified professionals received by mothers in Kerala is only 0.1 against 7.8 at national level. Comparative figures of major health and demographic indicators at the State and National level are given in **Table 6.2.1**.

Child Mortality Rate at different levels

Infant Mortality Rate (IMR) and Neo Natal Mortality Rate (NNMR) in the State are nearly one-fifth of the national average. Under-five mortality (under 5 MR) rate is less than one-third compared to all India figure. Perinatal Mortality Rate (PNMR), Early Neo-natal Mortality Rate (ENMR), Late Neo-natal Mortality Rate (LNNMR) and Post Neo-natal Mortality Rate (PNNMR) are also lower than all India figure. Child Mortality Rates at different levels are far better than the national figures. One of the main reasons for these achievements is the medical attention received by mothers in Kerala. Percentage of live births getting medical attention of qualified professionals received by mothers in Kerala is 99.9 per cent against 92.2 per cent at national level. Details of different indicators of Child Mortality Rates of India and Kerala are given in **Figure 6.2.1**.

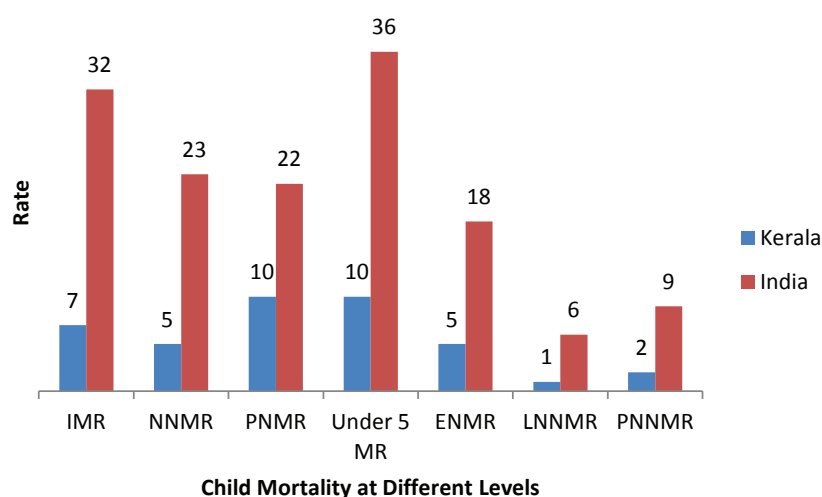
National Quality Assurance Standards (NQAS)

Even though NQAS was started in 2013, Kerala was not able to accredit many institutions with NQAS as certain check points in the NQAS check lists were not applicable to Kerala. The NQAS check lists were customised according to Kerala standards in 2017 with the help of National Health Systems Resource Centre. This was done by removing some items irrelevant to Kerala conditions and by adding Palliative care into the check list. After customising the check list, Kerala has made tremendous progress in NQAS accreditation. Up to August 2020, 80 institutions out of 1284 institutions of DHS from the State have already completed national level certification.

Aardram Mission

The Aardram Mission was started in order to make Government hospitals people-friendly by improving their basic infrastructure and capacity to provide services. The mission aims to improve the efficiency of service and facilities in the Government hospitals with a view to extend treatment at a reasonable cost, time and satisfaction. The major objectives of the

Figure 6.2.1 Child Mortality Rate at different levels



Source: SRS Statistical Report 2018

mission are the following – (i) Patient friendly transformation of the outpatient (OP) wings of medical college hospitals and other Government hospitals, (ii) standardisation of the District and taluk level hospitals, (iii) developing the PHCs into FHCs in a phased manner and (iv) ensuring protocol based treatment guidelines in the management of patients in hospitals.

Aardram Mission is implemented in three stages in Government medical college hospitals, District hospitals and taluk hospitals and primary health centres (PHCs). The conversion of PHCs as family health centres (FHCs) with adequate supply of drugs and assured treatment protocols would ensure better health among people and enhance their trust in the public health system.

Family Health Centres

In the first phase in 2017-18, Government identified 170 PHCs covering all 14 Districts for developing into Family Health Centres. Out of this, 162 FHCs are already made functional and the rest is progressing. In the second phase in 2018-19, 504 PHCs were selected for developing into FHCs in which 219 are completed and works are progressing in other PHCs in different stages. Transformation of the PHCs into FHCs has evoked encouraging community response. In the third phase 212 PHCs were selected for developing into FHCs using funds under National Health Mission. In addition to this 76 Community Health Centres (CHCs) will be converted into Block Family Health Centres.

For implementing the Mission activities, additional posts of one medical officer, two staff nurses and one lab technician each were created. These posts were filled in order to ensure that there will be a minimum of 3 doctors and 4 nurses in the FHCs. In the first phase of Aardram Mission, 830 posts were created consisting of medical officers (170), staff nurse (340), pharmacist (150) and lab technician (170). In the second phase 1000 posts have been created consisting of medical officers (400), staff nurse (400), pharmacist and lab technician (200).

Service delivery of these institutions in terms of clinical care and public health activities have been augmented and outpatient care is provided in the afternoon upto 6.00 PM. Through the implementation of e-Health project, it is expected to further develop individual patient care plan and family health plan based on family health register data. Ward and Panchayat level health plan focusing on preventive, promotive and rehabilitative health care services would be developed in association with Panchayats and with public participation. A new health volunteer system called Arogyasena is being launched as part of Aardram mission. Public health interventions focusing on the re-organisation of the primary health care system based on the epidemiological needs of the Kerala society especially combating the challenge of non-communicable diseases constitute the focus areas of the programme. Treatment guidelines for 53 common medical conditions to be managed at PHC level have been prepared and made available for Medical Officers.

Training status

Revised job responsibilities and FHC transformation guidelines have already been prepared and module based trainings have been initiated for major categories of staff. Providing comprehensive and continuous training for all category of staff is the policy of the Government to ensure quality of service delivery. To achieve this, State Health Systems Resource Centre (SHSRC) Kerala has been entrusted with the responsibility of training. Three types of training are ongoing namely, team building training, concept based training and skill training.

Aswasam clinics

Aswasam Depression management in Primary Care was started in 149 Family Health Centres across the State. Health workers and staff nurses were trained in screening using PHQ9 and psychological first aid, while doctors were trained in diagnosis and management of depression at Primary Care. Referral Protocol for cases to be

seen by DMHP psychiatrist is included in the programme. Number of persons screened in 2019-20 was 25,587 in which number of positive cases was 4,901.

Kerala COPD Prevention and Control Programme – SWAAS

Chronic Obstructive Pulmonary Disease (COPD) control programme called SWAAS is implemented from Family Health Centre level onwards in Kerala as part of Aardram Mission. Details are given in the section on '*Non Communicable Diseases*' in this chapter.

Patient friendly transformation of the outpatient wings of Government hospitals

Considering the fact that medical college hospitals and District level hospitals are larger institutions providing outpatient care for a large number of patients every day, patient friendly transformation of the outpatient wings of these hospitals was taken as a priority item under Aardram Mission. Outpatient transformation with adequate OP registration counter, patient waiting area, adequate seating facility, token system with other amenities like drinking water, toilet facilities, public address system, information education and communication arrangements and signage systems are being incorporated. Support of patient care coordinators for larger institutions on a temporary basis would also be provided. For ensuring quality medical care, OP computerisation, providing adequate facilities in the consultation rooms and a guideline based case management are planned. These are being implemented in Government medical college hospitals and at District level hospitals.

People friendly OP transformation of General/District/Taluk Hospitals

There are a total of 18 General hospitals and 18 District hospitals in the States. Out of this only 17 institutions have been selected for OP transformation (one hospital each in 11 Districts

and two hospitals from Kannur, Kasaragod and Wayanad Districts). The construction work of 9 hospitals has been completed. The work in other hospitals is progressing well. Out of the total 86 Taluk hospitals, 75 institutions are selected for standardisation in a phased manner. Post creation in District/General/Taluk hospitals in 2017-18 was 891 consisting of 14 Super Specialists, 252 Specialists and Casualty Medical Officers, 197 Staff Nurse, 84 Lab Technicians, and 344 Paramedical Staff.

New initiatives taken in Medical Colleges

Aardram Mission is aimed to provide patient friendly and quality care services to the outpatient wing of Medical Colleges. As a first step, Medical Colleges at Thiruvananthapuram, Paripally, Alappuzha, Kottayam, Ernakulam, Thrissur, Malappuram and Kozhikode were selected for the implementation of OPD Transformation. Presently the works in 8 Medical Colleges have been completed. The main components of the projects are to make online registration so that patient need not spend more time at hospital, constructing new OP waiting areas, providing drinking water facilities, renovation/reconstruction of toilet blocks, OP rooms for all departments, proper signages to different services, TV and display board, airport Chairs, PA system, providing air conditioners in OP rooms, and providing ramp.

Aardram People's Health Campaign

Aardram Peoples Health Campaign was launched on November 18, 2019. Following the States level launch, District level and LSG level launching of the campaign have been started in all Districts. This States-wide campaign will be implemented locally under the leadership of respective LSG and Health and Family Welfare Department with active involvement of Missions, line departments/agencies, NGOs, and CBOs. Local level implementation of the campaign starts from the ward level under the leadership of expanded Ward Health Sanitation and Nutrition Committee

(WHSNC). At the Panchayath/Block/Urban area level it will be under the leadership of expanded Arogya Jagratha Committee. District level implementation will be through the coordination of LSG level committees, existing District Health and Family Welfare Society, District Aardram Task force headed by District Panchayath President, District Collector and DMO (Health). Minister in charge of the District, MP and MLA of the Districts would be the chief patrons of the District level committees. At the States level, leadership and guidance for the campaign will be given by Nava Kerala Karma Padhadthi Committee chaired by the Chief Minister along with other ministers and other members. State Level Implementation Committee is functioning under the leadership of Minister for Health as Chairperson and Principal Secretary (Health) as Vice Chairperson. Following are the five areas of focus in this people's campaign:

1. Preventive and promotive health and improvement in health seeking behaviour.
2. Healthy Food
3. Exercise and physical activity promotion
4. Mental health and de-addiction (Alcohol, smoking and substance abuse)
5. Cleanliness and waste disposal

e-Health Project

The e-Health Project targets to link health institutions all over Kerala. The project aims to build a database of individual medical records easily accessible to the medical practitioners. It includes unique patient identification in different settings and exchange of data between different health care delivery units at primary, secondary and tertiary level across State. This could avoid the repeated medical tests and can thereby reduce out of pocket expenses arising out of rush to clinics and labs. The scheme is being implemented in all the fourteen Districts of Kerala with Thiruvananthapuram as the pilot District. E-health is completed in 140 hospitals in which 63 are working as paperless hospitals. Niti Aayog has appreciated the e-health project of the State. Kerala is the only State in the country

where the data base of 25921080 people has been collected and stored as electronic records.

Sustainable Development Goals (SDGs): Targets Set by Kerala

The GoK has declared the short and medium term targets to be achieved by the State in the health sector. The SDG framework, specifically SDG 3, set by the United Nations, was chosen as the reference frame for these goals so that targets finalised by Kerala would be aligned to national and international targets. Targets announced by the UN were examined by the working groups for their relevance to the State and were adapted to suit the State's current epidemiological status and capacity. In addition to the targets listed in the UN documents, Kerala has included targets in dental, ophthalmic and palliative care as they are considered important in the State. The working groups also recommended key strategies to achieve these targets. A survey will be conducted in 2021 to assess the baseline values against which to measure progress towards achievement of the targets.

Health Sector Financing during Plan Periods

Health has been a major area of allocation in the State Budget in the past years. Government healthcare expenditure has been showing a steady increase in recent years. Kerala invests approximately five per cent of its total State Plan outlay on health care excluding the contribution of LSGs and other line departments. In addition to this, the Government is investing large amounts in this sector through KIIFB for construction of building and purchase of high end equipment. The outlay earmarked for the implementation of schemes during 12th Five-Year Plan was ₹3,31,888 lakh (BE). The total expenditure reported during the Plan period was ₹3,00,600.50 lakh (90.57 per cent). Department-wise Plan outlay and expenditure during the last four Annual Plan period and total outlay and expenditure upto October 2020 (2020-21) is given in **Table 6.2.2**.

Table 6.2.2 Department-wise outlay and expenditure, Annual Plan 2017-21, in ₹ lakh

Department	Annual Plan 2017-18		Annual Plan 2018-19		Annual Plan 2019-20		Annual Plan 2020-21 (Expenditure upto October 15)	
	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.	Outlay	% Exp.
Health Services	72,402	97.74	78,921	84.23	78329	82.20	99140	64.55
Medical Education	47,009	82.25	49,414	56.47	48425	72.21	42060	24.11
Indian Systems of Medicine	4,320	81.56	4,820	70.10	4755	67.13	4195	30.98
Ayurveda Medical Education	4,600	48.51	5,060	50.82	4975	40.74	4320	9.62
Homeopathy	2,300	88.37	2,700	100	2660	65.15	2375	32.53
Homeo Medical Education	864	42.98	1,015	100	1000	67.90	865	107.82
Total	1,31,495	89.42	1,41,930	73.24	1,40,594	76.36	1,52,955	50.71

Source: Plan Space

Major Health Problems in Kerala

Communicable Diseases

Kerala is witnessing an increasing burden of communicable and non-communicable diseases.. Although the State has been successful in controlling a number of communicable diseases earlier, the emergence of dengue, chikungunya, leptospirosis, malaria, hepatitis, H1N1, in recent years has led to considerable morbidity and mortality. Instances of vector borne diseases like dengue, malaria, Japanese encephalitis, and scrub typhus, have seen a marked increase in many Districts. Water borne infections like different kinds of diarrhoeal diseases, typhoid and hepatitis are showing persistent increase in many Districts. Cholera has surfaced in many Districts after few years of relatively low incidence. Vaccine preventable diseases like diphtheria and whooping cough are yet to be eliminated despite years of effort.

Dengue

Dengue fever, which surfaced in Kerala as early as 1998, has now become the single largest of

the vector borne diseases in the State. Till 2015, the disease was more prevalent in Districts like Thiruvananthapuram, Kollam, Kottayam, Pathanamthitta, Kozhikode and Malappuram. But in 2017, all the Districts reported dengue and that too in large numbers. Districts located at higher altitudes were having low prevalence, but all others showed high incidence of the disease. The main reason for this wide spread distribution is believed to be due to the changes in the environmental factors causing proliferation of the dengue vector-Aedes mosquitoes. These mosquitoes, which in the earlier days were seen more in rural settings, have now spread to urban areas also. Details of cases and death from 2016 to 2020 (till August, 2020) are given in **Table 6.2.4**.

Leptospirosis

Leptospirosis is another emerging public health challenge faced by the State. Considered as a rare disease in the early 1980's, it has now spread to all Districts. In 2012-13 a major epidemic of the disease occurred, affecting most of the northern Districts, following which the disease has become endemic in Kerala. The disease was seen initially as a rodent borne infection, spread

through urine of the infected rodents, and the consequent contamination of the environment. Over the years, the disease has been reported in many domestic animals like cows, dogs, and pigs and thus has become an occupational risk for those engaged in agriculture works. People, who have been involved in cleaning of stagnant canals and drains, were reported to have contracted the disease. More recently the mortality due to leptospirosis is also on the rise, and joint efforts of veterinary and animal husbandry departments are essential for effective control of this disease. In 2019, 1211 cases and 57 deaths reported. In 2020, there were 568 cases and 19 deaths reported upto August 2020. District wise number of patients treated and death reported affecting Leptospirosis in 2019-20 and 2020-21 are given in **Appendix 6.2.1** and number of cases and death reported from 2016 to 2020 (upto August 31, 2020) are given in **Table 6.2.4**.

Chikungunya

Chikungunya is a newcomer among the vector borne infections. This disease believed to have originated in the remote islands in Arabian Sea in 2005-06 spread rapidly over whole of Kerala within the next two years, affecting more than 80 per cent of our population. This has resulted in life long immunity for the affected population. The past two years have seen only sporadic cases in Kerala, yearly total being less than 200 cases and no deaths. But in 2020, 411 cases were reported in Kerala. Here again the vector responsible for disease transmission is the *Aedes* mosquitoes. Since both dengue and Chikungunya are transmitted by same mosquito, and as the same mosquitoes are responsible for transmission of the potential threat of Zika virus disease and Yellow fever, the State should be vigilant in future. In 2019, 109 cases reported in which 86 cases were from Thiruvananthapuram District alone and 10 from Idukki District. In 2020 (upto August 31, 2020), 411 cases reported, of which 404 were from Thiruvananthapuram only. The details of District-wise patients treated for chikungunya in 2019-20 and 2020-21 (upto August, 2020) is given in **Appendix 6.2.2** and

number of cases and death reported from 2016 to 2020 (upto August, 2020) are given in **Table 6.2.4**.

Viral Fever

A viral fever is a fever caused by an underlying viral illness. A number of viral infections can affect humans. Even a fever may be a symptom of many viral infections. Some viral infections may cause a higher fever like dengue. A total of 28,62,375 viral fever cases were reported in Kerala in 2019. In 2020 (upto August, 2020), the number of reported cases were 9,27,950. The details of District-wise patients treated for viral fever in 2019 and 2020 (upto August, 2020) is given in **Appendix 6.2.2**.

Malaria

Malaria, another vector borne disease, transmitted by *Anopheles* mosquitoes has been a major public health challenge for our country for the past many decades. Various national programmes targeting its elimination have met with limited success. Though Kerala had eliminated the disease in early 1970s, Malaria has now reemerged as a public health challenge. The problem is recently aggravated because of the presence of large scale population movement from malaria endemic States. Proportion of falciparum malaria, the more severe form of the disease is slowly on the rise in Kerala. Though elimination of indigenous form of Malaria has been included in the SDG targets by the State, the issues in its fulfillment are many. Rapid urbanisation, extensive infrastructure development in many Districts, uncontrolled construction works in urban area, and climate related changes in life cycle of mosquitoes are all big hurdles in the attainment of the SDG goals. Annual cases of malaria in Kerala are less than 2,000 and the number of deaths reported is also very low, but the major issue here is the increase in foci of indigenous malaria. Thiruvananthapuram, Kollam, Kozhikode, Malappuram, and Kannur Districts have pockets of indigenous malaria over the past few years.

Kasaragod District is persistently having high number of malaria cases, over many years, because of its proximity to the highly endemic Districts of Karnataka. Movement of fishermen along the western coast of our State is a potential threat for spread of malaria along the coastal Districts. In 2019 number of cases reported was 656 and death reported was 1. In 2020, upto August 13, two cases and zero death was reported. Number of cases and death from 2016 to 2020 August (**Table 6.2.4**) show a declining trend in number of malaria cases in the State.

Japanese Encephalitis (JE)

This is a form of encephalitis, an inflammatory disease of brain and its coverings, and is also a mosquito borne infection. Kerala is more prone to this disease because of the presence of large paddy fields as the virus responsible for the disease is spread by Culex mosquitos, which breeds abundantly in water logged areas like paddy fields. The peculiar nature of the Culex mosquito to breed in contaminated water also, increases the potential threat in other areas as well. Role of migratory birds in transmission of JE is an extra risk for Kerala, because our State has many sanctuaries for migratory birds. But since there is an effective vaccine against JE, we can be optimistic in its control programme, by strengthening the JE vaccination. In 2016 and 2017, only 1 case each was reported with no deaths. But in 2018 and 2019, cases increased to 5 and 11 respectively and 2 deaths each were reported. No cases reported in 2020 up to August.

Details of cases and death from 2016 to August, 2020 are given in **Table 6.2.4**.

Water borne diseases

The main reason for waterborne diseases is attributed to the unavailability of safe drinking water in many parts of the District especially in tribal and coastal areas. Unhygienic drinking water sources like wells, pump houses, water supplied through tanker lorry, leaks in public water supply pipes and the consequent mixing of foul water with drinking water, dumping of wastes including sewage in water sources, use of commercial ice in preparation of cool drinks, and using unsafe water in preparation of welcome drinks are some reasons for spread of water borne diseases. Health Department is implementing a programme called “Jagratha” from November 2017 for prevention and control of communicable diseases. There was a considerable decrease in incidents of typhoid from 2015 onwards. Details of cases and death of water borne diseases like Acute Diarrhoeal Diseases (ADD), typhoid, and Hepatitis from 2016 to 2020 August are given in **Table 6.2.4**.

HIV/AIDS

Kerala State Aids Control Society is the pioneer organisation in the State working with the objective of controlling the spread of HIV as well as strengthening the State’s capacity to respond to HIV/AIDS. The society was formed to implement the National Aids Control Programme

Table 6.2.3 HIV Prevalence among various groups in India and Kerala, in per cent

Category	India	Kerala
Antenatal Clinic Attendees	0.28	0.05
Female Sex Worker	1.56	0.10
Hijra/Transgender	3.14	0.16
Men having Sex with Men	2.69	0.23
Injecting Drug User	6.26	0.41
Single Male Migrant	0.51	0.00
Long Distance Trucker	0.86	0.00

Source: Kerala State AIDS Control Society

in the State. The prevalence rate in the State has declined from 0.21 per cent in 2008-09 to 0.13 in 2010-11 and 0.05 per cent in 2017. In Kerala, the prevalence of HIV/AIDS is 0.41 per cent (4.95 per cent in 2011) among injecting drug users (IDU) which is 6.26 per cent at national level. It is 0.23 per cent (0.36 per cent in 2011) among men having sex with men (MSM) which is 2.69 per cent at national level and 0.10 per cent (0.73 per cent in 2011) among Female Sex Workers (FSW) which is 1.56 per cent in India in 2017.

Among transgender, HIV prevalence rate in Kerala is 0.16 per cent which is 3.14 per cent at national level. HIV prevalence among migrants in India is 0.51 per cent. HIV Prevalence among various groups in India and Kerala are given in **Table 6.2.3**.

Prevalence of major communicable diseases

A comparative analysis of the prevalence of major communicable diseases is given in **Table 6.2.4**.

Box 6.2.1 Coronavirus disease (Covid-19)

The first case of Covid-19 in India was reported in Kerala on January 30, 2020. Ever since the first Covid-19 confirmed case was reported, Kerala adopted a multi-pronged strategy in dealing with the pandemic. In fact, Kerala's response to Covid-19 started much earlier than March 11, 2020, when the Director General of the World Health Organisation (WHO) characterised Covid-19 as a pandemic. The containment strategies were well in place when the first case was reported. The Health department activated its emergency response mechanism to prevent an outbreak within the State.

A detailed evaluation of all the health care facilities in the State in both Government and private sectors was done. A detailed action plan on how to use these facilities was prepared at the State level by conducting a series of meetings in all the Districts. Covid Care Centres (CCCs) were created for the quarantine of all international passengers, interStates travellers and contacts who do not have facility for quarantine at home as per guidelines. Covid Hospitals were designated for management of symptomatic patients and Covid First Line Treatment Centres (CFLTCs) were designated for management of asymptomatic Covid positive patients. Provision of adequate staff, and biomedical waste management are supported by LSGs.

From the beginning of Covid control activities, the Private Hospital engagement team was working in close liaison with the District Private Hospital engagement nodal officers, the private hospital managements and IMA. KMSCL has played the most critical role in the ambulance services by managing the Kaniv-108 ambulances to mobilise the Covid-19 suspects/patients from their households/exit points to the isolation facilities. During the corona virus outbreak in Kerala, it was decided to provide Psycho Social Support 'Ottakkalla Oppamundu' to the persons in quarantine/isolation and their family members. State level trainings have been conducted exhaustively and elaborately covering all staff working with in the health sector and covering many sections of the society. Ward level teams are active in all Panchayath and are ensuring daily calls and visits to the homes of the elderly. A series of mass media campaigns are being conducted for Covid-19 awareness from the beginning of 2020 itself. Health Department launched e-Sanjeevani telemedicine services in Kerala on June 10, 2020. They are providing services in a centralised manner and DISHA is the States hub managing the telemedicine activities for the State. The Covid-19 data is made available to public via the GoK dashboard available in the web address www.dashboard.kerala.gov.in. Further details are given in the Chapter 2 ('Covid-19 pandemic and Kerala's experience') of this Review.

Source: Directorate of Health Services

Table 6.2.4 Prevalence of communicable diseases in Kerala

Year	2016		2017		2018		2019		2020 (Up to August)		
	Cases	Death	Cases	Death	Cases	Death	Cases	Death	Cases	Death	
Dengue Fever	7218	21	21993	165	4090	32	4651	14	2420	5	
Malaria	1540	3	1194	2	908	0	656	1	132	0	
Confirmed Chikungunya	124	0	54	0	76	0	109	0	411	0	
Japanese Encephalitis (JE)	1	0	1	0	5	2	11	2	0	0	
Leptospirosis	1710	35	1408	80	2079	99	1211	57	568	19	
Hepatitis - A	1351	10	988	24	1369	5	1620	7	407	1	
Cholera	10	0	8	1	9	0	9	0	2	0	
Typhoid	1668	2	314	1	109	0	27	0	15	0	
ADD (Diarrhoea)	493973	14	463368	8	540814	12	544027	6	194193	1	
Scrub Typhus	633	3	340	5	400	6	579	14	321	6	
Kala Azar	2	0	0	0	6	1	4	0	0	0	
Kysanur Forest Disease	9	0	0	0	0	0	8	2	29	3	
H1N1	22	1	1411	76	823	50	853	45	61	2	
Fever	OP	2641311	18	3417968	76	2935627	63	2862375	51	927950	21
	IP	80049		109974		59983		60080		15898	
Diarrheal Diseases	326517	10									
Enteric fever	1192	0									
Measles	870	3	508	1	190	0	199	1	48	1	
Chickenpox	12698	1	27856	20	30154	17	29583	20	13719	1	

Source: Directorate of Health Services

Non-Communicable Diseases (NCD)

Common non-communicable diseases causing great threat to a healthy life are diabetes, hypertension, cardio vascular diseases, cancer and lung diseases. Unless interventions are made to prevent and control non-communicable diseases, their burden is likely to increase substantially in future because of ageing population and changes in life style. Considering the high cost of medicines and longer duration of treatment, this constitutes a greater financial burden to low income groups. Rampant modernisation and urbanisation, drastic lifestyle

changes, heavy dependency on alcohol and tobacco, affinity for white collar jobs, unhealthy eating patterns, low priority for physical exertion, high levels of stress in all strata of population are some of the reasons contributing to the prevalence of non-communicable diseases in the State.

Incidents of obesity, hyper lipedemia, heart attack and stroke are also high. Cancer mortality is extremely high among males in Kerala compared to national average. In the survey conducted by Achutha Menon Centre for Health Science Studies, Thiruvananthapuram, the NCD scenario

in the State has further worsened. The survey reveals that one out of three has hypertension and one out of five has diabetes. The study also revealed that the level of normalcy attained for blood sugar and blood pressure even after early detection and management is significantly low compared to the standards.

Kerala COPD Prevention and Control Programme (SWAAS)

Chronic Obstructive Pulmonary Disease (COPD) is one of the leading causes of mortality and morbidity worldwide. As per the 'Global Burden of Diseases' (Institute for Health Metrics and Evaluation (IHME) at the University of Washington) estimates for India, COPD is the second leading cause of mortality in India. Recently the NCD programme has included COPD and Chronic Kidney Disease among the priority NCDs in India. Assuming that the national estimates for Asthma and COPD reflect the situation in Kerala too, the number of COPD cases in Kerala is estimated to be 5,30,000 and the number of Asthma patients among adults is estimated to be 4,80,000 (Source: DHS). SWAAS is a specific public health programme for COPD in Kerala which is implemented from Family Health Centres (FHC) level as part of Aardram Mission. SWAAS clinics started in 300 Family Health Centres and 36 Sub Districts/District Hospitals. Number of COPD diagnosed in 2019-20 was 11,557 and Number of Asthma diagnosed was 7,081.

Cancer

Cancer is a major non communicable disease in Kerala. Apart from Medical Colleges, Regional Cancer Centre, Malabar Cancer Centre and Cochin Cancer Research Centre are the major hospitals in Government sector which offer treatment for cancer patients. Apart from these institutions all the major Government hospitals provide cancer treatment. Delay in early detection, huge treatment cost, minimal treatment centres and lack of awareness contribute to high mortality of the disease.

Malabar Cancer Centre

Malabar Cancer Centre, Kannur an autonomous centre under the GoK, was established with the aim of providing oncology care to the people of north Kerala. The Centre has bed strength of 203 and many latest facilities for the treatment of cancer patients. In 2019-20, a total of 4,294 in patients and 75,843 out patients were treated in Malabar Cancer Centre in which new cases is 4,579. The average number of new cases detected every year in the centre is 4,390.

Cochin Cancer Research Centre (CCRC)

Growing concerns over the alarming increase in rates of cancer incidence together with the need of a dedicated tertiary cancer care and research centre in Government sector in central Kerala necessitated the birth of Cochin Cancer Research Centre. CCRC is a society registered under Societies Act. The Centre has bed strength of 20. Average number of new cases detected every year is 1,000. Number of outpatients treated in 2019 was 11,305 and new cases was 2,179 and in 2020 outpatients were 2,623 and new cases were 425 (upto August 31, 2020).

Regional Cancer Centre (RCC)

RCC, Thiruvananthapuram is the premier comprehensive dedicated centre for diagnosis, treatment and control of cancer in Kerala. RCC is rated amongst the top 28 RCCs in the country and maintains a working relationship with international bodies. Daily average patient visits in RCC in 2019-20 are 891. Over the past thirty nine years, RCC has been able to contribute significantly to the increasing needs of cancer care to the people of Kerala and adjoining areas of Tamil Nadu and Karnataka at the lowest possible cost. In 2019-20, 15,574 new cases, 2,67,349 review cases and 11,397 in-patient admissions were done in RCC.

Mental Health

As per Census of India 2011, 0.20 per cent of the population of Kerala suffers from mental illness and 0.20 per cent suffers from intellectual disability compared to a national average of 0.06 per cent and 0.12 per cent respectively. Although Kerala reports higher levels of mental illness compared to all India, not enough attention has been given to the field of mental health in Kerala. A mental health policy was approved by the State Government in May 2013. The policy suggests that the treatment for mental illness should start from the PHCs making the mental hospitals and the department of Psychiatric Medicines as referral centres by upgrading them. As part of Aardram Mission 'Aswasam' depression management in Primary Care was started in 149 Family Health Centres across the State.

In Kerala, three mental health centres are functioning with bed strength of 1,366. District mental health programme is functioning in all the Districts with a total of 10,000 out patients per month. Rehabilitation facilities are offered through these centres. Lack of awareness, attitude of general public, neglect of family members and lack of proper follow up are the major problems noticed in this regard. State Government has started 26 day care homes and 506 cured mentally ill patients are being given day care.

District Mental Health Programme (DMHP)

DMHP is functioning in all the 14 Districts of the State. Thiruvananthapuram District achieved successful integration of mental health care facilities into primary care by 2014. Now mental health clinics are being conducted in all PHCs and CHCs in the District by trained doctors of the concerned institutions and medicines are made available to patients from their nearest PHCs. Efforts are on to scale it up to the whole State. Around 17,000 patients are receiving treatment every month, from DMHPs in the State. Other activities include information, education

and communication (IEC) activities for general public to create awareness and reduce stigma, training for doctors, nurses, pharmacists and health workers for integration of mental health into primary care and targeted interventions like substance abuse prevention, suicide prevention, geriatric mental health and stress management. Day care centres were started for mentally ill in remission under Comprehensive Mental Health Scheme. Now 26 day care centres are functioning in the State under the scheme. School mental health programme is implemented in the State in association with National Health Mission (NHM). Total number of clinics conducted in 2019-20 was 3,442 and number of new cases (clinics only) was 12,895. Total number of Sampoorana Manasika Arogyam camps conducted was 727 and number of new cases was 14,419.

Indian Institute of Diabetes

The Indian Institute of Diabetes (IID), at Thiruvananthapuram is an autonomous institution under the Government of Kerala. It is the only institution under the Government offering services exclusively for Diabetes Mellitus and its complications. IID, made operational in the year 2001, functions with main centre at Pulayanarkotta near Akkulam in Thiruvananthapuram city and one sub centre at Public Health Laboratory Campus, Thiruvananthapuram. The major activities of this institute are to investigate the genetic basis of diabetes, to provide adequate training for physicians and paramedical staff, provides research support to develop novel methods of treatment, endow academic chairs in diabetes, and organise States-of-the-art conferences in India on various aspects of the disease. Total bed strength of the IID is 40. Average number of new cases detected every year is nearly 6000. Out Patients treated in 2019-20 were 25,062, IP were 296 and new cases were 3,330.

Modern Medicine

In Kerala modern medical services are offered by the Directorate of Health Services (DHS) and the concerned education sector is dealt by the Directorate of Medical Education (DME).

Health Care Institutions under DHS

At present there are 1,284 health institutions with 38,097 beds, 6288 doctors and 21325 paramedical staff under Health Services Department consisting of 197 PHCs, 19 (24*7) PHCs, 674 FHCs, 186 CHCs, 86 taluk headquarters hospitals, 18 District hospitals, 18 general hospitals 3 mental health hospitals, 8 women and children hospitals, 3 leprosy hospitals, 18 TB clinics, 5 other speciality hospitals and 49 other hospitals. PHCs are institutions providing comprehensive primary care services including preventive care and curative care. CHCs and taluk level institutions form the basic secondary care institutions. District hospitals, general hospitals and maternity hospitals provide speciality services and some super speciality services. The 13th Five-Year Plan focused on the implementation of speciality cadre in all health care institutions up to the level of community health centres and modernisation

of the functioning of the PHCs as FHCs. The bed population ratio is 876 and the average doctor bed ratio is 6. Category-wise major medical institutions and beds in Kerala, details of IP, OP cases, major and minor surgeries conducted and Medical and Paramedical personnel under DHS in 2019 and 2020 are given in **Appendix 6.2.3, 6.2.4 and 6.2.5.**

District wise distribution of hospital beds in Kerala under DHS

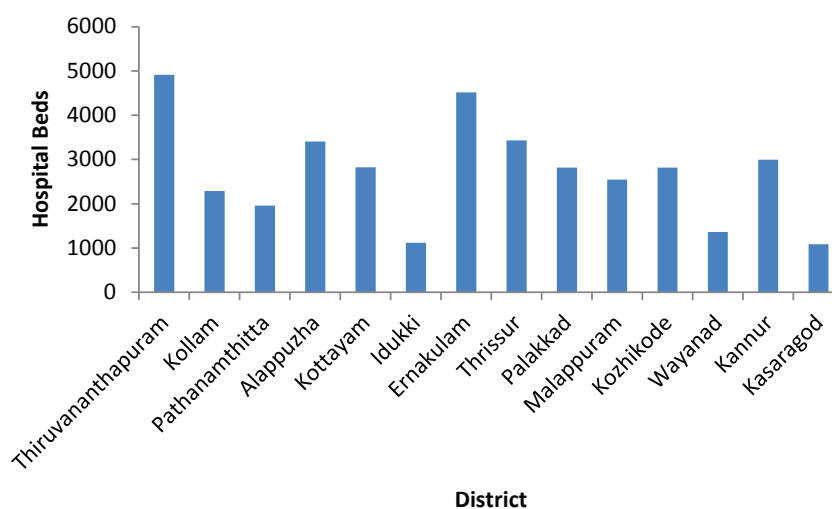
District wise distribution of hospital beds in Kerala under Directorate of Health Services is given in **Figure 6.2.2.** Thiruvananthapuram and Ernakulam Districts have higher number of beds as compared to other Districts. Kasaragod, Idukki and Wayanad Districts have lesser number of beds in comparison to other Districts.

Health Insurance

Ayushman Bharat – National Health Protection Scheme

GoI launched a new Centrally Sponsored Scheme, Ayushman Bharat – National Health Protection Scheme. The scheme comprises of two interrelated components – (i) Health and

Figure 6.2.2 District wise distribution of hospital beds in Kerala under DHS



Source: Directorate of Health Services

Wellness Centres (HWCs) and (ii) Pradhan Mantri Jan Arogya Yojana (PM-JAY). PM-JAY has the benefit cover of ₹5 lakh per family per year. The target beneficiaries of the proposed scheme is expected to be 10 crore families belonging to poor and vulnerable population based on Socio Economic Caste Census (SECC) database. This scheme will subsume the on-going Rashtriya Swasthya Bima Yojana (RSBY) and the Senior Citizen Health Insurance Scheme (SCHIS). Beneficiary covered under the scheme will be allowed to take cashless benefits from any public/private empanelled hospitals across the country. Keeping in view the State specific requirements, States will have the flexibility to modify these rates within a limited bandwidth. The scheme proposes to ensure appropriate integration with the existing health insurance/protection schemes of various Central Ministries/Departments and State Governments (at their own cost). States will be free to choose the mode of implementation either as assurance/trust model, insurance model or mixed model. The fund sharing pattern is 60:40 by Centre and State.

Karunya Arogya Suraksha Padhathi (KASP)

GoK has decided to implement the Pradhan Mantri Jan Arogya Yojana (PM-JAY) as a new scheme called Karunya Arogya Suraksha Padhathi (KASP). KASP converges all the Government sponsored health insurance schemes namely, Rashtriya Swasthya Bima Yojana (RSBY), Comprehensive Health Insurance Scheme (CHIS), and Senior Citizen Health Insurance Scheme (SCHIS).

Initially, the scheme was implemented in the State from April 1, 2019 to June 2020 under insurance mode for the entire ₹5 lakh coverage. From July 1, 2020, the scheme is implemented under assurance mode for the entire ₹5 lakh coverage. A total of 41.36 lakhs families are covered under the KASP Scheme. The Central Government has fixed premium ceiling of ₹1052 for each family and 60 per cent of that will be given to the State as Central share. The Central

Government, therefore, provides ₹631.2 for each enrolled AB-PMJAY (RSBY) family. About 366 hospitals are so far empanelled, which includes 189 private hospitals and 177 Public hospitals.

Karunya Benevolent fund (KBF) scheme is also running separately in the State under the same Mission.

Progress of RSBY /CHIS (till 2018-19) and AB PM-JAY/KASP (2019-20) is given in Appendix 6.2.6. Utilisation of RSBY/CHIS (till 2018-19) and AB PM-JAY/KASP (2019-20) by sector is given in **Appendix 6.2.7.**

Karunya Benevolent Fund (KBF)

The Karunya Benevolent Fund (KBF) scheme was started in February, 2012 by the Government of Kerala to give financial assistance to the members of families from financially backward sections for the treatment of certain chronic diseases. Every family whose annual income is below ₹3 lakhs as per the Ration Card irrespective of their APL Status can avail for financial assistance under this scheme. However, this income limit is not imposed on the treatment of haemophilia. Every family can avail financial assistance upto ₹3 lakhs for the treatment of kidney diseases and upto ₹2 lakhs for other prescribed diseases. One or more people can benefit from the same ration card subject to the limit prescribed above. The scheme was implemented through the Department of State Lotteries. From September 1, 2020, it is being implemented by State Health Agency (KASP).

Arogyakiranam

Arogyakiranam is one of the flagship health programmes of the GoK. The programme provides free treatment and related medical services to all patients from birth to 18 years, as an entitlement. Expenses covered by this entitlement include costs incurred for OP registration, investigations, drugs/implants/materials used in treatment and procedures. The fund for coverage of treatment expenditure was

allotted to Districts, to be maintained as corpus fund, from which all expenses were debited. In 2019-20 the scheme has benefitted 99,87,226 out patients and 2,16,964 inpatients.

National Health Mission (NHM)

The GoI has launched the NHM which includes two sub missions NUHM and NRHM. NHM has five financing components to the States, namely (i) NRHM/RCH Flexi-pool, (ii) NUHM Flexi-pool, (iii) Flexible pool for communicable diseases, (iv) Flexible pool for non-communicable diseases including injury and trauma and (v) Infrastructure Maintenance. Under the infrastructure maintenance component, support has been given over several Plan periods, to States to meet salary requirement of Schemes namely, Direction and Administration (Family Welfare Bureaus at State and District level), Sub Centres, Urban Family Welfare Centres, Urban Revamping Scheme (Health Posts), ANM/LHV Training Schools, Health and Family Welfare Training Centres and Training of Multi-Purpose Workers (Male).

NHM is implemented in the State for the development of health institutions with Central Government funding. 40 per cent of the total fund is given to the NHM by the State Government as State share. NHM supports the Health Services Department, Directorate of Medical Education and AYUSH Departments. National Rural Health Mission aims to provide accessible, affordable and accountable quality health services to the poorest households in the remote rural regions. Under NRHM, the focus is on a functional health system at all levels, from the village to the District. There are 83 urban PHCs under NHM. Total GoI release to the State in 2016-17 was ₹444.44 crore, in 2017-18 was ₹496.71 crore, in 2018-19 it was ₹845.66 crore and in 2019-20 it was 803.58 crore. Total staff strength of NHM is 7814 (upto August, 2020) under medical, paramedical and others categories.

Pradhan Manthri Swasthya Suraksha Yojana (PMSSY)

PMSSY is a GoI supported scheme to improve infrastructure facilities and technology in Government Medical College, Thiruvananthapuram (Phase I) and Kozhikode and Alappuzha (Phase III) with a total outlay of ₹150 crore each, of which ₹30 crore is the State share. The project for super speciality block in Government Medical College, Thiruvananthapuram (Phase I) completed and the rest are ongoing and will be completed in 2020-21.

State Institute of Medical Education and Technology (SI-MET)

SI-MET was established in the State in 2008 to promote medical education and research. There are four nursing colleges functioning under SI-MET with an annual intake of 340 students. A total of 1051 students are studying in the Nursing Colleges of SI-MET as on October, 2020.

Public Health Laboratories

At present there are 9 Public Health Labs in the State. There is State Public Health Lab at Thiruvananthapuram, Regional Public Health Labs at Ernakulam, Kozhikode, Pathanamthitta, Kannur, and Public Health Labs at Alappuzha, Malappuram, Wayanad and Kollam. Technical Guidance and material supply to all the PH labs are provided by Director State Public Health and Clinical Lab. An average of 200 patients attends the laboratories every day for various lab investigations. Average 1300 lab tests are performed every day. The New Born Screening (NBS) Programme started in March 2013 and was extended to all the delivery conducting Government hospitals in September, 2017. The blood samples of Newborns are tested through State Public Health and Clinical Laboratory, Thiruvananthapuram and Three Regional Laboratories, Ernakulam, Kozhikode and Kannur. The Screening test is done for four selected disorders namely Congenital Hypothyroidism,

Congenital Adrenal Hyperplasia, Phenyl Ketonuria and G6PD deficiency. Director, State PH Lab is the State Nodal officer for NBS programme of Kerala. In 2019-2020, total number of samples received for NBS in four PH Labs comes to a total of 5,93,832 babies.

Child Development Centre (CDC)

Child Development Centre (CDC) established by the GoK is an autonomous centre of excellence in early child care and education, adolescent care and education, pre-marital counseling, women's welfare and other related fields to reduce childhood disability through novel scientific initiatives and create a generation of prospective and responsive parenthood through healthy children and adolescents. The number of patients treated in 2017-18 was 16,756, in 2018-19, it is 16,461 and in 2019-20, it was 20,167 (August, 2020). Only out-patient services are available and there is no facility for admitting patients. Training programmes, conferences and community extension programme conducted for 4086 participants in 2019-20.

Drugs Control Department

The responsibility of the drugs control department is to ensure the availability of quality drugs to the public and see that the market is free from counterfeit, spurious and substandard drugs and no drugs are sold at a price higher than the retail price marked on the container. The department has 6 Regional Offices, 11 District Offices, 4 ayurveda wing offices and 3 drugs testing laboratories. NABL accredited drug testing laboratories are functioning at

Thiruvananthapuram and Ernakulam with an analytical capacity of 11,500 samples per annum. Establishment of two more laboratories at, Pathanamthitta and Kannur is in progress. Major achievements of the department in 2019-20 are given in **Table 6.2.5**.

Commissionerate of Food Safety Kerala

Food Safety and Standards Authority of India has been established under the provisions of Food Safety and Standards Act, 2006 as a statutory body for laying down scientific based standards for articles of food and to regulate manufacture, storage, distribution, sale and import of food so as to ensure availability of safe and wholesome food for human consumption. The department aims to ensure Safe and Healthy Food and Water to the citizens of Kerala and to develop healthy food habits. Government Analyst's laboratory at Thiruvananthapuram, two Regional Analytical laboratories at Ernakulam and Kozhikode and State Food testing laboratory at Pathanamthitta are under Commissionerate of Food Safety. Testing of water, milk, common adulterants like colour, artificial sweetener, extraneous matter, and fungal growth are carried out in these laboratories. Through 'Operation Sagar Rani' large-scale inspection of fish in fish landing centres and fish consignments brought into Kerala from neighbouring States at the check-posts were undertaken by the Food safety department during the lock down period and 201 metric tonne stale fish has been destroyed. Major achievements of the department in 2019-20 and 2020-21 are given in **Table 6.2.6**.

Table 6.2.5 Major achievements of the Drugs Control Department in 2019-20

Achievements	Numbers
Number of inspections conducted	16558
Number of sale licences suspended as deterrent measure	224
Number of samples tested	9363
Number of new manufacturing licenses issued (Allopathy and Cosmetics)	11
Number of new Blood Bank licenses issued	9

Source: Drugs Control Department

Table 6.2.6 Major achievements of the Commissionerate of Food Safety in 2019-20 and 2020- 21 (upto August 2020)

Programmes	2019-20	2020-21
Number of Inspections carried out by Quick Response Team	10527	4966
Number of Food Poison cases attended by Quick Response Team	68	6
Registration Certificates issued	90620	
Sampoorna Bhakshya Suraksha Grama Panchayat programme (No. of GPs)	126	-
Safe and Nutritious Food at School programme (No. of schools)	420	-
Food Safety Training and Certification to food business operators	15763	
Number of food samples analysed	23867	

Source: Commissionerate of Food and Safety

Medical Education

In Kerala, Medical Education is imparted through 9 medical colleges at Thiruvananthapuram, Alappuzha, Kozhikode, Kottayam, Manjeri, Ernakulam, Kollam, Thrissur and Kannur Districts. Nursing Education is imparted through seven Nursing Colleges in Thiruvananthapuram, Kozhikode, Kottayam, Alappuzha, Ernakulam, Kannur and Thrissur Districts. Six Dental Colleges are functioning at Thiruvananthapuram, Kozhikode, Alappuzha, Thrissur, Kannur and Kottayam Districts. Besides, four colleges of Pharmacy and one Paramedical Institute are also functioning under the Department. Works for establishing new medical colleges are progressing in Idukki, Konni and Kasaragod.

Total number of faculties under DME is 3,521. Total number of medical and paramedical seats in 9 medicals colleges is 4,726. Medical and Para medical courses conducted in Government medical colleges with annual intake of students, details of clinical and non-clinical personnel

in Medical Colleges under DME, in 2020-21 are given in **Appendix 6.2.8** and **6.2.9**. A comparative analysis of the status of medical college hospitals and attached institutions in 2019-20 and 2020-21 is given in Appendix 6.2.10. The bed strength has increased by 160 in 2020-21 in Medical College institutions as compared to the previous year figure of 13110. The number of outpatients and major surgeries conducted has decreased in 2020-21 as compared to 2019-20 mainly because of corona virus outbreak and subsequent restrictions.

Kerala University of Health and Allied Sciences (KUHS)

Kerala University of Health Sciences was established as per the Kerala University of Health Science Act, 2010 with the aim of ensuring proper and systematic instructions, teaching, training and research in modern medicine, homeopathy and Indian system of medicine and allied health sciences in Kerala. Academic activities of the University commenced in academic year 2010-11. The number of

Box 6.2.2 PRANA – Air for Care

A project for continuous supply of oxygen through pipe line to inpatients. Praana was a path-breaking concept to provide breath of life to ailing patients by setting up a facility for 600 beds equipped with centralised oxygen supply and other associated medical equipment. The cost of one unit under the project amounts to ₹ 12,000. This pioneering project in the State was inaugurated at Government Medical College, Thrissur with the support of elected representatives, Government authorities and health professionals.

Source: Directorate of Medical Education

Table 6.2.7 Details of the Government, aided, and unaided colleges affiliated under various streams, number as on October 2020

Stream	Government	Aided	Unaided	Total
Modern Medicine	10	0	21	31
Ayurveda Medicine	3	2	12	17
Homeo Medicine	2	4	0	6
Dental	5	0	20	25
Sidha Medicine	0	0	1	1
Unani Medicine	0	0	1	1
Nursing	7	0	116	123
Paramedical	6	0	46	52
Pharmacy	5	0	49	54
Total	38	6	266	310

Source: Kerala University of Health and Allied Sciences

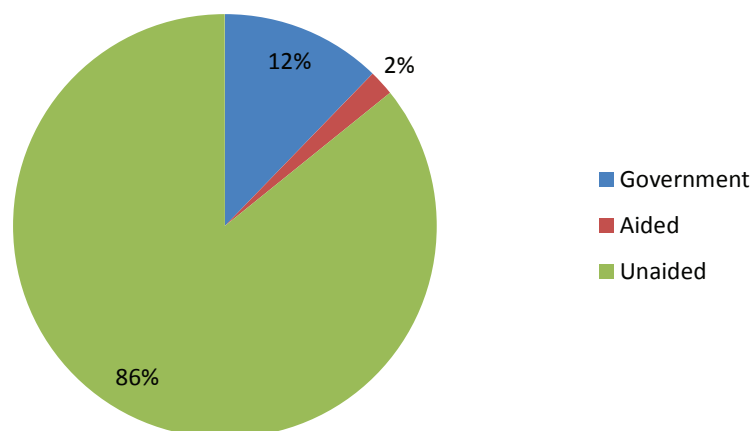
institutions affiliated to University (upto October, 2020) is 310 with 38 Government colleges, 6 Government aided colleges and 266 self-financing colleges. The colleges fall under all systems of medicine such as modern medicine, ayurveda, homeopathy, sidha, unani, yoga, naturopathy, nursing, pharmaceutical science and paramedical courses. The total intake of students in 2019-20 is 22,024 (4,121 boys and 17,903 girls) under various health sciences stream. Details of the Government, aided and unaided colleges affiliated under various streams are given in **Table 6.2.7**.

Graphical representation of the Government, aided and unaided colleges affiliated to Kerala University of Health and Allied Sciences (KUHS) as on October 2020 is given in the **Figure 6.2.3**. Government and Government aided colleges constitute only 14 per cent of the total number of colleges affiliated to KUHS.

Indian System of Medicine (ISM)

Ayurveda is a science dealing not only with treatment of disease but also a complete way of life. The department of Indian system of medicine

Figure 6.2.3 Government, aided, and unaided colleges affiliated under KUHS, in per cent



Source: Kerala University of Health and Allied Sciences

renders medical aid to the people through the network of ayurveda, sidha, unani, visha, netra and naturopathy institutions. Speciality hospitals such as mental hospital (1), panchakarma (1), nature cure (1), siddha (1), visha (3) and marma (1) are functioning under this department. At present there are 130 hospitals and 817 dispensaries under the department. Total bed strength of these hospitals is 3,154. The State Medicinal Plants Board co-ordinates matters relating to cultivation, conservation, research and development and promotion of medicinal plants in the State. List of major institutions and District-wise distribution of institutions, beds and patients under ISM department in 2018-19 and 2019-20 is given in **Appendix 6.2.11**.

Special projects were implemented by the ISM department in 2019-20 in addition to the normal medical treatment. They are Ritu, Prasadam, Drishti, Jeevani, Punarnava, Snehadhara, Geriatric Care, Yoga, Sports Medicine, Panchakarma, Ksharasutra, Manasikam, koumarabhrithyam, prosoothithantra, sickle cell, Nirvisha, siddha, Child and adolescent care and Kshemajanani. Details are given in **Appendix 6.2.12**.

AYUSH (Ayurveda, Yoga and Naturopathy, Siddha, Unani and Homeopathy)

GoI has set up two regulatory bodies to set standards of medical education. The Central Council of Indian Medicine (CCIM) under Indian Medicine Central Council (IMCC) Act, 1970 regulates educational institutions and practitioners in respect of Ayurveda, Unani and Sidha systems of medicines. The Central Council of Homeopathy (CCH) under Homeopathy Central Council Act, 1973 regulates educational institutions and practitioners in respect of Homeopathy system of medicines. At present Yoga and Naturopathy, being drugless systems, are not regulated.

National AYUSH Mission

Department of AYUSH, Ministry of Health and

Family Welfare, GoI has launched National AYUSH Mission (NAM). The basic objective of NAM is to promote AYUSH medical systems through cost effective AYUSH services, strengthening of educational systems, facilitate the enforcement of quality control of ayurveda, sidha, unani and homeopathy drugs and medicinal plants. The funding pattern is 60:40 by Centre and State. GoK started the Ayush department in the State on August 8, 2015. GoI release in 2017-18 was ₹2096.20 lakhs and in 2018-19 it was ₹2597.84 lakhs. In 2019-20 GoI released an amount of ₹1540.54 lakh.

Ayurveda Medicine Manufacturing – OUSHADHI

OUSHADHI is the largest manufacturer of ayurvedic medicines functioning in India in the public sector. It is one among the few profit making public sector undertakings. Oushadhi is the exclusive supplier of ayurvedic medicines to Government Hospitals and dispensaries of Ayurveda department. In Kerala, Oushadhi supplies medicines to State ISM department at 30 per cent less than the market price and ISM Department supplies this medicine to the poor patients in the State free of cost. The company also caters to the demand of the public through a network of 878 exclusive agencies spread in and outside the State. The profit of the firm before tax in 2018-19 was ₹3443.69 lakhs which declined to ₹2457.13 lakhs in 2019-20.

Ayurveda Medical education – Ayurveda Colleges

There are 3 Government Ayurveda colleges situated at Thiruvananthapuram, Thrissur and Kannur having bed strength of 1,361. Total number of inpatients treated in 2018-19 were 9958 and outpatients treated were 5,06,883 in which new cases were 2,37,287. It is 10,441 and 4,34,085 respectively in 2019-20 in which new cases were 91,613. Panchakarma hospital and women and children hospital are also functioning under the Government Ayurveda College Thiruvananthapuram. There are two aided

Ayurveda colleges, 12 self-financing Ayurveda colleges, one self-financing siddha college, one self-financing Unani college and 6 paramedical self-financing colleges for imparting medical education in the State. Annual intake of students for UG Degree is 1,080, PG Degree is 186 and Paramedical Courses is 482.

HOMOEOPATHY

There are 669 homeopathic dispensaries, 14 District hospitals, 17 taluk hospitals, 2 ten-bedded hospitals and one hospital with total bed strength of 1000 under homeopathy department in the State. In addition, Kerala State Homoeopathic Co-operative Pharmacy (HOMCO) Alappuzha, a medicine manufacturing unit is also functioning under the Directorate of Homeopathy. HOMCO is running in profit for the last 30 years. In 2019-20, net profit of Homco amounts to ₹8.68 crore. District-wise distribution of institutions, beds and patients treated under homeopathic department in 2019 and 2020 is given in **Appendix 6.2.13**.

Homoeo Medical Education

Homoeo medical education is imparted through two Government homeopathic medical colleges, at Thiruvananthapuram and Kozhikode. In addition to this, 3 aided colleges and one unaided college are functioning under this Department. Total bed strength of the Government homeopathic medical college at Thiruvananthapuram is 118 and Kozhikode is 100. Patients treated in these two Medical Colleges in 2018-19 in IP was 2,554 and OP was 2,62,204. Patient treated in 2019-20 in IP was 3,022 and OP was 2,80,180. Annual intake of students and courses in the six Homeo Medical Colleges are given in **Appendix 6.2.14**.

Immunisation Coverage

Immunisation is one of the most successful and cost effective health interventions and prevents debilitating illness, disability and death from vaccine preventable diseases such as

diphtheria, hepatitis A and B, measles, mumps, pneumococcal disease, polio, rotavirus diarrhea, tetanus etc. The coverage of immunisation programmes in Kerala during five years from 2016-17 is given in **Appendix 6.2.15**.

The Way Ahead

Kerala's strength lies in its strong public health care system. This needs to be expanded to cover all the marginalised communities in the State. Health facilities have to be continuously upgraded to meet new and existing challenges. The gains made in the field of health care need to be strengthened and sustained.

6.3 IMPACT OF CHANGING DEMOGRAPHIC PROFILE

Population ageing has been recognised as one of the four global demographic features, the other three being population growth, international migration and urbanisation. It is an inevitable and irreversible demographic reality that is associated with improvements in health and medical care and decline in fertility. Preparing for the economic and social shifts associated with an ageing population is essential to ensure progress towards the achievement of the Sustainable Development Goals (SDGs). Both civil society and Government need to respond to changing demographic profiles.

Ageing presents a challenge in terms of increased demand for primary health care and long term care and requires a larger and better trained pool of care providers and intensifies the need for age friendly infrastructure. It is important to establish social protection programmes that can be sustained over the long term to prevent poverty, reduce inequality and promote social inclusion among older persons. WHO has declared 2020-2030 as *The Decade of Healthy Ageing*.

Kerala has a special responsibility towards the elderly since the proportion of ageing population in the State is larger than other States of India. Government intervention is essential to provide support in the form of continuing and lifelong education, health care, employment for older persons and family friendly policies to facilitate work life harmony in order to address issues

associated with population ageing and to improve the quality of life of the elderly.

Demographic Transition in Kerala

We are aware that populations around the world are rapidly ageing. Three key demographic changes - declining fertility, reduction in mortality and increasing survival at older ages - contribute to population ageing, reflected in a shift in the age structure from young to old. With longevity and declining fertility rates, the population of older persons (60 years and above) is globally growing faster than the general population. Kerala, which has achieved below replacement level fertility much earlier than other Indian States, has the highest proportion of elderly among Indian States (12.6 per cent of the population as per Census 2011) against the all India per cent of 8.6. The State is currently passing through the most critical stage of demographic transition as a result of fertility and mortality changes, and consequent age structure transition, resulting in ageing of the population as reflected in the relative increase in the number of aged persons. This has substantial implications on Kerala's socio-economic situation. Families will have to provide financial and psychological resources to take care of the elderly. Loneliness is one of the major features of nuclear families and it is important that adequate care is taken of the elderly family members against problems such as loneliness and deprivation.

Demographic Transition – A Comparison of Kerala and the all India Context

As already mentioned, Kerala is ageing faster than the rest of India. In 1961, its 60 plus population, was 5.1 per cent against the national level of 5.6 per cent. Over the years, Kerala has overtaken the rest of India and in 2001 the proportion of old age population rose to 10.6 per cent as against all India average of 6.9 per cent. By 2011, 12.6 per cent of the Kerala population is past 60 years, compared to the all India average of 8.6 per cent. Population data shows that proportion of elderly has increased to 12.9 per cent in Kerala against the all India average of 8.1 per cent by 2018 (SRS Statistical Report 2018) (Figure 6.3.1).

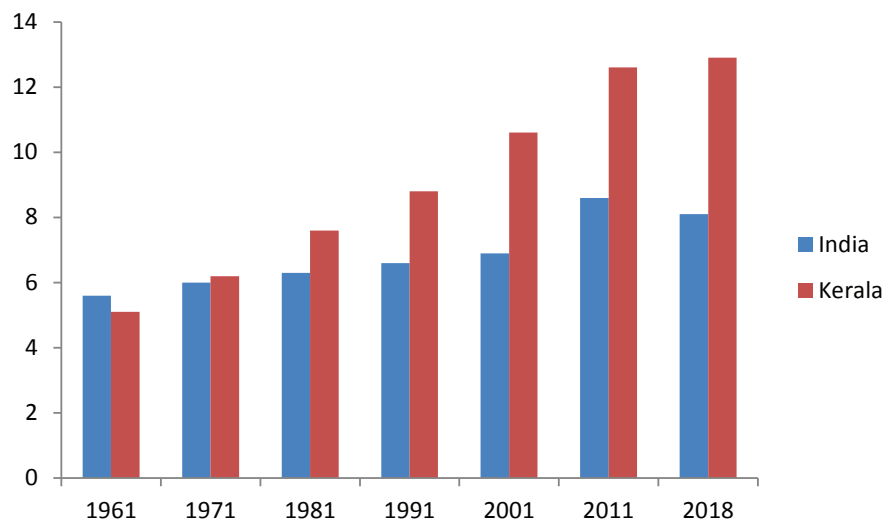
Women outnumber men among the 60 plus and among them, majority are widows. Kerala has got the highest life expectancy at birth of 72.5 years and 77.8 years for males and females respectively as per the SRS Report 2013-17. Generally, life expectancy among women is higher than men at the all India level also, however, it is much higher in Kerala. General improvement in health care facilities is one of the main reasons for continuing increase in proportion of population of senior

citizens. Men marrying women a few years younger is another cause for the high proportion of widows among the old. It is a worrisome revelation that, National Sample Survey (NSS) 2015 has found that 65 per cent of the aged population is affected by morbidity. In India, the sex ratio of the elderly has increased from 938 women to 1000 men in 1971 to 1033 in 2011 and is projected to increase to 1060 by 2026 given the insignificant decline in mortality among men, particularly during adult and older years.¹

A large proportion of old age people in Kerala are widows. As per Census 2011, among the old age in the range of 60-69, 23 per cent are widows and among those above 70 years it is 43.06 per cent. By 2025, about 20 per cent of our population would be elderly and the consequent demand on the social security system would be substantial. The age composition of Kerala's senior citizens is given in Tables 6.3.1. The marital status of Kerala's senior citizens is given in Table 6.3.2.

The figures for currently married among the 60 plus population are misleading. While for 88.9 per cent of the men in age group 60 plus their wives are alive, for women the per cent is only 37.8. This means that for an overwhelming

Figure 6.3.1 Percentage of Elderly population in India and Kerala



Source: Caring for Our Elderly: Early Responses, India Ageing Report 2017, UNFPA and SRS Statistical Report 2018

1. Caring for Our Elderly: Early Responses, India Ageing Report – 2017, United Nations Population Fund

Table 6.3.1 Age composition of senior citizens in Kerala, in numbers

Age composition	Total		Men		Women	
Total population	33406061		16027412		17378649	
Total old age population	4193393		1883595		2309798	
60-69	2416805	(58%)	1144368	(47%)	1272437	(53%)
70-79	1234739	(29%)	534879	(43%)	699860	(57%)
80 plus	541849	(13%)	204348	(37.7%)	337501	(62.3%)

Source: Census of India, 2011

Table 6.3.2 Marital status of Kerala's Senior Citizens

	Total	Men	Women
Never married	2.6	1.8	3.3
Currently married	60.8	88.9	37.8
Widowed	35.7	8.8	57
Others	0.9	0.5	1.9
Without partner	39.2	11.1	62.2

Source: Census of India, 2011

majority of men their wives are alive at older ages. Men marry wives several years younger and when they enter the age of 60, their wives will be much younger.

Disability among Elderly

Among the disabilities affecting aged persons, locomotor disability stands top with 43 per cent and multiple disabilities stands second with 13 per cent (Disability Census 2015). Persons suffering from Alzheimer's disease were 35,041. In Kerala, number of senior citizens having disabilities and living in institutions is 4,260, out of which 2,352 are female and 1,908 are male. In this, there are 570 persons who are more than 80 years old. Number of households in which all members are senior citizens is 4,32,953 which is 5.27 per cent of total households.

Increasing Old Age Dependency

There are three measures of population ageing that are used to examine the shifting population age structures for intergenerational support systems, namely, old age dependency ratio, the prospective old age dependency ratio and the economic old age dependency ratio. Population

ageing seen from a conventional perspective is the old age dependency ratio; measuring population ageing considering remaining years to live is the prospective old age dependency ratio; and measuring population ageing from an economic perspective considering labour force participation is the economic old age dependency ratio.

Old age dependency ratio is defined as the number of persons in the old age group 60 plus to that of the age group 15-59. The old age dependency ratio of India as per 2011 census is 142 and in Kerala it is 196, which is due to higher life expectancy at birth. The old age dependency ratio shows an increasing trend in Kerala and is highest among Indian States (Elderly in India 2016, Ministry of Statistics and Programme Implementation, GoI). It increased from 166 in 2001 to 196 in 2011. With declining fertility and increased longevity, the relative size of older age groups is increasing while the proportion of younger age groups is declining. This implies that the responsibility of supporting the larger section of old age people is higher on the working age population, in terms of shelter, daily living, health expenditure and care giving in Kerala.

Table 6.3.3 Work participation of Elderly, in per cent

Age	60+	80+
India	34.4	9.78
Kerala	26.1	11.4

Source: Caring for Our Elderly: Early Responses, India Ageing Report 2017, UNFPA

Senior Citizens as Experienced Human Resource

The retirement age for the State Government servants in Kerala is 56 years and in most of the public sector undertakings it is 60. Ageing lowers working life of persons. In Kerala, the retired Government staff get pension which helps them to have some financial security. Meaningful deployment of this experienced human power has the potential not only to enhance economic activity, but also help to keep the elderly busy, giving them a feeling of social relevance. But for those people who have no such job or other unorganised sector workers, there is no pension after retirement. Some of the elderly people, including disabled and widows get only a nominal amount as pension and it does not help to cover even their medical and other essential requirements. In future, ensuring a secure, dignified and productive life is a major challenge of the Government (Table 6.3.3).

Even though the elderly population in Kerala is the highest, the work participation of the elderly is low when compared with other states and all India level. Elderly people in India and Kerala not only work to support themselves but also to make economic contributions to their households.

Nutritional Considerations for the Elderly

The number of individuals aged 60 years and above which is increasing is a group most vulnerable to many health risks including those from a nutrient poor diet. Healthy ageing is not only to increase years of life but also, and importantly, to extend healthy active years. A significant number of elderly fail to get the amount and types of food necessary to meet essential energy and nutrient needs. Ageing

population in developing countries is currently facing malnutrition due to an inadequate dietary intake and at the same time it is being observed that their diets are becoming higher in fats, animal products, refined foods and low in fibre, contributing to rapidly increasing prevalence of obesity and type 2 diabetes. Dietary interventions for the elderly therefore require urgent attention.

Health

Population ageing is a success story in the field of public health, medical advancements, and economic and social development over diseases, injuries and early deaths. But there are persistent health issues among the elderly. Common conditions in older age include hearing loss, cataracts and refractive errors, back and neck pain and osteoarthritis, chronic obstructive pulmonary disease, diabetes, depression, and dementia. Although Kerala has a very good health care system, it also has the highest morbidity. The 71st Round of National Sample Survey on Morbidity (January to June 2015) showed that while a total of 89 persons out of 1,000 persons surveyed reported ill during a 15 days period of survey all over India, the number reported from Kerala was 310 out of 1,000. Among the 60 plus population, this was 276 for India and 646 for Kerala.

Kerala has the largest incidence of Non Communicable Diseases (NCDs) in India. The State is considered to be the diabetes capital of India. The Registrar General of India's Report on Medical Certification of Cause of Death 2015, revealed that while in India only 3.4 per cent people died due to diabetes in 2015, it was 9.6 per cent for Kerala, the highest among Indian states. The cases of hypertension and cardiovascular diseases are not different. These may be treated as the factors reducing life span and

affecting quality of life of the elderly. While these are general problems affecting all age groups in Kerala, it has a higher adverse impact on the old who are a more vulnerable group in matters of health.

Role of Government in the Welfare of the Elderly

Interventions by Government of India

Since independence, the Government has been committed to supporting the old people in our society with certain welfare oriented interventions. The year 1999 was declared by the UN as the International Year of Older Persons followed by the GoI which on January 13, 1999, approved the National Policy for Older Persons for accelerating welfare measures and empowering the elderly in ways beneficial to them. Maintenance and Welfare of Parents and Senior Citizens Act, 2007 provides legal sanctions to the rights of the elderly. In addition to constitutional provisions for old age security, old age pension, establishing old age homes, expanding geriatric services and liberalising housing policy for elders have also been undertaken.

Ministry of Social Justice and Empowerment

The Ministry of Social Justice and Empowerment, GoI, as the name suggests, is to ensure equitable treatment to such sections of society which suffer social inequalities, exploitation, discrimination and injustice. The Social Defense Division of the Ministry mainly caters to the requirements of senior citizens, besides victims of alcoholism and substance abuse, transgender persons and beggars or destitutes. The Ministry develops and implements Acts, Policies and Programmes for welfare of senior citizens in collaboration with State Governments or Union Territory administrations to ensure that senior citizens may lead a secured, dignified and productive life.

National Policy on Senior Citizens, 2011

National policy recognises the rich experience of old persons and hence rightly considers them as important human resource, assures dignified life in their last phase, assures physical and financial security, health care, shelter and acknowledges the need for affirmative action by the Government, especially for the elder women and the elderly rural poor. Towards achieving this the policy envisages State support to ensure financial and food security, health care, shelter and other needs of older persons, equitable share in development, protection against abuse and exploitation, and availability of services to improve the quality of life.

The Maintenance and Welfare of Parents and Senior Citizens Act, 2007

The Maintenance and Welfare of Parents and Senior Citizens Act, 2007 was enacted in December 2007, inter alia, to ensure need based maintenance for parents and senior citizens and their welfare. The Act provides for maintenance of parents or senior citizens by children or relatives as obligatory and justiciable through Tribunals, revocation of transfer of property by senior citizens in case of negligence by relatives, penal provision for abandonment of senior citizens, establishment of old age homes for indigent senior citizens, protection of life and property of senior citizens and adequate medical facilities for senior citizens.

The Ministry of Social Justice and Empowerment, GoI, has finalised the Maintenance and Welfare of Senior Citizens (Amendment) Bill, 2019, expanding the ambit of social security for senior citizens by including distant relatives also responsible for their upkeep, increased the fine and imprisonment for abandoning parents and done away with the cap of ₹ 10,000 for maintenance. New clauses have been introduced which would make it mandatory to set standards for senior citizens' care centres and multi service day care centres.

Box 6.3.1 Activities undertaken in response to Covid-19 for the care of Senior citizens

Senior citizens are the most vulnerable group of population and hence they need special care and attention during the outbreak of Covid-19. Senior citizens who have been quarantined in their houses are prone to physical, mental stress as well as emotional problems. Psychosocial counselling is being given to such elderly persons to cope up with such problems.

Grand Care Project – Vayokshema Call Centre

In response to the efforts of the Government to fight against Covid and also to prevent the outbreak of the pandemic, the Department of Social Justice has taken all precautionary measures based on the guidelines issued by the Government. The department has introduced a novel initiative “Grand Care project” for addressing the issues faced by residents of old age homes and for those elderly persons who are in reverse quarantine. As part of Grand Care project, the department has started Vayokshema call centre in each district monitored by District Senior Citizen cell for addressing and resolving such issues. The call centres function on all days starting from morning 6 am till night 10 pm.

Interventions by Government of Kerala

The Department of Social Justice in Kerala and Kerala Social Security Mission provides social security for the aged through a network of organisations, residential institutions and schemes. The attempt has been to follow a policy of healthy ageing defined “as the process of developing and maintaining the functional ability that enables wellbeing in older age”. Functional ability, as defined by World Health Organisation is about having the capabilities that enable all people to be and do what they have reason to value (WHO). This includes a person’s ability (i) to meet their basic needs; (ii) to learn, grow and make decisions; (iii) to be mobile; (iv) to build and maintain relationships; and (v) to contribute to society.

State’s Old Age Policy, 2013

The policy envisages the responsibility of the society in the wellbeing of all the aged people of above 60 years of age in the State. Along with the love and respect to the aged people, special consideration should be given for their health and financial status. The elderly need to be provided with appropriate livelihood activities to

be less dependent on others and be a productive member of the society. The policy also includes the various schemes for the welfare of the aged people.

Institutions for elderly care in Kerala

There are 16 Government old age homes functioning under the control of Social Justice Department, out of which 11 homes were transferred to Local Self Governments and funds are also being routed through Local Self Government. There are 630 old age homes registered under Orphanages and Other Charitable Homes Act, 1960 which are functioning according to the provisions of the State Government rules and regulations. Sayamprabha homes are day care centres. The day care centres functioning under the Local Self Government Department are upgraded by providing some extra facilities to senior citizens such as care provider, yoga classes, meditation classes, entertainment facilities, wheel chairs and furniture. Now 82 day care centres are running as Sayamprabha Homes of which 2 centres are functioning as Model Sayamprabha Homes (Multi Service Day Care Centre for Elderly). These day care centres will provide the most required services and help to provide a barrier free platform in their time of need. These day care

Table 6.3.4 Old age persons in Old Age Homes in Kerala, 2015-16 to 2019-20

Year	2015-16	2016-17	2017-18	2018-19	2019-20
No. of old age persons in old age homes in Kerala	17499	19149	27272	28029	28021

Source: Social Justice Directorate

facilities will offer an opportunity for the senior citizens to mingle with their own age group and provide solace to elderly who suffer loneliness, especially during daytime.

Old age homes and day care centres are maintained for the care and protection of senior citizens having nobody to look after. The persons seeking admission in these institutions need to submit their application to the Superintendent of the institution. Confirmation of the admission shall be made after getting the enquiry report of the District Probation Officer.

In Kerala, the culture of sending elderly persons to old age home is increasing as seen in Table 6.3.4. However, because of conversion of 4 old age homes to psychosocial rehabilitation centres, relatives returned the aged to their homes and deaths, there is a decrease in inmates in 2019-20.

Kerala Maintenance and Welfare of Senior Citizens Rules, 2008

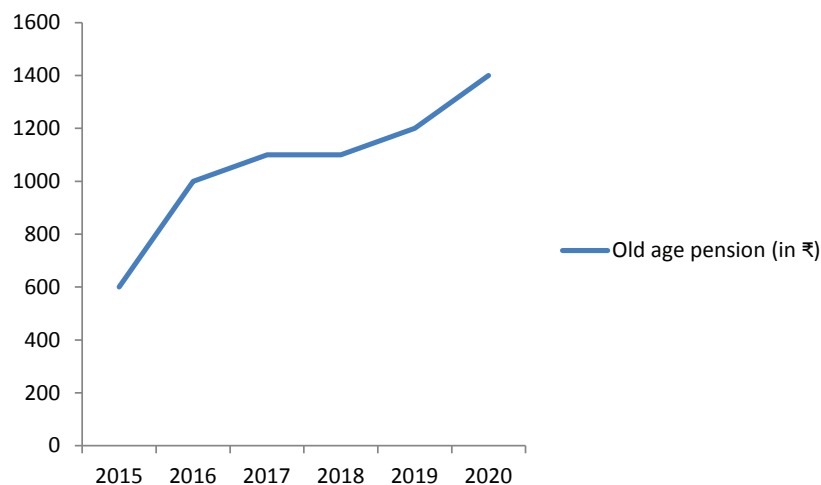
Under these Rules the senior citizens or parents who are unable to maintain herself or himself can apply for maintenance to the Maintenance

Tribunal. The Revenue Divisional Officers (RDO) are appointed as the Presiding Officers of Maintenance Tribunal under the Act for each sub-division. District collectors are appointed as Presiding Officers of Appellate Tribunal for each District, and District Welfare Officers are designated as Maintenance Officers for each District.

Old Age Pension Scheme

The Indira Gandhi National Old Age Pension Scheme (IGNOAPS) is a non-contributory old age pension scheme that covers Indian citizens who are 60 years and above and live below the poverty line. The IGNOAPS beneficiaries aged 60-75 receive a monthly pension of ₹ 1400. Those 75 years and above receive a higher monthly pension amount of ₹ 1,500. Out of this, the amount given by Central Government is ₹200 for persons aged 60 to 79 and ₹500 for persons aged 80 years and above. The rest of the amount is given by State Government. In 2019-20, the amount incurred by State Government was ₹6022.54 crore and by Central Government was ₹225.66 crore for the scheme.

Figure 6.3.2 Amount of old age pension per beneficiary, 2015 to 2020, in ₹



Source: Sevana Pension, Information Kerala Mission

IGNOAPS is presently handled by Local Governments, along with all social security pensions. The Local Governments receive the application, process them and distribute the pension under the scheme. There are around 25.98 lakh recipients of the old age pension scheme constituting 52.89 per cent of the total Social Security Pensioners in the State.

Monthly pension was ₹1000 in 2016 and was increased to ₹1300 in 2020. As part of announcement of 100 days project by the State Government, it has been further increased to ₹1,400 (Figure 6.3.2).

Reservation in Public Transport System

State Government has directed to provide reservation of 20 per cent of the seats of the buses of the State Road Transport Undertakings for senior citizens. This is implemented in all transport buses in Kerala. 8 seats are reserved for senior citizens in KSRTC. Senior citizens with Indian citizenship, who are over 60, are eligible for 50 per cent discount on economy fare for domestic travel by air. Senior citizens are eligible for 50 per cent discount in train fares.

Schemes of the Government of Kerala

Age Friendly Panchayat

This scheme is implemented by Social Justice Department of Kerala as an initiative under the State Old Age Policy, 2013. Converting all the Panchayats in the State into age friendly Panchayats for ensuring good health, participation and assuring quality of life to the senior citizens are the objective of the programme.

Vayomithram

Kerala Social Security Mission is implementing this programme in 6 Municipal Corporations and 85 Municipalities and in one Block of the

State. The Vayomithram project provides health care and support to elderly above the age of 65 years residing in the State. The project mainly provides free medical checkup and treatment through mobile clinics. It also provides palliative care, ambulance facilities, counselling and help desk for the old age persons. The project is implemented with the participation of Local Governments. Each mobile unit comprises Medical Officer, Staff Nurse and Junior Public Health Nurse (JPHN). Palliative care service is provided for the bed ridden patients in the project area. Vayomithram co-ordinators provide help desk service to the needy old age persons in the area. Cancer detection camps, dental care camps, recreation programmes, are organised for the elderly every year. In 2019-20, the number of beneficiaries of the project were 2,79,635 persons.

Vayoamrutham

The Social Justice Department with the support of Indian System of Medicine department implements this initiative in Government old age homes for the treatment of inmates who are suffering from various health problems. Majority of cases treated are for ailments such as diabetes, asthma, skin diseases, arthritis, eye and ear diseases. Health support given includes palliative care and counseling for the bedridden. As part of this scheme, Ayurvedic treatment is being provided to the inmates belonging to all the Government old age homes functioning under Social Justice Department. The inmate will be provided with the service of a medical officer and an attender. A total of 813 inmates of Government old age homes have been provided Ayurveda treatment through this scheme in 2019-20.

Mandahasam

Mandahasam is an initiative by Social Justice Department for giving free set of teeth for the senior citizens. The scheme aims to reduce nutritional, physical and mental problems faced by the elderly people after loss of their teeth. The department has prepared a list of dental

colleges and dental treatment centres from where the beneficiaries can avail treatment. It would also ensure the quality of artificial tooth and quality treatment by setting standards and norms. Senior citizens who fall in BPL category would be eligible for the benefit under this scheme. One beneficiary would get maximum financial assistance of ₹5,000 for fixing the teeth. Assistance has been provided to 514 old age people through this scheme in 2019-20.

Sayamprabha – Comprehensive Scheme for Senior Citizens

Sayamprabha project is a new initiative of Social Justice Department that provides day care facilities in co-operation with Local Governments along with other welfare activities and building awareness of the different contexts in which abuse can arise and the different forms it can take. Various programmes are implemented for the welfare of old age persons under this scheme such as Vayosangamam, Mandahaasam, Vayomadhuram, awareness in active and healthy ageing, making infrastructure and offices old age friendly and conducting of awareness classes regarding old age for the school and college students. Yoga therapy to inmates in old age homes and psycho social care to the inmates of old age homes through NIMHANS are also provided under the scheme.

Vayomadhuram

Kerala has the largest number of diabetes patients in India. Among the old age population of Kerala, 80 per cent suffer from diabetes. With the intention of an old age friendly State, the Social Justice Department under GoK has introduced a new initiative titled “Vayomadhuram” which provides glucometers freely to elderly diabetic persons coming under BPL category.

Schemes of the Central Government

Rashtriya Vayoshri Yojana (RVY)

As per the data from Census 2011, the population of senior citizens in India is 10.38 crore, out of which 1.13 crore persons are above the age of 80 years. More than 70 per cent of the population of senior citizens lives in rural areas of the country. Around 5.2 per cent of the senior citizens suffer from various age related disabilities. Increased life expectancy and advancements in health care, have resulted in rising proportion of elderly in Indian population. The number of elderly population will increase to around 17.3 crore by 2026. The RVY scheme provides physical aids and life assistance devices for senior citizens suffering from age related disabilities or infirmities, who belong to Below Poverty Line (BPL) category. The Scheme aims to address disability or infirmity low vision, hearing impairment, loss of teeth and locomotor disability.

Vayoshreshta Samman Award for the Aged

As part of recognising the efforts made by eminent senior citizens and institutions involved in rendering distinguished services for the cause of elderly persons, the Ministry of Social Justice and Empowerment provides Vayoshreshta Samman Award to senior citizens, organisations and Panchayats. October 1 of every year is celebrated all over the world as International Day of the elderly by organising a series of programmes and facilitating distinguished senior citizens with the Vayoshreshta Samman. This is to recognise the services rendered by the elderly, to sensitise the society about their problems and needs and to reiterate the Government’s commitment towards their cause.

Outlook

New measures and concepts of population ageing have significant implications for assessing the living conditions and living arrangements of older persons, their productive and other contributions to society and their needs for social protection and health care. Promoting lifelong health and preventive care to maintain maximum functional capacity of individuals can improve health and wellbeing. Investing in education and health and well being for all, including lifelong learning, can improve productivity and maintain economic growth. Establishing universal social protection with adequate benefits will reduce poverty, inequality and promote social inclusion. Forward looking policies and programmes that take into account current and future population dynamics are needed to attain sustainable development as envisaged in the Sustainable Development Goals.

CHAPTER

07

LABOUR AND
EMPLOYMENT

LABOUR AND EMPLOYMENT

7.1 LABOUR AND LABOUR WELFARE

Work is a part of everyone's life and is crucial to one's dignity, well-being and development as a human being. Kerala is well-known for its achievements in the sphere of social development that includes a rapid and high level mobilisation and organisation of workers regardless of location and sector. As stated in the Annual Report of Ministry of Labour and Employment 2019-20, GoI, economic development means not only creation of jobs but also working conditions in which one can work with freedom, safety and dignity. The free and safe working conditions in the State are highly attributed to the labour movements and State's deliberate interventions in the forms of policies and social security networks. Compared to other parts of the country, reported wage rate of workers in both agricultural and non-agricultural sectors in Kerala is higher. The average daily wage rates are much higher in Kerala, which attract in-migrants into the State, especially from States where wage rates are very low. However the State needs to create additional employment opportunities and employment-intensive growth for which the labour force has to move from low-value-added to high-value-added activities. The State aims to achieve job induced inclusive growth in the economy to create new jobs in both urban and rural Kerala

Labour Force and Workers in Kerala

The situation of the labour force in Kerala can be gauged from the indicators such as Labour Force Participation Rate (LFPR), Worker Population Rate (WPR), Daily Wage Rate and trends in industrial relations. According to Periodic Labour Force Survey 2018-19 (PLFS), "Persons who were either 'working' (or employed) or 'seeking or available for work' (or unemployed) constitute the labour force". Labour force, or in others words, the 'economically active' population, refers to the population which supplies or seeks to supply labour for production and, therefore, includes both 'employed' and 'unemployed' persons. The Labour Force Participation Rate is defined as "the percentage of persons in the labour force among the persons in the population".

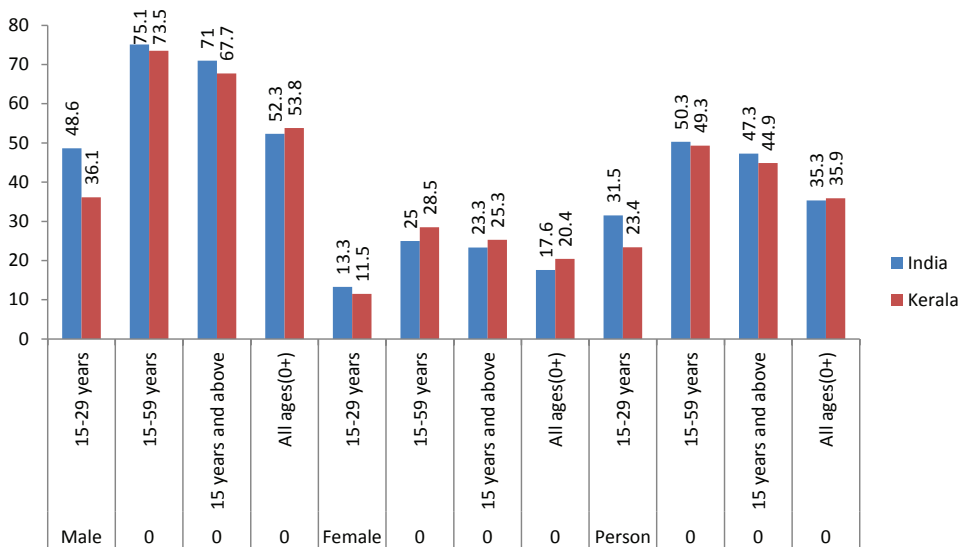
Table 7.1.1 presents the LFPR in India and Kerala in 2017-18 and 2018-19 as per the Periodic Labour Force Survey. As compared to 2017-18, LFPR of all ages has increased in 2018-19, both in India and Kerala. In 2018-19, LFPR (all ages) for Kerala is higher than all India rates (37.5). Both male and female (39.5) LFPR exceed all India rate.

Table 7.1.1 Labour Force Participation Rate (LFPR) according to Usual Status (ps+ss), 2017-18 and 2018-19, in per cent

Sl No	Age Group	Rural			Urban			Rural +Urban			Rural			Urban			Rural +Urban		
		Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
		All India 2017-18									Kerala 2017-18								
1	15-29 years	58.9	15.9	38.1	58.5	17.5	38.5	58.8	16.4	38.2	55.1	20.8	37.2	48.4	27.6	37.8	52.2	23.6	37.4
2	15-59 years	80.2	26.6	53.6	80.1	22.3	51.6	80.2	25.3	53	79.5	31.1	53.6	78.1	33	53.6	78.9	31.9	53.6
3	15 years and above	76.4	24.6	50.7	74.5	20.4	47.6	75.8	23.3	49.8	71.1	25.9	46.6	68.9	27.3	46.4	70.1	26.5	46.5
4	All ages	54.9	18.2	37	57	15.9	36.8	55.5	17.5	36.9	54.1	20.7	36.4	53.6	22.1	36.8	53.9	21.3	36.6
		All India 2018-19									Kerala 2018-19								
5	15-29 years	58.8	15.8	37.8	58.6	17.1	38.7	58.8	16.2	38.1	43.3	23	32.9	51.6	29.1	39.9	47	25.8	36
6	15-59 years	80.6	28.3	54.5	79.6	22.5	51.6	80.3	26.5	53.6	76.5	35.5	54.6	79.9	35	55.4	78.1	35.2	55
7	15 years and above	76.4	26.4	51.5	73.7	20.4	47.5	75.5	24.5	50.2	71	31.3	49.7	71.4	29.7	48.8	71.2	30.6	49.3
8	All ages (0+)	55.1	19.7	37.7	56.7	16.1	36.9	55.6	18.6	37.5	56.9	25	39.7	56.3	24.2	39.2	56.6	24.6	39.5

Source: Periodic Labour Force Survey, 2017-18 and 2018 -19

Figure 7.1.1 Worker Population Ratio in India and Kerala (rural+urban) in 2018-19



Source: Periodic Labour Force Survey 2018-19

Worker Population Ratio (WPR)

WPR is an indicator used for analysing the employment situation and knowing the proportion of the population actively contributing to the production of goods and

services in the economy. “WPR is defined as the percentage of employed persons in the population”.

Figure 7.1.1 shows the Worker Population Ratio in India and Kerala (Urban +Rural). It is clear at

all ages (Person- 0+) the WPR of Kerala is better than all India average. This is the first time that women in Kerala are more actively participating in the economic activities than their counterparts at all India level (though it must be remembered that urban WPR has always been higher for women in Kerala). However, the female work participation rate continues to be lower than their male counterparts both in India and Kerala. The Worker Population Ratios in Kerala with a comparison to all India averages in 2017-18 and 2018-19 are given in **Appendix 7.1.1**.

Wage Rate in Kerala

As per the India Wage Report prepared by International Labour Organisation (ILO 2018), the States with the consistent highest casual wages in both rural and urban areas are Kerala, Jammu and Kashmir, Punjab and Haryana.

From the **Table 7.1.2**, it is evident that, the per day average wage/salary earnings of casual labour workers (both rural and urban) (in CWS) in Kerala is evidently higher than that of all India average. The average wage rate in Kerala for all quarters is higher than that of India both in urban and rural areas, as per PLFS. The most important fact is that existing wages in Kerala for casual workers is around 65 per cent higher than that of India. Although the wages of women in Kerala are lower than that of men, wage rates

for women in Kerala is 50 per cent more than that of their counterparts at all India level. Average wage/salary earnings (in ₹) during the preceding calendar month from regular wage/salaried employment in India and Kerala in 2018 and 2019 and average gross earnings (in ₹) during the 30 days from self-employment among self-employed persons in India and Kerala are shown in **Appendix 7.1.2** and **7.1.3**. The remuneration of workers in Kerala in both casual work and self employment is much higher than that of all India level. As per the PLFS report, the wage rate of both men and women in Kerala is highest among the major States in India though it is more or less equal to some of the Union Territories.

Unemployment

“Unemployment Rate is defined as the percentage of persons unemployed among the persons in the labour force”. The unemployment rate was estimated to be 5.8 per cent (at 0+ ages) in India as per UPS approach or in other words 5.8 per cent of the persons aged 15 years and above who were available for work could not get work during the reference period. The corresponding rate in Kerala was 9 per cent. The unemployment rate was significantly higher among females as compared to males in Kerala. It is 55.4 per cent in the age group of 15-29 as compared to 17.7 per cent in India.

Table 7.1.2 Average wage earnings per day from casual labour work other than public works in CWS for India and Kerala, in ₹

Period		Rural			Urban			Rural+Urban		
		Male	Female	Person	Male	Female	Person	Male	Female	Person
July to September, 2018	Kerala	641.83	357.79	598.79	710.13	422.76	676.4	664.82	375.6	624.23
	India	276.92	170.1	253.93	342.15	204.73	319.3	287.88	174.54	264.38
October to December, 2018	Kerala	659.41	377.8	605.64	678.44	365.85	649.06	666.26	375.43	620.16
	India	286.84	185.64	264.63	348.76	226.25	331.24	297.86	190.26	275.59
January to March, 2019	Kerala	677.53	403.4	651.61	684.01	332.02	649.73	680.07	374.84	650.87
	India	287.36	190.23	267.42	357.53	220.22	339.15	299.08	193.44	278.56
April to June, 2019	Kerala	732.17	388.32	697.18	680.32	372.25	648.27	710.77	381.59	676.96
	India	297.44	199.24	278.62	367.65	244.15	351.82	309.77	204.49	290.7

Source: Periodic Labour Force Survey 2017-18, 2018-19, Gol

Table 7.1.3 Unemployment Rate in India and Kerala (in per cent)

Sl No	Age Group	Rural			Urban			Rural +Urban			Rural			Urban			Rural +Urban		
		Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
		All India 2017-18									Kerala 2017-18								
1	15-29 years	17.4	13.6	16.6	18.7	27.2	20.6	17.8	17.9	17.8	20.5	61.7	32.5	27.4	65.2	41.5	23.3	63.4	36.3
2	15-59 years	6.3	4	5.7	7.3	11.3	8.2	6.6	6	6.5	6.6	21.3	11.2	7.5	29	14.7	7	24.8	12.7
3	15 years and above	5.7	3.8	5.3	6.9	10.8	7.7	6.1	5.6	6	5.9	19.6	10	6.6	27.4	13.2	6.2	23.2	11.4
4	All ages	5.8	3.8	5.3	7.1	10.8	7.8	6.2	5.7	6.1	5.9	19.6	10	6.6	27.5	13.2	6.2	23.2	11.4
		All India 2018-19									Kerala 2018-19								
5	15-29 years	16.6	13.8	16	18.7	25.7	20.2	17.2	17.7	17.3	23.4	57.8	35.8	23.1	53.1	34.6	23.3	55.4	35.2
6	15-59 years	6	3.8	5.4	7.4	10.3	8.3	8	5.5	6.2	5.6	17.8	9.9	6.0	20.7	11.0	5.8	19.1	10.4
7	15 years and above	5.5	3.5	5.0	7.0	9.8	7.6	6.0	5.1	5.8	4.7	15.6	8.4	5.2	18.8	9.7	4.9	17	9.0
8	All ages	5.6	3.5	5.0	7.1	9.9	7.7	6.0	5.2	5.8	4.7	15.6	8.4	5.2	18.8	9.7	5.0	17.1	9.0

Source: Periodic Labour Force Survey - 2017-18 and 2018 19

It is evident from **Table 7.1.3** that, when compared to all India average the unemployment rate in Kerala especially at 15-29 age group is very high among all the three categories (Male, Female and Person). The high unemployment of this age group may be because a large number of persons are pursuing higher education and enter into labour force. However it is encouraging to note that the unemployment rate in Kerala (all ages) has reduced to 9 per cent in 2018-19 from 11.4 per cent in 2017-18. In case of all India rate, it has declined from 6.1 per cent in 2017-18 to 5.8 per cent in 2018-19.

Factory workers in Kerala

Although the rate of increase is low, the number of factories functioning in Kerala is steadily increasing. The number of working factories has increased to 24468 in 2020 from around 21764

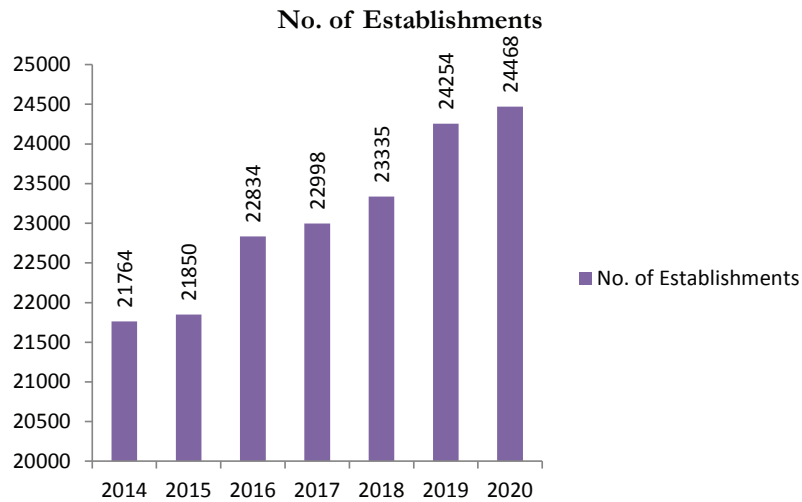
in 2014. There has been an addition of nearly 2700 functioning factories during these 6 years. The details of number of working factories are shown in the **Figure 7.1.2** given below.

It is also seen that the number of workers in the factories under the purview of Factories and Boilers Department are steadily increasing. During the last six years, nearly one lakh workers have been added to the total workers in the factories. Details are given in **Table 7.1.4**.

Safety of the Factory Workers

The Department of Factories and Boilers is the statutory authority to ensure the safety, health and welfare of all workers in factories and the general public, living in the vicinity of factories through implementing various laws. The Department carries out various programmes

Figure 7.1.2 Number of working factories in Kerala, 2014 to 2020



Source: Factories and Boilers Department

Table 7.1.4 Number of workers in factories, 2014 to 2020

Year	Workers
2014	646923
2015	688199
2016	702129
2017	678058
2018	698679
2019	726195
2020	702901

Source: Factories and Boilers Department

Table 7.1.5 Industrial Accidents in Kerala, 2013 to 2020, in numbers

Accident	2013	2014	2015	2016	2017	2018	2019	upto July 31, 2020
Fatal	414	274	131	156	180	187	162	82
Non Fatal	365	370	341	297	507	405	307	146

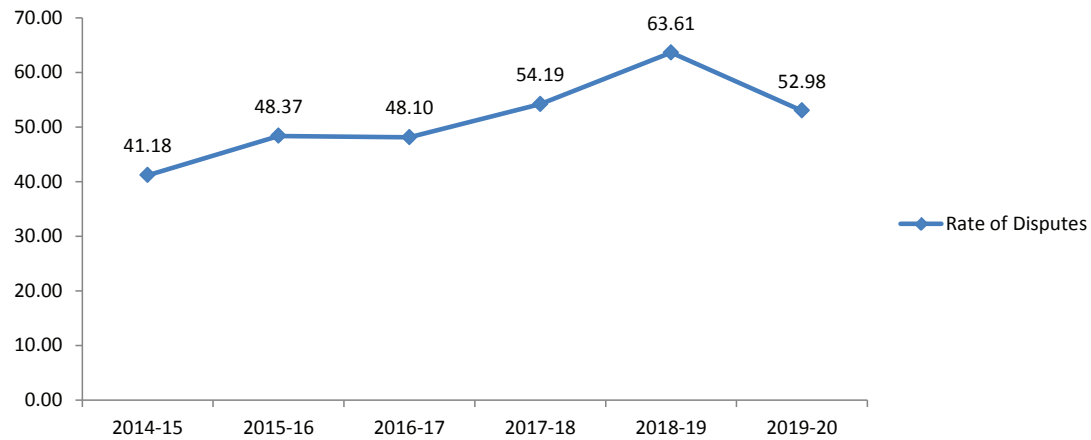
Source: Factories and Boilers Department, GoK

for the safety of the workers. In 2020-21 (upto July 31, 2020), 3 priority inspections have been done for Major Accident Hazard (MAH) factories, 6 inspections at hazardous factories by specialist inspectors. The Department has also been conducting training programmes not only for factory workers and employees but also for school children and the general public

near factory premises. Due to the pandemic the department has not been able to do much of their on-going works like workshops, training programmes and medical examinations. Details are provided in **Appendix 7.1.4**.

It is evident from **Table 7.1.5**, that the number of fatal accidents in factories is declining, but the

Figure 7.1.3 Rate of industrial settlements, 2014-15 to 2019-20, in per cent



Source: Factories and Boilers Department, GoK

annual non-fatal accidents have not decreased much. This necessitates more precautions and safety measures to be taken in the premises of factories.

Industrial Disputes

Providing a platform for raising grievances and settlement of the issues between employee and employer is an essential requirement for ensuring harmonious labour relations in the State. Industrial Disputes Act of 1947, provides the legal framework for the same though it applies only to the organised sector.

It also regulates lay off and retrenchment. There is an improvement in settlement rate of disputes as well. The total disputes handled in 2014-15 were 5,445 and the disputes settled for the same period was 2,242; that is 41 per cent of the disputes handled have been settled. In 2019-20, the number of disputes handled is 6676 and settled is 3537 which is 52 per cent of the disputes handled. During the last three years though the annual average industrial disputes handled were more than 6500, the number of new disputes on an average in a year was 4000. Details of the number of industrial disputes

Table 7.1.6 Number of Working Days lost due to strikes, lockouts and lay offs, 2013 to 2019

Year	2013	2014	2015	2016	2017	2018	2019	2020 (upto August 31, 2020)
Pending	8	11	4	0	1	1	1	1
Arose	10	5	7	5	1	2	1	0
Total	18	16	11	5	2	3	2	1
Person days lost due to strikes	2,68,947	94,021	2,21,619	59,692	1,41,120	1,46,696	1,81,500	94,500
Person days lost due to lock outs	3,53,002	2,91,964	3,18,250	5,26,302	6,08,789	5,93,546	5,64,975	3,20,922
Person days lost due to lay off	26,691	68,337	72,935	4,24,650	5,28,930	4,73,044	4,59,715	3,38,872

Source: Factories and Boilers Department, GoK

and settlements in Kerala are provided in **Appendix 7.1.5** and the trend of settlement rate is given in **Figure 7.1.3**.

Table 7.1.6 shows the total person days lost in Kerala for various reasons. The reasons mainly are strikes, lockouts and lay off. The details of number of strikes in Kerala are given in **Appendix 7.1.6**.

Social Security System for Workers in Kerala

Employees State Insurance (ESI) Scheme

ESI Scheme of the GoI aims at providing assistance to employees in case of sickness, maternity, disablement and death due to employment injury and to provide medical care to insured persons and their families. The comprehensive social security provisions are based on the ESI Act 1948. This scheme covers all the employees working in non-seasonal factories running on power that employ 10 or more persons, and factories not using power that employ 20 or more persons. It also includes those working in shops, hotels, restaurants, cinemas, road motor transport undertakings and newspaper establishments. Each insured employee and their employer are required to contribute a certain per cent of their wages to the ESIC every month. The ceiling wage rates are revised from time to time. The ESI Scheme runs like most of the social security schemes. It is a self-financing health insurance scheme and the contributions are raised from covered employees and their employers as a fixed per cent of wages. The payments are to be made on a monthly basis. The number of ESI Dispensaries and Hospitals are given in **Appendix 7.1.7**.

Labour welfare in Kerala

Foundation of any economy is its workforce and redressal of their grievances is essential for industrial prosperity and social welfare. But the existence of investor and industrial institutions

are also equally important for economic development. Hence the role of Government is very essential to bring compromise amidst these two interests.

In Kerala, Labour Commissioner is the head of the Labour Department and the Enforcement wing headed by the Additional Labour Commissioner (Enforcement) comprising of 14 District Labour Officers and 101 Assistant Labour Officers is entrusted with the task to conduct inspections of establishments under various labour laws. These activities are supervised by the Regional Joint Labour Commissioners of Kollam, Ernakulam and Kozhikode at the regional level and the Additional Labour Commissioner (Enforcement) at the State level under the supervision of the Labour Commissioner.

The Enforcement wing of the Department of Labour is working to maintain a work-friendly environment and ensure that workers receive the benefits they are legally entitled to and for providing workers with paid weekly leave, overtime pay, minimum wages, seating facility and other benefits; special drives are being conducted at the State level, and squad inspections at the District level. In addition, the Wage Protection System has been implemented to ensure minimum wages for workers in the unorganised sector and to ensure transparency in the distribution of wages. The Wage Protection System(WPS)/E-Payment is a flagship programme of Labour Department of Kerala which aims at ensuring disbursement of wages to workers through banks and monitoring of such disbursements to ensure the payment of minimum wages and above.

Labour Welfare activities

The Labour Department plays a key role in implementing labour welfare activities. There are 28 Labour Welfare Boards in the State (Labour Commissionerate). At present there are 16 Welfare Fund Boards functioning under Labour Department and providing welfare amenities to the respective sector of labour. The rest

Table 7.1.7 Welfare Boards under Labour Department

Sl No	Name of the Welfare Board
1	Kerala Bamboo Kattuvalli and Pandanus Leaf Workers Welfare Fund Board
2	Kerala Handloom Workers Welfare Fund Board
3	Kerala Beedi and Cigar Workers Welfare Fund Board
4	Kerala Agricultural Workers Welfare Fund Board
5	Kerala Jewellery Workers Welfare Fund Board
6	Kerala Motor Transport Workers' Welfare Fund Scheme
7	Kerala Tailoring Workers Welfare Fund Board
8	Kerala Labour Welfare Fund Board
9	Kerala Toddy Worker's Welfare Fund Board
10	Kerala Abkari Workers Welfare Fund Board
11	Kerala State Unorganised Workers Social Security Board
12	Kerala Small Plantation Workers Welfare Fund Board Organisation
13	Kerala Head load Workers Welfare Board
14	The Kerala Building and other Construction Workers' Welfare Board
15	Kerala Cashew Workers Relief and Welfare Fund Board
16	Kerala Shops and Commercial Establishments Workers' Welfare Fund Board

Source: Labour Commissionerate, GoK

of the boards are functioning under various departments like Agriculture and Industry. The welfare boards under Labour Department are mentioned in **Table 7.1.7**.

In these 16 welfare boards, 79,03,233 members have registered as on January 2020.

Social Protection to informal labour in Kerala

In order to ensure the social security of informal sector workers, several welfare schemes are implemented by the department.

1.Social Protection for unorganised sector workers

The scheme aims at social and financial protection for the workers in the unorganised sector. This scheme has following three components:

- a. Unorganised Daily Waged Employees Distress Relief Fund

This scheme was sanctioned in 2007-08 and implemented through Labour Department to provide financial assistance at the rate of ₹2000 to the workers covered under the definition of daily wage workers and those who are not covered under any other welfare schemes, and have sustained injury during the course of employment.

- b. Tree Climbers Disability Pension Scheme
This pension scheme was introduced on January 1, 2012 to provide pension to the beneficiaries of the deceased workers who have received a financial assistance under the Kerala Tree Climbers Welfare Scheme.
- c. Maternity Allowances to Workers in the Unorganised Sector
Government has commenced a Maternity Allowance Scheme to the workers in the unorganised sector in 2011-12. To bring out a uniform pattern of assistance in the payment of maternity benefits provided by various welfare fund boards, minimum eligible wages are paid as maternity benefit. The amount of maternity benefit is being disbursed to the workers by the various welfare fund boards

and the same will be reimbursed to the Boards by the Government on their request.

2. Estate Workers Distress Relief Fund

This scheme is implemented through Labour Department to provide financial assistance at the rate of ₹25,000 to the legal heirs of the deceased in distress especially to the estate workers' family.

Income Support to Workers in Traditional Sector Activities

This scheme was introduced in 2010-11 to give financial support of ₹1250 to workers engaged in the traditional sectors like Beedi, Khadi, Etta and Pandanus, Fisheries, Fish Processing and Coir in the State. The Scheme is implemented through Departments like Coir, Fisheries, Khadi, Handloom and various welfare fund boards.

Support to workers under Covid-19 lock down

1. Labour Welfare Boards have announced exgratia financial assistance to the workers. Apart from direct financial assistance, some of the Boards have also offered interest free loans. It is also proposed to give income support for the workers, though it is not yet announced.
2. The bonus was paid to all the members who were members of the Head Load Workers Welfare Board before April 14, 2020. An amount of ₹30 crore was spent for 2, 43, 504 members.
3. The Construction Welfare Board has given ₹1000 to all the members who have completed 2 years and renewed their

membership in 2018. There were about 15 lakh such members and an amount of ₹200 crore was spent for this.

The Motor Workers Welfare Board has spent the amount as given in **Table 7.1.8** for various categories of motor workers
Abkari Workers Welfare Board has disbursed upto ₹5000 to bar workers as assistance and upto ₹10,000 as interest free loan.

An amount of ₹1000 has been distributed to all members who are working in hospitals, petrol pumps, gas agencies and self-employed persons by Kerala Shops and Commercial Establishments Labour Welfare Board and an amount of ₹10000 has been distributed for Covid affected members and ₹5000 was given for members in isolation.

Kerala Agricultural Workers Welfare Fund Board has distributed an amount of ₹7500 to its registered member who got infected by Covid-19 pandemic and ₹1000 has been given to members who were in isolation because of Covid-19.

Guest Workers

“The idea that most people do not move or are fixed at a specific location might be appealing but it is wrong. Mobility is an inherent characteristic of all populations unless specific policies or other factors are in place that limit or control that mobility. Nevertheless, some people appear to move more than others and in different ways from others, which appears to be closely linked with the level of development in each country, which, in turn, is linked with the distribution of the population in each country. Despite all the difficulties with the measurement of internal migration as sketched above, considerable

Table 7.1.8 Assistance provided by the Motor Workers Welfare Board, in ₹

Category	Amount in ₹
Stage carriage/Contract carriage/Bus thozhilali	5000
Goods vehicle labourers	3500
Taxi labourers	2500
Auto, Tractor labourers	2000
Automobile workshop labourers	1000

¹ A Parson et al.,2007; UN DESA, 2015 - Abridged excerpt of Skeldon, 2018.

progress has been made towards the construction of analytical models that allow the comparison of patterns across space”¹.

The recent trend in the employment sector in the State shows a large inflow of guest workers from other States such as West Bengal, Bihar, Odisha, Uttar Pradesh, Chhattisgarh, Jharkhand and Assam. Working conditions of the inter-State migrant workers are dealt with under the Inter-State Migrant Workmen Regulation of Employment and Conditions of Service Act, 1979. As per the provisions of the Act, the contractor has to obtain a recruitment license from the State from where the workers are recruited (original State) and an employment license from the State where they are employed (recipient State). Accordingly, the contractor and the principal employer become liable for ensuring the provisions envisaged in the enactment as an immediate employer and the principal employer respectively. But usually, these workers cannot be brought under the purview of the enactment due to lack of statutory ingredients required to attract the ambit of the enactment such as an intermediary third party/contractor between the principal employer and the workmen. These workers are compelled to live in groups in unhygienic conditions near their working place without proper health facilities. By noticing this, the Government of Kerala has initiated a lot of schemes and interventions for ensuring a safe working environment for migrant workers.

Narayana *et al*, 2013 estimated that Kerala had over 25 lakh migrant workers from other States of India, and from Bangladesh and Nepal - a number that is notably close to about 7 per cent of the State’s current population². They were mostly young able-bodied males belonging to the age group of 18 to 30 years. They were mostly long distance migrants without family from rural areas of eastern Indian States such as West Bengal, Assam, Odisha and Bihar and were distress migrants belonging to SCs, STs or OBCs.

These migrant workers were there in all sectors and professions.

According to the Migration Survey 2018, migration from other States to Kerala for employment and other purposes is increasing continuously. As per the KMS 2018, it is estimated that there are close to 30 lakh internal migrants in Kerala, from the States of West Bengal, Odisha, Assam, Bihar and Uttar Pradesh. One of the reasons for the migration of such workers from other States to Kerala is the high wage rates prevailing even in the unorganised sector of Kerala.

But the workers registered for Aawaz (a free health insurance scheme for guest workers) is much lesser than the numbers estimated by the Studies and Surveys. The total number of migrants registered as per Aawaz registration as on August 31, 2020 is 507024 (*Note: Due to Covid-19 pandemic related lockdown and subsequent restrictions imposed, Aawaz registration was stopped in March 2020 and large numbers of workers have migrated to their native States by special trains.*) These guest workers are deployed in our 14 Districts. In Kerala, the highest numbers of migrants are from West Bengal. The distribution of migrant workers from different States is shown in **Figure 7.1.4**. The State-wise breaks up details are provided in **Appendix 7.1.8**.

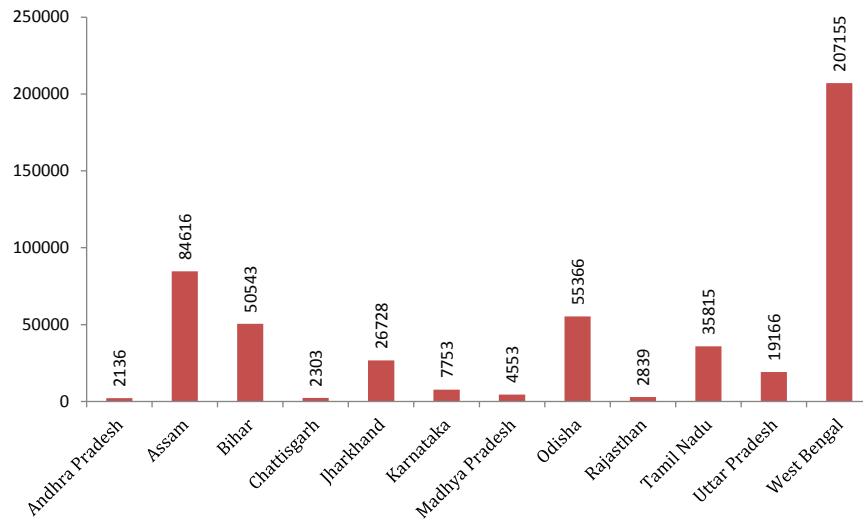
Ernakulam followed by Thiruvananthapuram has the highest concentration of guest workers in the State. Kozhikode and Thrissur Districts also have accommodated a large number of migrant workers having more than 8 per cent of total workers. District-wise inter-State migrant workers in Kerala are shown in **Figure 7.1.5**.

Social Security for Guest Workers

Aawaz: Kerala provides medical insurance scheme named ‘Aawaz’ to all guest workers.

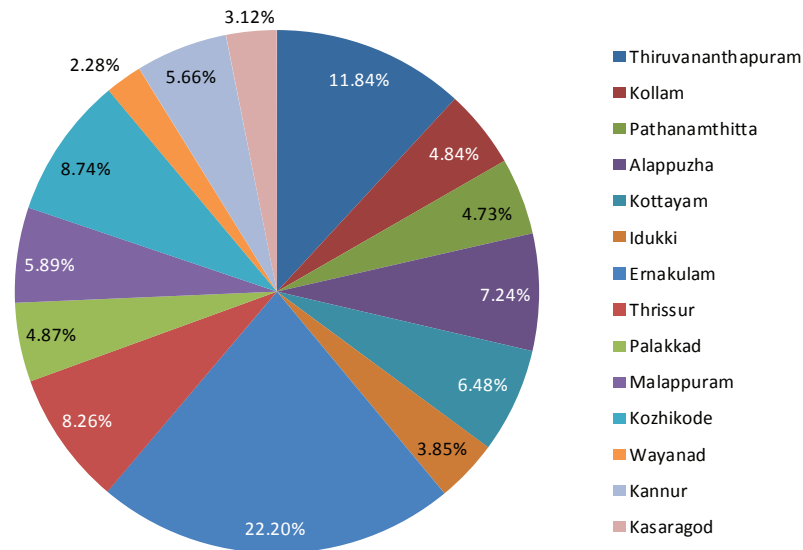
² Narayana, D. and Venkiteswaran C.S. with M. P. Joseph (2013), “Domestic Migrant Labour in Kerala”, a study conducted by the Gulati Institute of Finance and taxation” submitted to Labour and Rehabilitation Department, Government of Kerala

Figure 7.1.4 Distribution of migrant workers from different States as on August 31, 2020 as per AAWAZ Registration



Source: Labour Commissionerate, GoK

Figure 7.1.5 Distribution of migrant workers from different States as on August 31, 2020 as per AAWAZ Registration



Source: Labour Commissionerate, GoK

They are eligible to get ₹25,000 worth medical insurance and ₹2 lakh as death assistance which is not provided by any other State in the country.

Apna Ghar: Government has started 'Apnaghar Project' for providing dwelling places for the migrant workers at reasonable rates. Kerala is the

only State in the country providing highest wage. Most of the migrant workers are getting not less than ₹600 as wages per day and also provided with overtime, bonus and other statutory benefits.

Box 7.1.2 Covid-19 Pandemic and guest workers in Kerala

In the event of outbreak of Covid-19 pandemic, lockdown was declared unexpectedly in the country from March 24, 2020 onwards. One of the most affected sections of population was undoubtedly the migrant workers as there were no economic activities during the period causing loss of jobs and income. Most of them were not able to pay the rent and as a consequence some of them even faced eviction and were thrown onto the streets. There were approximately 5 lakh migrant workers at the time of lockdown in Kerala. Consequently the ISM Workers who lost their jobs and income were identified as 4,34,280 by the Department of Labour and were sheltered in 21,556 camps all over the State. Food, water, recreational facilities like television, gaming facilities were provided to them in the camps.

During the lockdown Labour Department was declared as essential service on March 29, 2020. As per the direction of the Additional Chief Secretary (Home and Vigilance) a team was formed at the State level under the leadership of the Labour Commissioner. Safety and welfare measures were extended to the guest workers who were sheltered in the camps. A team was operating from the Covid war room established and maintained at the Labour Commissionerate and another team was also formed at the field level to co-ordinate the District Labour Officers, Assistant Labour Officers/ Inspectors of Plantations at the District and Taluk levels for organising the camps in co-operation with the District administration. As a result of intervention from the Labour Department no guest worker was deprived of food, drinking water and other adequate physical amenities. Building owners had been warned strictly against any kind of unlawful evictions. The State set the best example by providing food to workers through 'Community Kitchen' managed by Kudumbasree in convergence with the Local Governments. Kerala has taken care of guest workers by providing them with decent accommodation, food, health care and all their needs during lockdown period.

Covid-19 Pandemic and Interventions for Guest Workers

The Government of Kerala was proactively and empathetically working to transport the guest workers in a phased manner to their respective home destinations. As on June 3, 2020, 102 numbers of trains had carried more than 1,38,870 (One lakh thirty eight thousand Eight hundred and seventy only) workers to various home destinations. A detailed plan for sending all the guest workers who are willing to go back to their home had already been made and the trains had been scheduled accordingly.

In the wake of the Covid-19 pandemic containment activities, Labour Department had started helpline/call centres in all Districts, along with the Labour Commissionerate call centre, working 24x7 to address the grievance of the

guest workers. Adequate number of multilingual personnel had been deployed in the call centres to converse with the workers and to address their grievances.

The Kerala model of migrant management has been lauded by many. Kerala as a State has set an example for its systematic and organised labour welfare initiatives. The State has a very well organised labour welfare ecosystem with better minimum wage, model accommodation (Apna Ghar scheme) and social security scheme provisions (Awaaz). The guest workers, in Kerala who are working here have the benefits of a labour welfare oriented social system.

Kerala aims at peace and industrial harmony in the labour sector, increase efficiency, protect the rights of labourers and to develop a new transparent work culture. The labour department also emphasises on developing a good employee-

employer relationship and creating awareness about not only the rights but also duties among the employees. The interests and rights of both employers and employees need to be protected. Hence, the Department aims to increase efficiency without losing person days and to ensure the benefits of labour laws to the workers.

7.2 EMPLOYMENT

Global Employment Perspective

According to the World Employment and Social Outlook-Trends 2020 published by International Labour Organisation in January 2020, the gradual decline of the unemployment rate observed between 2009 and 2018 appears to have come to a halt. The reduction in employment growth is related to a slowdown in global economic activity, especially in the manufacturing sector. The global unemployment rate is projected to remain essentially the same for the next two years as in 2019, that is, at 5.4 per cent. However, the mismatch between labour supply and demand extends beyond the 188 million unemployed across the world.

The Report's findings include the fact that the world's labour markets are characterised by substantial inequalities including geographical disparities in access to decent work. Further, contemporary labour markets continue to be characterised by gender inequality. Global income inequality is also more pronounced than earlier thought of because of unequal access to decent work.

These statistics and projections have however undergone major changes because of the impact of Covid-19 pandemic on employment and labour markets. The world of work has been profoundly

affected by the pandemic affecting livelihoods of millions. In its latest update on Covid-19 and world of work, workplace closures continue to disrupt labour markets around the world, leading to working-hour losses and these working-hours loss have translated to substantial losses in labour income. Global labour income is estimated to have declined by 10.7 per cent during the first three quarters of 2020 compared with the corresponding period in 2019. The relative decline in employment is greater for women than for men in most of the countries.

Employment Scenario: India and Kerala

The Periodic Labour Force Survey (PLFS) a new series launched by the GoI in 2017 discontinuing the quinquennial Employment and Unemployment Surveys of National Sample Survey Organisation (NSSO)¹, now National Statistical Office, Ministry of Statistics and Programme Implementation, provides labour force data on an annual basis. The PLFS data is now the primary source of data on employment and unemployment at national and State level. The Government of India released the second Periodic Labour Force Survey (PLFS) 2018-19 Report in June 2020. This Report is based on the survey conducted by NSO from July 2018 to June 2019. The survey was spread over 12,720 FSUs

¹ The last one was in 2011-12 (68th Round), NSSO.

(6,983 villages and 5,737 urban blocks) covering 1,01,579 households (55,812 in rural areas and 45,767 in urban areas) and enumerating 4,20,757 persons (2,39,817 in rural areas and 1,80,940 in urban areas). Estimates of the labour force indicators are presented in this Report based on the usual status (ps+ss) approach and current weekly status approach adopted in the survey for classification of the population by activity statuses. The reference period for usual status (ps+ss) approach is 1 year and for current weekly status approach, it is 1 week.

Unemployment Rate

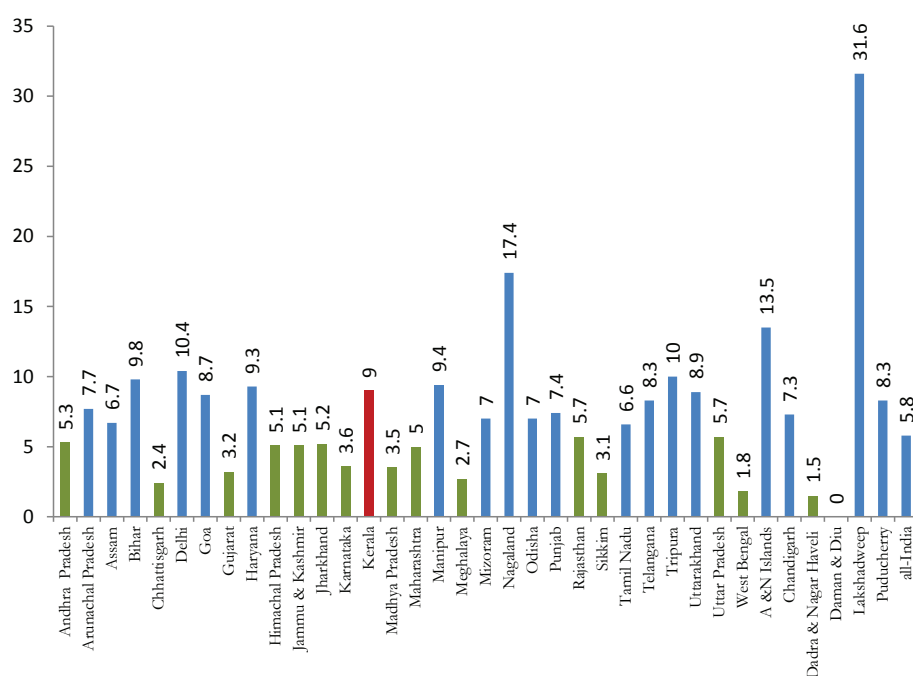
Unemployment rate (UR) is defined as the percentage of unemployed persons in the labour force and is measured in terms of Usual Status (ps+ss) and Weekly Status in the PLFS surveys. This gives the portion of the labour force actively seeking/available for work. According to the Periodic Labour Force Survey (PLFS) conducted by NSO, GOI from July 2018 to June 2019, unemployment under usual status (ps+ss) for persons of age 15 years and above among the

major States, Kerala has an unemployment rate of 9.0 per cent as against the all India level of 5.8 per cent (**Figure 7.2.1**).

The all India unemployment rate has declined from 6.1 per cent in 2017-18 to 5.8 per cent in 2018-19. The unemployment among males was 6 per cent and among females it was 5.2 per cent. In 2017-18, these rates were 6.2 per cent and 5.7 per cent respectively. The unemployment rate was 5.6 per cent among males and 3.5 per cent among females in rural areas, while the rates were 7.1 per cent among males and 9.9 per cent among females in urban areas.

The unemployment rate in Kerala also declined from 11.4 per cent in 2017-18 to 9 per cent in 2018-19. The unemployment rate among males was 5 per cent and 17.1 per cent among females. The unemployment rate was 4.7 per cent among males and 15.6 per cent among females in rural areas, while the rates were 5.2 per cent among males and 18.8 per cent among females in urban areas.

Figure 7.2.1 Unemployment Rate (UR) according to usual status (ps+ss) for persons of age 15 years and above for each State/UT, in per cent



Source: PLFS report, 2018-19, GoI

Details of unemployment rate (in per cent) according to usual status (ps+ss) for persons of age 15 years and above for each State/UT are given in **Appendix 7.2.1**.

As per the Usual Status (ps+ss) approach for persons of age 15 years and above, Daman and Diu has zero unemployment rate. Among the States, the lowest unemployment rate is estimated in West Bengal (1.8 per cent). The other major States, which have lower UR than the all India average (5.8 per cent) are Chhattisgarh (2.4 per cent), Meghalaya (2.2 per cent), Sikkim (3.1 per cent), Gujarat (3.2 per cent), Karnataka (3.6 per cent), Madhya Pradesh (3.5 per cent), Maharashtra (5.0 per cent), Himachal Pradesh (5.1 per cent), Jharkhand (5.2 per cent), Andhra Pradesh (5.3 per cent), Rajasthan (5.7 per cent) and Uttar Pradesh (5.7 per cent).

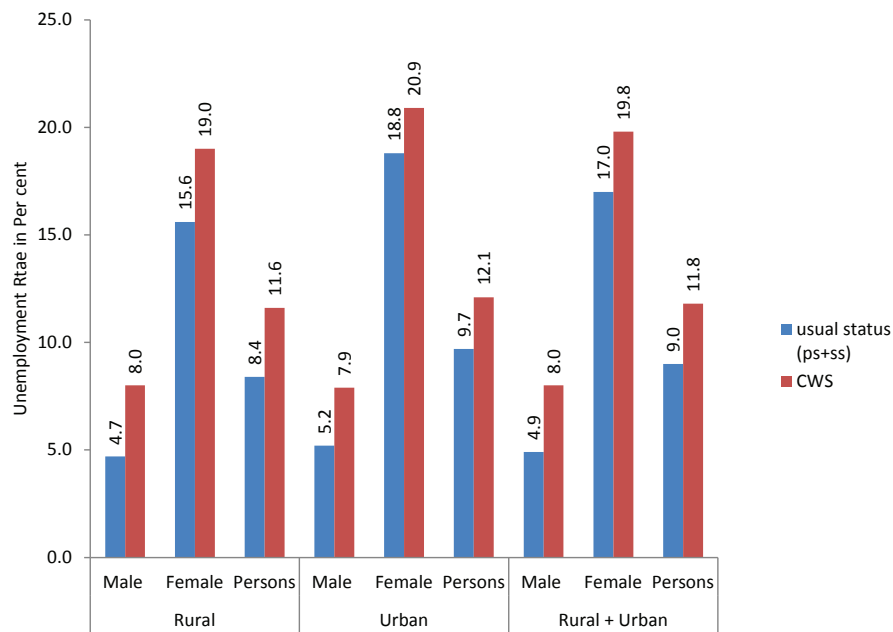
For educated (secondary and above) persons of age 15 years and above, in usual status (ps+ss) unemployment rate in India was 11.0 per cent: 11.2 per cent in rural areas and 10.8 per cent in urban areas. In this category, unemployment rates among rural males and rural females of

age 15 years and above, were 10.1 per cent and 16.6 per cent respectively. In urban areas, the unemployment rate was 9.2 per cent among males and 17.6 per cent among the educated females of age 15 years and above.

For educated (secondary and above) persons of age 15 years and above, unemployment rate in Kerala was 16.2 per cent, 15.9 in rural areas and 16.5 per cent in urban areas (**Appendix 7.2.2**).

In Current Weekly Status (CWS), for persons of age 15 years and above, the unemployment rate was 8.7 in India and the corresponding unemployment rate of Kerala was 11.8. The unemployment rate was 8.6 per cent among males and was 7.3 per cent among females in rural areas while the rates were 8.8 per cent among males and 12.1 per cent among females in urban areas. The corresponding unemployment rate in Kerala was 8.0 per cent among males and was 19.0 per cent among females in rural areas while the rates were 7.9 per cent among males and 20.9 per cent among females in urban areas (**Appendix 7.2.3**).

Figure 7.2.2 Unemployment rate in Kerala, in per cent (Both Usual Status (ps+ss) and CWS)



Source: PLFS report, 2018-19, GoI

Note: The estimates based on usual status considering principal and subsidiary statuses together is called as unemployed in usual status (ps+ss). The estimate of unemployed in current weekly status (CWS) gives an average picture of unemployment in a short period of 7 days during the survey period.

The male and female unemployment rate in Kerala in rural and urban areas as measured by Usual Status (PS+SS) and CWS approaches are found to be much higher than the all India average. Female unemployment, particularly in rural areas, is a matter of concern in Kerala. However, the female Labour Force Participation Rate (LFPR) in Kerala is estimated at 35.2 per cent which is higher than the all India level of 23.5 per cent (**Appendix 7.2.4**). As per the PLFS report, the Unemployment Rate (UR) in Kerala is lower in rural areas as compared to urban areas (**Figure 7.2.2**).

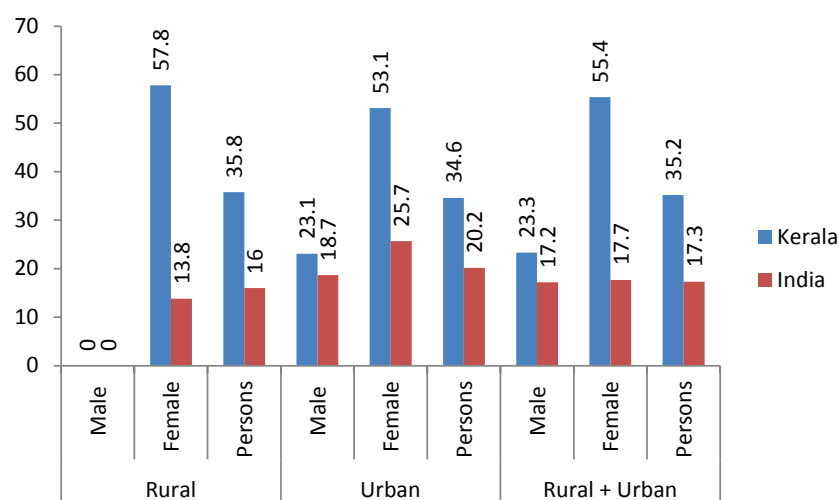
Unemployment Rates (UR) of the Youth

Persons aged 15-29 years, are considered as the youth. Productive employment of youth is an essential factor for economic development. Unemployment rate among the youth is measured at the all-India level in PLFS (2018-19) and in the last three erstwhile quinquennial rounds of NSSO. It is seen that in 2011-12, the unemployment rate among the youth was much higher compared to that in the overall population. It is seen that over the period from 2004-05 to 2011-12, the unemployment rate among the

rural male youth ranged between 3.9 to 5 per cent which rose to 16.6 per cent in 2018-19 while the unemployment rate among the rural female youth ranged between 4.2 per cent to 4.8 per cent between 2004-05 and 2011-12 which rose to 13.8 per cent in 2018-19. The unemployment rate among the urban male youth ranged between 7.5 to 8.8 per cent between 2004-05 and 2011-12 which rose to 18.7 per cent in 2018-19 while the unemployment rate for urban female youth ranged between 13.1 per cent to 14.9 per cent in 2004-05 and 2011-12 which rose to 25.7 per cent in 2018-19.

In Kerala, the youth accounts for around 23 per cent of the State's population. As per the survey report, the UR among the youth in Kerala is much higher as compared to that of the overall population and it reveals the severity of the unemployment problem among the youth in Kerala. The UR of the youth is 35.8 per cent for rural areas and 34.6 per cent for urban areas. Similarly, the UR among the female youth is also much higher than that of the male youth. Area-wise UR data shows that 57.8 per cent of the female are unemployed in a rural area as against the male rate of 23.4 per cent (**Figure 7.2.3**). Youth unemployment is prevalent in Kerala

Figure 7.2.3 Unemployment rate (in per cent) among the youth (15 to 29 years) in Kerala and India as per usual status (ps+ss)



Source: PLFS report, 2018-19, GoI

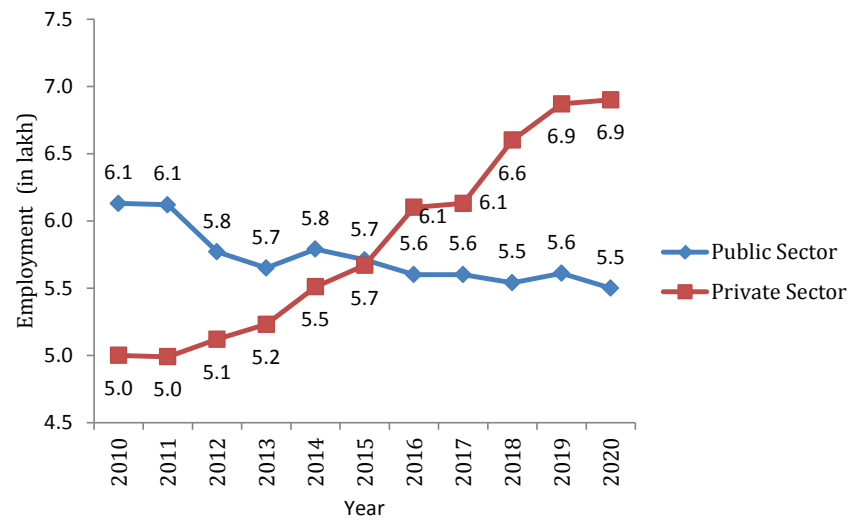
because young people lack adequate skills, and work experience in emerging areas. In order to face the challenge, the ongoing programmes for skill development and employment generation are to be made effective to equip the youth for finding better employment opportunities.

Employment in the Organised Sector

In Kerala, employment in the organised sector has remained more or less stagnant, showing only a marginal increase from 10.8 lakh in

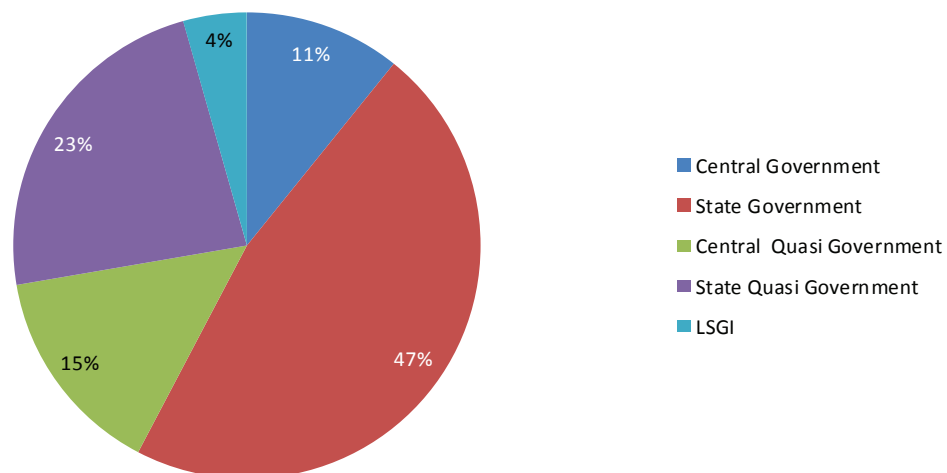
2012 to 12.5 lakh in 2020 (March 31, 2020). The organised sector comprises private and public sectors and it is noteworthy that private sector employment is slowly increasing since 2012 onwards. In 2020, out of 12.5 lakh persons employed in the organised sector 5.5 lakh (44.2 per cent) are in the public sector and 6.9 lakh (55.8 per cent) are in the private sector. As compared to 2019, public sector employment has shown significant increase in 2020 (**Appendix 7.2.5, Figure 7.2.4**).

Figure 7.2.4 Employment in the Organised Sector-Kerala, in lakh



Source: Directorate of Employment, GoK, 2020

Figure 7.2.5 Distribution of Employment in Public Sector



Source: Directorate of Employment, GoK, 2020

Within the public sector employment 46.9 per cent are employed in State Government and 10.8 per cent are in Central Government, 23.3 per cent are in State quasi institutions, 4.4 per cent in LSGI and 14.6 per cent are in Central quasi institutions (**Figure 7.2.5** and **Appendix 7.2.6**).

Data on district-wise employment as on March 2020 reveals that Ernakulam and Wayanad are the two districts which respectively accounted for the highest and lowest employment. Total organised sector employment in Ernakulam District is 2.6 lakh persons, which accounted for 21.1 per cent of the total employment of the State. Whereas in Wayanad the employment under organised sector is 0.4 lakh persons, which accounted for 2.8 per cent of the total employment.

It is interesting to note that the number of persons employed in private sector is showing an increasing trend during the last four years. In 2019, number of persons employed in public and private sector was 5,60,605 and 6,86,881 respectively and in 2020 the corresponding figures are increased to 5,54,919 and 6,99,447 respectively. (**Appendix 7.2.7**).

In Kerala, men outnumbered women in public sector employment where as in private sector employment women and men are almost in equal number. In 2019-20, the share of males is 65.2 per cent of public sector employment, while that of women is 34.8 per cent. Thiruvananthapuram and Idukki are the two districts which respectively accounted for the highest and

lowest women participation in public sector employment. In Thiruvananthapuram, 30,355 women are employed in public sector followed by Ernakulam (23,196), Thrissur (21,973) and Kollam (19,127), whereas in Idukki, 3,433 women are employed in public sector followed by Wayanad (6,877), Kasaragod (6,953), and Kottayam (7,983) (**Appendix 7.2.8**). Women participation in the public sector employment is shown in **Table 7.2.1**.

Recent statistics on industry-wise distribution of workers in organised sector in Kerala indicates that the dependence on service sector continues to rise whereas the dependence on agriculture continues to decline. Employment in agriculture, relative to other sectors has fallen while the share of employment in education and manufacturing has risen. (**Appendix 7.2.9** and **Figure 7.2.6**).

Employment in Unorganised Sector

Unorganised sector plays a crucial role in the Indian economy in terms of employment and its contribution to the Gross Domestic Product, savings and capital formation. More than 90 per cent of workforce and nearly 50 per cent of the Gross Domestic Product is attributable to this sector. A high proportion of socially and economically weaker sections of society are engaged in the unorganised economic activities in India and Kerala.

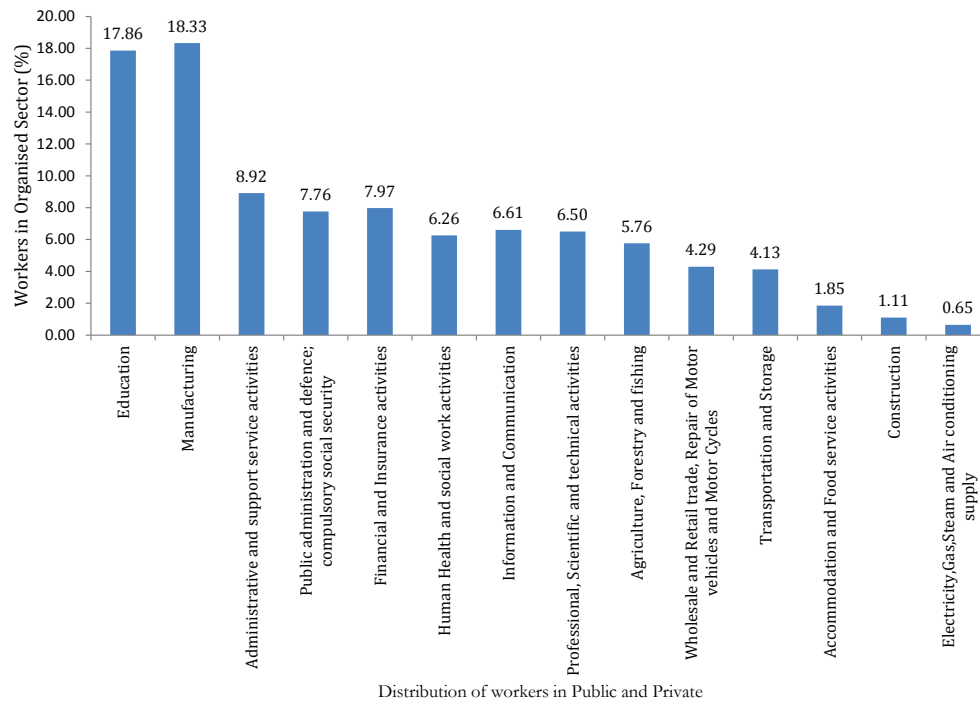
Employees of enterprises belonging to the unorganised sector have lower job security, lack of job contracts, no social protection, poorer

Table 7.2.1 Women Participation in Public Sector Employment in 2019-2020

Sl.No	Branch	No. of Women Employed	Share (%)
1	State Government	104628	54.2
2	State Quasi Government Sector	38666	20.0
3	Central Government	14745	7.6
4	Central Quasi Government Sector	25968	13.4
5	Local Self Government Institutions	9217	4.8
	Total	193224	100.0

Source: Directorate of Employment, GoK, 2020

Figure 7.2.6 Major Sectoral Distribution of Employment in the Organised Sector-March 2020, in per cent



Source: PLFS report, 2018-19, GoI

Box 7.2.1 Employment and wage loss during Covid-19 in the Kerala economy

The lockdown implemented in the State has resulted in an unprecedented loss of employment in all sectors of the economy. As per the 'Assessment of the Impact of The Covid-19 Pandemic and Lockdown on Kerala's Economy, April to June 2020' conducted by State Planning Board, the loss of person days of employment for 98 days (March 25 to June 30, 2020) for the workers both registered and non-registered was estimated to be 721.2 million days. The impact of the lockdown was most severe in the case of self-employed and casual workers in all sectors of the economy.

Almost all activities came to a halt except trade of essential goods and agricultural operations. A good portion of the workers engaged in some type of regular employment in private sector also lost their jobs. The only category of workers who were not affected was, those workers in public sector namely, State and Central Governments, public sector undertakings, autonomous institutions, universities and semi Government institutions.

In the first two phases of lockdown of 41 days, almost 90 per cent of the migrant workers who worked in construction and other sectors had lost their jobs and remained unemployed. The wage loss for the workers in the informal sectors in the State was estimated to be ₹24,713.9 crore during the first and second phase of lockdown. The corresponding measure of loss of wages for the rest of the lock down period was estimated to be ₹19,406.9 crore. It is to be noted that workers in plantation sector are almost absorbed in the sector. However, the industry leaders say that there were labour shortages in the industry as many of the workers from Tamil Nadu left to their parental home after relaxation of lockdown.

The employment loss for 98 days for the labour registered in Welfare Boards is 713.8 million days. And for the labours in other employee organisation is 25.1 million days. The labourers in plantation sector had a loss of 3.3 million days of employment.

Source: "Assessment of the Impact of the Covid-19 Pandemic and Lockdown on Kerala's Economy, April to June 2020", State Planning Board

chances of upward mobility, and no paid holidays, lower protection against employers indulging in unfair or illegal practices. In Kerala, Directorate of Employment is the nodal department entrusted with the responsibility to take measures to reduce instances of unfair practices existing in the unorganised sector. In recent years, the Kerala Government has initiated several measures to provide social security to workers in the unorganised sector.

Employment Exchanges and their Services

Registered Job Seekers

According to live register of employment exchanges in Kerala, the total number of job seekers as on December 31, 2012 was 43.3 lakh.

But it has now declined to 34.3 lakh as on July 31, 2020, a reduction of about 9.0 lakh. Details of job seekers for various years are given in **Appendix 7.2.10** and **Figure 7.2.7**.

Contrary to the all India scenario, women job seekers are found to be more in the live registers in Kerala. Of the total job seekers in 2020 (upto July 31, 2020), 63.6 per cent are women. Number of illiterate persons in the live register is 880. Distribution of job seekers by educational level indicates that only 7.9 per cent have qualification below SSLC. About 92.1 per cent of the job seekers are in the category of qualifications having SSLC and above (**Figure 7.2.8** and **Appendix 7.2.11**).

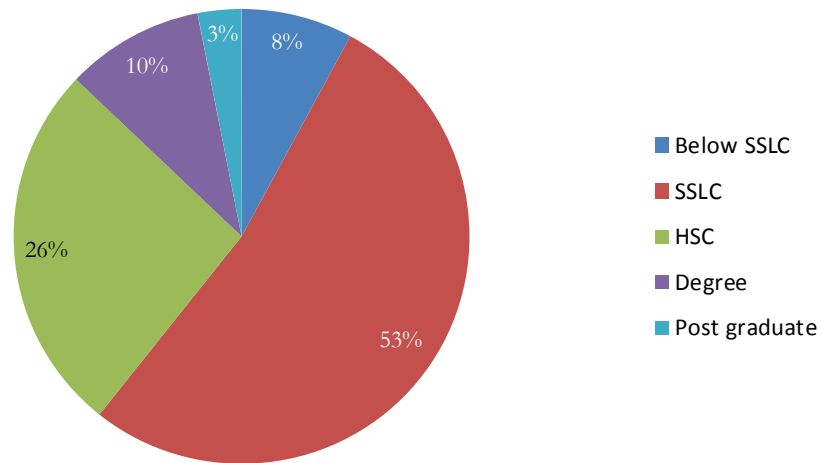
The number of professional and technical job seekers as on July 31, 2020 is 3.5 lakh. Data

Figure 7.2.7 Work seekers in Kerala (persons in lakh)



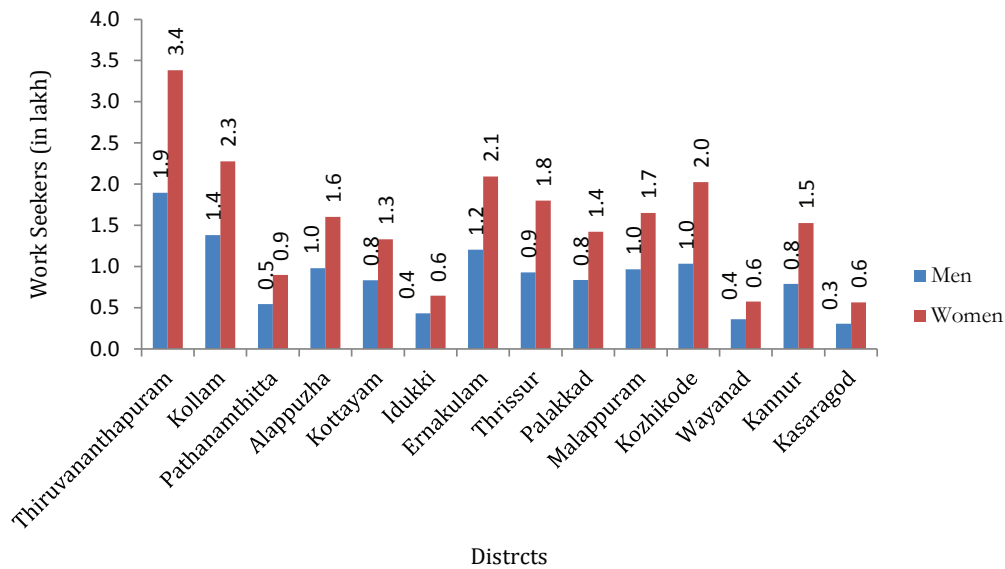
Source: Directorate of Employment, GoK, 2020

Figure 7.2.8 Distribution of Work Seekers in Kerala by Educational Level



Source: Directorate of Employment, GoK, 2020

Figure 7.2.9 Job seekers in Kerala as on July 31, 2020 (Status of Men and Women)



Source: Directorate of Employment, GoK, 2020

reveals that ITI certificate holders, Diploma holders and Engineering together constitute 71 per cent of the total professional and technical job seekers. There are 47,525 registered engineering graduates and 9,000 medical graduates (**Appendix 7.2.12**). The District-wise job seekers in Kerala are shown in **Figure 7.2.9**. Thiruvananthapuram District ranks first in the number of job seekers in general and

professional/technical categories as on July 31, 2020. The total number of job seekers in Thiruvananthapuram district is 5.3 lakh; of which 3.4 lakh are women and 1.9 lakh men. The second largest number of job seekers is in Kollam district with 3.7 lakh persons. The lowest number of job seekers registered in Kasaragod district with 0.9 lakh (87,393 persons). (**Appendix 7.2.13**).

Kaivalya

Kaivalya was introduced as a holistic framework for achieving the goals of social inclusion and equality of opportunity for all citizens with disabilities. Kaivalya was introduced by Employment Department of Government of Kerala in 2016. The primary objective of the scheme is to create a social and physical environment favouring accessibility, integration and full participation of persons with disabilities. Kaivalya comprises of the following 4 components;

1. Vocational and Career Guidance
2. Capacity Building
3. Coaching classes for Competitive Examinations
4. Interest free loan for Self-Employment Ventures

An amount of ₹235.5 lakh was spent in 2019 for implementing the above activities benefiting 471 persons. In 2020 (as on October 31, 2020) an amount of ₹79.5 lakh has been sanctioned for implementing above activities. Details of amount disbursed and beneficiaries are given in **Appendix 7.2.14**.

Self-Employment Schemes

Three self-employment schemes are implemented through the Employment Exchanges in Kerala.

1. Kerala Self-Employment Scheme for the Registered Unemployed (KESRU): KESRU is being implemented since 1999 and is intended for unemployed persons in the live register between the age 21 to 50 years with annual family income not exceeding ₹1.0 lakh. Preference will be given to those with ITI/ITC certificate, professional or technical qualifications, graduate women and beneficiaries of unemployment dole scheme. Bank loan up to ₹1.00 lakh with a 20 per cent subsidy is given for self-employment ventures. In 2019-20 (as on September 30, 2020), an amount of ₹130.5 lakh

was allotted to the scheme and ₹62.3 lakh has been spent for 322 beneficiaries.

2. Multi-Purpose Service Centres/ Job Clubs (MPSC/JC): This is a group oriented self-employment scheme for development of enterprises in the unorganised sector. Bank loan up to ₹10 lakh with a maximum of ₹2 lakh as subsidy is given for starting self-employment group ventures of 2 to 5 members, who are unemployed persons in the live registers in the age group of 21 to 45 years. The scheme is incorporated with Credit Guarantee Scheme. In 2019-20 an amount of ₹100.0 lakh was allotted to 62 Clubs.

3. Saranya: Employment Scheme for the Destitute Women aims at uplifting the most vulnerable sections among women in the State, namely widows, divorced, deserted, spinsters above the age of 30, unwed mothers of Scheduled Tribe, physically handicapped women and wife of bedridden person. Under this scheme interest free bank loan upto ₹50,000 with a 50 per cent subsidy (maximum ₹25,000) is given for starting self-employment ventures. In 2019-20, an amount of ₹1820.0 lakh was allotted to the scheme and ₹1235.6 lakh was spent for 2,516 beneficiaries.

Employability Centre

The Government of Kerala has taken a substantial step by converting the Employment Exchanges into 'Centres of Skill and Employability Development' (Employability Centre) for identifying the skill sets of youth registered in the Employability centres. The skills are identified using psychometric tests and the selected persons are provided the skills with necessary training inputs so as to equip them to be placed directly in to the workforce. For high-end courses the candidate will be referred to VTP (Vocational Training Providers) or other institutions. Ten Employability Centres have started functioning along with District Employment Exchanges at Kollam, Alappuzha, Kottayam, Ernakulam, Palakkad, Kozhikode, Kannur, Thrissur,

Malappuram and Kasaragod. In 2019-20, out of 1,832 registered persons, 465 were assessed, 403 were trained and 232 were offered job.

Career Development Centre (CDC)

Career Development Centre (CDC), an initiative of National Employment Service (Kerala) Department, Government of Kerala, was started in 2016-17 for rural youth. The centre is envisaged as a place where individuals can obtain authentic solutions for all kinds of career issues faced by them. The main objective of this centre is to help the students in rural area in acquiring necessary knowledge and training based on the latest trends and current developments in the education and employment sectors. The centre adopts the latest technologies and appropriate tools in career management to address issues. The ultimate goal of these centres is to link the students with meaningful work, giving them support to shape and manage their careers by building key ingredients necessary for their transformation to become complete professionals. The Career Development Centres are functioning with the technical support of KASE. In 2018-19, the Department started two Career Development Centres at Palode in Thiruvananthapuram and Kayamkulam in Alappuzha District. Five Career Development Centres are functioning under the Department.

Model Career Centre

As per the Central Government policy to transform all the Employment Exchanges into Career Centres, National Employment Service Department has taken initiative to set up Model Career Centre at University Employment Information and Guidance Bureau, Thiruvananthapuram. It is a joint venture of the Directorate General of Employment and Training, Ministry of Labour and Employment, Government of India and the Department of National Employment Service (Kerala). The Centre will act as a one-stop solution centre for all assistance needed to the aspiring youths to find out suitable career according to their qualifications and skill set. It provides a variety of employment related

services under one roof to job aspirants at free of cost. The Centre now endeavours increased focus on career counselling as a key activity to enable our aspiring youths to pursue the right career choices according to their aptitude and skill. Activities performed by this centre include partnering with industry, candidate engagement, job and skill mapping and conducting placement drives/job fairs.

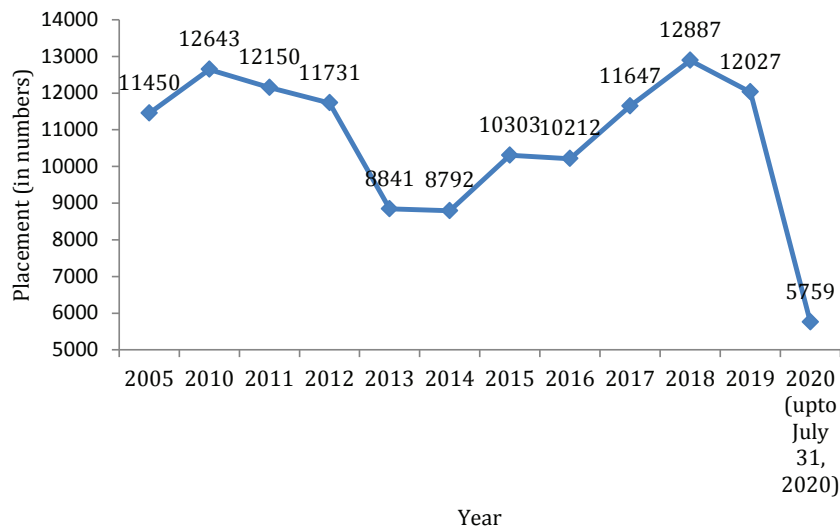
Unemployment Assistance

The Government of Kerala had introduced an unemployment assistance scheme in 1982. Under the scheme, unemployed youths remaining in the live registers for over three years (for physically challenged it is two years) after attaining the age of 18 and having passed SSLC (for SC/ST and physically challenged, candidate need to have only appeared for SSLC examination) and having annual family income below rupees 12,000 and personal income below rupees 100 per month are eligible for an unemployment assistance of ₹120 per month up to the age of 35 years of age. With the enactment of the Kerala Panchayat Raj Act and Kerala Municipality Act, the unemployment assistance scheme was transferred to Rural and Urban Local Governments since 1998. Under the scheme, the eligible candidates shall submit their application for unemployment allowance in the prescribed form to the Local Government. The Welfare Standing Committee at the Local Governments would finalise the list of candidates based on the eligibility criteria. In 2019 an amount of ₹1171.5 lakh was disbursed to 1,22,035 beneficiaries as unemployment assistance and ₹1047.8 lakh to 2,498 beneficiaries as self employment assistance. In 2020, ₹433.5 lakh was disbursed to 82,300 beneficiaries as unemployment assistance and ₹1639.8 lakh to 2,708 beneficiaries as self employment assistance as on September 2020 (**Appendix 7.2.15**).

Niyukthi – 2020

Niyukthi is a recruitment drive organised by the National Employment Service department with a view to provide employment opportunities to the

Figure 7.2.10 Placement through Employment Exchanges – Kerala



Source: Directorate of Employment, GoK, 2020

educated and talented unemployed youth in the private sector. Niyukthi 2020 was organised in Kozhikode. In this mega event, 4,500 jobseekers and 73 employers participated and 240 placements were provided.

Placement through Employment Exchanges in Kerala

The total placement through Employment Exchanges in Kerala has been declining since 2010. From 2015 to 2018, it has been increasing (a slight decrease recorded in 2016). However, in 2019, it again declined as compared to 2018 figures. The placement through employment exchanges in Kerala since 2005 is given in the **Figure 7.2.10**.

7.3 SKILL DEVELOPMENT

India has the potential to become the Skill Capital of the World, with one of the youngest population in the world. Skill development is not complete, unless it generates more employment opportunities for the youth. There is a need for the Government to generate enough employment, and for this, it has to focus on industries that are labour intensive and not merely capital intensive or technology driven (Annual Report 2018-19, Ministry of Skill Development and Entrepreneurship, GoI).

As per the projection by National Commission on Population, GoI, the proportion of population in the working age group of 15-59 years is expected to rise from 60.7 per cent in 2011 to 65.1 per cent in 2036. Out of the total population increase of 30.7 crores between 2011 and 2036, the share of workers in the age group 15-59 years in this total increase is 82.5 per cent, which has implication on availability of labour.

Skills and knowledge are the driving forces of economic growth and social development in a country. India currently faces a severe shortage of well-trained, skilled workers. It is estimated that only 2.3 per cent of the workforce in India has undergone formal skill training as compared to 52 per cent in USA, 68 per cent in the UK, 75 per cent in Germany, 80 per cent in Japan and 96 per cent in South Korea (National Skill Development

Mission Framework for Implementation, Ministry of Skill Development and Entrepreneurship). Large sections of the educated workforce have little or no job skills, making them largely unemployable. Therefore, India must focus on scaling up skill training efforts to meet the demands of employers and drive economic growth.

Realising the importance, more than 20 Ministries/Departments run 70 plus schemes for skill development in the country. The National Skill Development Mission launched by the Ministry of Skill Development and Entrepreneurship on July 15, 2015, aims to create convergence across sectors and States in terms of skill training activities. Besides consolidating and coordinating skilling efforts, it also aims to expedite decision making across sectors to achieve skilling at scale with speed and standards.

The Government of Kerala with the objective of skilling the young workforce of Kerala and elevating their skills to global standards for employment in India and abroad has also set up an academy-Kerala Academy for Skills Excellence (KASE), a non-profit company as the nodal agency for facilitating and coordinating various skill development initiatives of the State.

Government Initiatives towards Skill Development

Additional Skills Acquisition Programme (ASAP)

Additional Skill Acquisition Programme (ASAP), part of the State Skill Development Project (SSDP), was launched in 2012 jointly by the Higher and General Education Departments. It aims at tackling the problem of educational unemployment by introducing market-relevant foundation training, vocational training and career counseling alongside the general curriculum at the higher secondary and under graduate levels. ASAP has delivered quality skill training in the State to 2,01,409 students from more than 1,100 Higher Secondary Schools and Art and Science Colleges.

Regular Skill Training Programmes of ASAP

Its regular mode of training includes a foundation skill training comprising of 100 hours of communicative English and 80 hours of basic IT skills provided to the students. This is followed by an assessment and certification by the language proficiency test of the British Council called 'APTIS' with a fee structure determined by the State Government.

ASAP has designated selected schools and colleges as specialised training centres called Skill Development Centres (SDC) where skill training classes are carried out. A major focus in 2019-20 was strengthening the Advanced Skill Development Centres (ASDCs) set up in Engineering Colleges and Polytechnic Colleges. (see Chapter on Education). Currently foundation classes are conducted in 121 SDCs. In 2019-20, ASAP has spent ₹51.73 crore for training.

- In 2019-20, 62 skill courses were provided by ASAP
- 30,869 students enrolled in ASAP in 2019-20
- 5529 women enrolled under She-Skills 2019
- In the year 2019-20, 34,768 APTIS

certificates and 24,496 Skill course certificates were issued

- 22 polytechnics were selected for conducting the programme 'community college' which aims to uplift the weaker sections of communities by identifying local employment and self-employment opportunities and provide relevant skill training
- 16 Community Skill Parks are to be implemented in the State out of which 9 of them are already operational, while the remaining 8 CSPs are under construction phase

Skill Training Programmes for Kudumbashree and SC/ST

Kudumbashree, the State poverty eradication mission, was formed with the objective of poverty eradication through the empowerment of women. As a part of skill development among women, this agency conducts many training programmes at State level. It is the nodal agency of centrally sponsored programme called Deendhaya Antyodaya Yojana-National Rural Livelihood Mission [DAY-NRLM]. Under this scheme, with the aim of demand-led skill training at no cost to the rural poor, Deen Dayal Upadhyaya Grameen Kaushalya Yojana [DDU GKY] provides skill based training to men and women, among whom large numbers are Kudumbashree members. The details are given in **Table 7.3.1**.

SC/ST Skill based training programme details

The lack of education, skill development and limited employment opportunities has kept Scheduled Castes and Tribes out of the commendable human development in Kerala. Skill development among this class is the need of the hour so as to make them confident, to develop in them the ability to participate in decision making and become self reliant. By empowering them through education and skill development, they can live with dignity and self-esteem. There are two skill development schemes for SC/ST,

Table 7.3.1 Number of persons trained and appointed, 2019-20 and 2020-21

Name of the Scheme Components	Components	Physical achievements (in number)	
		2019-20	2020-21 (upto September 30, 2020)
DDU GKY	Persons Trained	13,113	125
	Persons Appointed	9,957	120

Source: Kudumbashree Mission

Table 7.3.2 Details of Skill training conducted for SC/ST

Year	No. of Skill Training conducted	No. of Persons Attended		Placement	
		No. of Agencies	No. of courses	India	Abroad
2016-17	3	5	457	288	1
2017-18	4	8	1430	1393	
2018-19	6	14	870	659	10
2019-20	11	22	1148	306	11
2020-21 (as on September 30, 2020)	4	4	1450		
Total	28	53	5355	2646	22

Source: SC/ST departments, GoK

- i. Assistance for self employment skill development training to ST youth; and
- ii. Assistance for Training, Employment and Human resource Development (SC). Details are given in **Table 7.3.2**.

For Scheduled Caste and Scheduled Tribe, from 2016-17 to 2020-21 (upto September 30, 2020) there were 53 skill training courses conducted under this programme, 5355 candidates attended the training programme of which 2646 trainees got placement in India at various institutions and 22 people got placed abroad.

Industrial Training Department

Industrial Training Department is functioning under the Labour and Skills Department, Government of Kerala. It is the State level nodal agency for implementing various skill development activities of Director General of Training, Ministry of Skill Development and Entrepreneurship, Government of India. The Director of Training heads the Department. The Department is implementing the two major schemes introduced by the DGE&T, namely Craftsman Training Scheme and Apprenticeship

Training Scheme through various Government and private institutes spread in urban, semi urban and rural areas of the State. The free training and other assistance given to the trainees helps to bring backward sections of society into the main stream of technological advancement. By using the latest technologies in imparting training the Department enhances the employability of the trainees. The aim of the DGE&T is to create a skilled and technically qualified workforce who would contribute to the growth and development of the nation and to provide quality training to all possible people so as to achieve the national goal of 500 million skilled persons by 2022 so as to reduce unemployment.

Craftsman Training Scheme (CTS)

The Craftsman Training Scheme was introduced by the Government of India in 1950 to ensure a steady flow of skilled workers in different trades for the domestic industry, to raise quantitatively and qualitatively the industrial production by systematic training and to reduce unemployment among the educated youth by providing them employable training. National Council

for Vocational Training (NCVT) is the apex authority in the country in the implementation of the scheme. As per the scheme National Trade Certificate (NTC) is issued to the trainee who completes the training in a particular trade and passes the All India Trade Test. There are about 85 trades in which seats have been allocated for Craftsman Training with a total seat capacity of 54060 (Government ITIs – 35772 and other institutes (SCDD/STDD, and Private ITIs)-18288). The details of ITIs and its trade and enrolment are given in **Appendix 7.3.1, 7.3.2, 7.3.3, 7.3.4.**

Apprenticeship Training Scheme (ATS)

The Apprenticeship Training scheme is being conducted as per the provisions mentioned in the Apprentices Act 1961. Apprentices Act, 1961 was enacted with the objectives to regulate the programme of training of apprentices in the industry so as to conform to a standard syllabi, period of training, skill sets and to utilise the facilities available in industry for imparting practical training with a view to meeting the requirements of skilled manpower for the industry. Apprenticeship is a contract between an apprentice and an employer to provide a stipend fixed as per the Apprentices Act 1961. The Central/State Government acts as the third party in the contract, regulating and monitoring the process. Recently, Government of India introduced National Apprentice Promotion Scheme (NAPS) and through this scheme Central Government will reimburse 25 per cent of stipend as reimbursement to the Establishments.

Apprenticeship trainings in Kerala are both Central and State initiatives. National Apprenticeship Certificate (NAC) is issued to those who complete the apprenticeship training in an organisation and passes the National Apprenticeship Trade Test. Apprenticeship schemes in the State are implemented through office of the State Apprenticeship Advisor and Assistant Apprenticeship Advisor in 14 Districts. There are 81 trades in which seats have been located for Apprenticeship Training.

Number of seats located : 7963
Number of seats utilised : 2807
Number of Establishments located : 2443
(Government: 869, Private: 1574)
Number of Establishments utilised : 746
(Government: 251, Private : 495)

Around 2000 students are certified every year under this scheme.

Industrial Training Institutes

There are 99 Industrial Training Institutes under the Industrial Training Department. Private ITIs are also functioning in the State. A total of 35772 seats are available in these ITIs, 30 per cent of seats are reserved for women candidates. 14 women ITIs are functioning in the State in Government sector. In addition, 44 ITIs are operating under Scheduled Caste Development Department (SCDD) and 2 ITIs are operating under Scheduled Tribe Development Department (STDD).

Skill Updating Institute for Industrial Training (SUIT) – Kerala, Kazhakkuttom. Skill Updating for Industrial Training – Kerala, was started in 1999 at Kazhakkuttom, Thiruvananthapuram, to update the skill and knowledge of instructional staff and others to keep pace with new technical developments. The activities of this institute are, study on Training Need Assessment (TNA) and preparation of course design, research in new methods of teaching, skill updating programmes of technical staff, soft skill training, training programmes under State Training Policy at IMG, off campus training programmes, monitoring of virtual class training and coordinating DLP training of DGE&T.

India Skills-Kerala 2019

Inspired by the resounding success of skill competition, India Skills 2018, the Department opened up the stage for 'Battle of Skills' – this time with more vigour and more colour. Titled 'India Skills Kerala 2019', the skill competition was held in February 2020 at Swapnanagari, Kozhikode.

India Skills Kerala 2018 witnessed tremendous response from the youth of the State. 7422 participants registered for the District level and the finals at Marine Drive was a one-of-its-kind event with 112 finalists.

Further, winners and runner-ups of each trade were given special training and represented the State for the regional competitions of national competition 'India Skills 2018' held from 21-23 June 2018. Out of the 40 contestants from the State at the regional competition, 20 emerged as winners and represented Kerala at the national level competition convened from October 2-5, 2018 at New Delhi 2018. Out of this, 3 candidates represented our country in the World Skills 2019 held at Kazan, Russia. Two participants from Kerala bagged Medallions of Excellence awards. One government ITI trainee won the award in wall and floor tiling and a B.Tech graduate won in 3D Game art. To sum up, India Skills Kerala 2018 opened the gate way to World Skills 2019.

The Winners of India Skills Kerala 2018 also represented our country in various international skill competitions such as Euro skills 2019, Asia Skills 2019, Hi Tech Russia 2019 and World Skills Australia 2019.

ISO Certification

Quality has been the hallmark of our Industrial Training Institutes. Various innovative techniques are introduced in training. The target is to ensure result oriented performance by our institutes. These initiatives of the department are recognised with ISO certification awarded to 34 ITIs.

ISO Certified ITIs are listed below

ITI (W) Kozhikode, ITI Ettumanoor, ITI Mala, ITI (W) Kalamassery, ITI Kozhikode, ITI Kalpetta, ITI Kannur, ITI (W) Kazhakkuttom, ITI Attingal, ITI Chennerkkara, ITI Kalamassery, ITI (W) Chalakudy, ITI Arecode, ITI Chengannur, ITI Dhanuvachapuram, ITI Chackai, ITI Kollam, ITI Kollam (W), ITI Pallickathode, ITI Kattappana, ITI Chalakkudy, ITI Malampuzha, ITI Kannur(W),

ITI Kasaragod, ITI Arayanadu, ITI Chathannoor, ITI Malayinkil, ITI Pallipadu, ITI Attappady, ITI Kayyur, ITI Koilandy, ITI Nilambur, ITI Kuzhalmannam, ITI Madayi.

Development of Websites for ITIs

Department developed separate websites for all the Government ITIs in the State according to the guide lines of DGE&T. It provides information about the institute, courses, admission details, faculty, services, specialities, consultancy and its future plans to all stakeholders.

Group Insurance Scheme

Around 30,000 trainees were trained in various schemes through Government ITIs in a year. Trainees were trained with heavy and sophisticated machinery in the workshops of the institutes and at factories during implant training. Trainees are thus prone to dangerous hazards throughout their training period. Hence, a Group Insurance Scheme was introduced for the trainees in 2018-19. This offered one year insurance protection for ITI Trainees (3 lakh coverage).

Technical Exchange Programme

Department introduced Technical Exchange Programme for ITI Trainees. The main objective of the scheme is to give training to trainees in training institutes abroad. In 2018-19, 46 trainees in various trades were selected to participate in a training programme conducted by ITE Education Service Singapore.

Naipunya Karmasena

The Naipunya Karmasena was formed by the Department to rectify the electrical, plumbing, carpentry issues that emerged following the flood. Besides ITI trainees a team of officials having technical knowledge, participated in the activities. Department setup Naipunya Karmasena as a permanent establishment in 2020-21.

Placement Cell

2139 trainees got placement through placement cell in 2019-20.

Major Milestones in the financial year 2019-20

- India Skills – Kerala 2020 -the skill competition was an arena for celebrating world class excellence in skills and an avenue for the youngsters to showcase their functional and vocational skills. The winners will represent the State at the national skill competition 'India Skills 2020', which will open the gates to the 'World Skills Shanghai 2021'.
- Job Fair was conducted in three regions for getting placement.
- Department has taken action to upgrade 10 ITIs to international standards through KIIFB Funding. The selected ITIs are ITI Dhanuvachapuram, ITI Kollam, ITI Chengannur, ITI Ettumanoor, ITI Kattapana, ITI Chalakkudy, ITI Malampuzha, ITI Koyilandi, ITI Kannur, and ITI Kayyur.
- Introduced Green Campus project in 14 selected ITI s with the support of Haritha Kerala Mission.

Centre for Research in Education and Teacher Training (CRETTE)

The Centre for Research in Education and Teacher Training (CRETTE) is a joint initiative of the Kerala Academy for Skills Excellence (KASE) and Sadhbhavana Group at Kozhikode, to provide relevant training to educators in conformation with contemporary needs and affirming quality and excellence with 70 per cent assured placement.

Kerala Academy for Skills Excellence (KASE)

With the objective of skilling the young workforce of Kerala and elevating their skills to global standards for employment in India and

abroad, the Government of Kerala has set up Kerala Academy for Skills Excellence (KASE), a non-profit private company as the nodal agency for facilitating and coordinating various skill development initiatives of the State. It is incorporated to pursue its main objectives to promote, establish, set up, monitor, govern and regulate institutions and academies for skills excellence for development of core employability skills, competency standards and for promoting technology that meets the demands of various industries globally.

Skill Convergence in Kerala

For institutional strengthening at the National, State and District level, Kerala Academy for Skills Excellence (KASE) has been designated as the State Skill Development Mission (SSDM). Various departments have their own skilling programmes, which inadvertently result in duplication. This emphasises the need for convergence across the departments under a mission at the State level. This mission would guide, coordinate, monitor and evaluate skilling initiatives and bring all skill development activities of the State under a single umbrella. To achieve this objective, KASE as the State Skill Development Mission, proposed a focused, integrated skill continuum with the following features:

- Governed by an administrative framework for governance
- SSDM as the skill secretariat
- World Skill Lyceum – think tank for the skill secretariat

Administrative framework for Governance consists of the following two administrative bodies at the Government level for regulating skill development initiatives in the State.

1. **State Level Steering Council** – A policy formulating authority for skill development in the State. It is designed to be a governing body and would approve the process flow to be followed by skill development centres across Kerala, monitoring and guiding

the high powered committee in tune with the skill policy of the State. The council is chaired by the Hon'ble Chief Minister with various Ministers, Chief Secretary and representatives of industry as members of the council. The council shall be convened by the Secretary, Labour and Skills Department.

- 2. High Power Committee** – Chaired by the Chief Secretary and convened by Managing Director, KASE, the Committee implements policy decisions taken by the State Level Steering Council and regulates skilling programmes conducted by various organisations. Members of the committee include Secretaries of various Departments.

International Skill Training and Employability Programme (i-STEP)

Considering the peculiar demographic characteristics of the State of Kerala, unique skilling models have been adopted by KASE with industry tie-ups and placement linkages. KASE associates with industrial partners or prospective employers or entrepreneurs through the i-STEP (International Skill Training and Employability Programme), a single window initiative to associate with the skill development mission of Government of Kerala. i-STEP is open to any sector of the industry, where the skill gap is identified by the stakeholders. Projects proposals, with the aim of imparting employability skills and 60 per cent assured placements, can be submitted for consideration under i-STEP initiative of KASE.

Models under i-STEP are as follows:

- A. Centres of Excellence (CoE)
- B. Accreditation of Skill Training Courses
- C. Skill Training programme

A. Centres of Excellence

KASE has set up Centres of Excellence in Nursing, Security Skills, Oil and Rig, Teaching, Water and Waste Water Treatment and Construction.

1. Nursing Institute for Career Enhancement (NICE)

Nursing Institute for Career Enhancement (NICE), the Centre of Excellence in Nursing, is a first-of-its-kind initiative in India which provides world-class training facilities for enhancement of the employability skills of nurses. KASE partnered with M/s. Trivandrum Specialities Hospitals (NMC Healthcare Group, UAE) to set up this Centre of Excellence in Nursing at KINFRA International Apparel Park, Thiruvananthapuram. A total of 586 candidates have completed the training and 190 have been placed till June 2020 and now 28 students are undergoing training.

2. Centre for Advanced Training in Security (CATS)

KASE has partnered with the International College for Security Studies (established under M/s. Pragmatic Educational Society) to establish a Centre of Excellence in National Security named as Centre for Advanced Training in Security (CATS) to impart advanced training in security skills at KINFRA International Apparel Park, Thiruvananthapuram. A total of 192 students have successfully completed the training, of which 76 have been placed up to June 2020.

3. Enlighten Skill Training Programme for Oil and Rig (ESPOIR)

KASE has partnered with Eram Engineering WLL, Qatar to set up the Centre of Excellence in Oil and Rig for equipping the youth with requisite skills needed for this industry. The academy, located at INKEL TOWER, Angamali focuses on imparting practical skills and hands-on training through its well-equipped labs and workshops which meet international standards. Out of 1107 candidates who have completed training, 723 have been placed till date and 165 students are currently undergoing training.

4. **School of Water Technology (SWAT)**

Green Method Engineering (P) Ltd located at Kochi is one among the pioneer institutions in focusing on water and waste water treatment plant. The institution offers a range of water and waste water management solutions using most up-to-date equipment and technologies. Upto June 2020, total 48 candidates got trained, out of which 40 students have been placed and 14 candidates are currently undergoing training.

5. **Indian Institute of Infrastructure and Construction (IIC)**

The Government of Kerala, through KASE, is setting up the Indian Institute of Infrastructure and Construction (IIC) at Chavara, Kollam, which is of international standards with the aim of offering high end courses in Construction Engineering and Management and also providing skill training for workforce ranging from trades including masonry, carpentry, plumbing, electrical to draftsman with CAD expertise, supervisor and site manager. IIC would impart skill training for technical personnel like ITI certificate-holders, Diploma holders and Engineering graduates, and would make them readily employable in national and international arena. IIC started functioning in October 2018 with a vision to be recognised as a nationally reputed institution for skills training and to train as many youth as possible and make them employable in India and abroad.

There were 7 courses in the first phase, among them, 3 three month courses were completed in January 2019. All students, except 5 who have opted for higher studies have been placed. Two six months courses, plumbing engineering and painting and finishing work were completed in April 2019; 80 per cent of students have been placed.

Besides, IIC has signed a MoU with Cambridge English for the conduct of BULATS course (Business Language Testing Services). All students of managerial courses and staff participated in the 5 day training of BULATS, the first session was conducted on March 29 and the last batch completed on May 4. About 150 students and staff successfully completed the BULATS course and they will be receiving certificate issued by Cambridge English.

B. Accreditation

Reputed skill training institutions can associate with KASE in getting them accredited so as to enhance their reach and acceptance in attracting suitable candidates. The public acceptance in the services of accredited institutions is increased when they know that standards are being monitored and enforced. The KASE symbol is a means of identifying institutions that uphold and sustain high standards.

1. **Hedge School of Applied Economics, Kochi**

Students with background in commerce, management or aptitude for business are offered a unique opportunity to build their analytical and practical skills essential for marketing/operations in financial and banking services through KASE accredited programs at Hedge School of Applied Economics, the knowledge initiative of M/s. Hedge Equities. Out of 2258 candidates, 402 have been placed up to June 2020.

2. **Induscan Petroleum, Nilambur, Malappuram**

KASE has accredited the courses namely, Quality Control Engineer and Quality Control Inspector offered by Induscan Petroleum Institute, Malappuram- an institute pioneering in customised skill training for all kinds of mechanical construction industries especially in oil and gas sector. The course syllabus is designed and developed for

fresh engineers/diploma holders to take independent responsibilities in planning, purchase, materials, piping, fabrication, welding, inspection and Quality Assurance (QA)/Quality Control (QC) engineers after successful training. 263 students have completed training and 165 students have been placed up to June 2020.

3. **SMEC Automation Private Limited, Kochi, Ernakulam**

KASE accredited course namely, Certified Automation Engineer, offered at SMEC Automation Pvt. Ltd., Kochi is an advanced industrial automation skill excellence programme tailor made for fresh and experienced engineering graduates, diploma holders and students from ITI. 132 students have completed training and 46 students have been placed up to June 2020.

4. **Dhanwanthari Educational and Charitable Society, Idukki**

KASE has partnered with Dhanwanthari Vaidyasala through its division Dhanwanthari Educational and Charitable Society, Idukki, by accrediting the courses such as Diploma in Panchakarma Therapy, Diploma in Ayurveda Nursing and Diploma in Ayurveda Pharmacy. The course module in Diploma in pharmacy consists of Panchakarma, Ayurveda utpatti, Branches of Ayurveda, Concept of vada/pitta/ kapha, Pancha mahabhuthas, concept of Agni, concept of saptadhatu and Trimala, dravya guna, concept of rasa/guna/virya/vipaka/prabhava, collection, preparation and storatation of drug, Pharmacology, preparation of sandhana kalpana, preparation of taila/grutham/gulika/vataka/capsules. Out of 260 students who have completed training, 166 have been placed up to June 2020.

5. **Atheos Institute of Skills Excellence, Palakkad**

KASE has partnered with Atheos Educational Initiatives Pvt. Ltd, Bangalore, through its division Atheos Institute of Skills Excellence,

Palakkad in Tourism and Hospitality sector by accrediting the courses such as Kitchen Steward, House Keeping Attendant, Food and Beverage Trainee. They are imparting vocational educational and skill development training to achieve sustainable, inclusive growth for both the rural and urban economy in alignment with the objectives and guidelines of National Skills Qualifications Framework (NSQF) and Skill India initiative. A total of 440 candidates have been trained of which all have been placed.

6. **Intercad Systems Private Limited, Thiruvananthapuram**

Computer Designing is increasingly gaining importance in the present industrial world. So for the skill development of youth in computer designing for Civil/Architecture and Mechanical sector, KASE has partnered with Intercad Systems Private Limited, Thiruvananthapuram for conducting the following courses accredited by KASE namely, Revit Architecture, and 3DS Max Design and AutoCAD, PTC Creo and Diploma in Mechanical CAD. 44 students have completed training up to June 2020.

7. **Blitz Academy, Kochi, Ernakulam**

Blitz Academy is a training provider of KASE engaged in training programmes in Mechanical and Civil Engineering such as ASNT NDT Level II, Welding Inspection, Piping and Pipeline Engineering, Mechanical QA/QC, Civil QA/QC and Quantity Surveying. Total numbers of candidates trained up to June 2020 are 1450 of which 812 have been placed.

8. **Sports and Management Research Institute, Thiruvananthapuram**

Synergians Society through its division Sports and Management Research Institute is engaged in training programmes such as PG Diploma in Sports Management, Certified Sports Manager, Advanced Diploma in Sports

Business and Advanced Diploma in Sports Engineering. Total number of candidates trained till date is 44, out of which 27 have been placed.

9. **Thoughts Academy, Thiruvananthapuram**

The course offered at Thoughts Academy is “Certified Learning and Development Professionals” having duration of 40 hours with 36 hours of class room training and 4 hours of WebEx Services. The curriculum covers 60 hours of Project and 6 hours of Co-facilitation with number of assignments. The minimum eligibility for enrolling to this programme is Graduation or Diploma. The course is targeted for currently employed trainers, learning and development professionals, freelance or entrepreneurship prospects, soft skill trainers and professionals who are aspiring to be trainers.

Kaushal Kendras

KASE has set up Kaushal Kendras across Kerala as rural skill hub focused on rural youth with world-class training facilities. Kaushal Kendras are community skill hubs focused on rural population having facilities for providing training in different sectors such as communication skill, digital literacy, quantitative aptitude, analytical skills and soft skills. It will be a one-stop guidance complex with a multitude of career cluster touch points and a helping hand for students, job aspirants and unemployed candidates to achieve their specific goals in education and career. The career counsellor in Kendra will provide career guidance for the registrants and relevant information about the details of educational loans, career prospects of a particular course, details of institutions for higher education, various competitive examinations and scholarships. In addition to this, Kaushal Kendras will act as a platform for improving the communication skills and employability skills of the candidates.

Objectives

1. To train rural candidates in areas such as digital literacy, communication skills, quantitative and analytical aptitude and financial literacy and also to provide employability skills and employment enhancement training programmes and information regarding education and placement to all candidates who approach the Centre.
2. To provide information regarding details of educational loans, various scholarships, fellowships, furnish details of the institutions for higher studies, various competitive examinations, assist the candidates to apply online for various educational programmes and examinations, information regarding the various skill development programmes and employment opportunities.

Kaushal Kendras offer the following various courses;

- English language (Basic & Intermediate) by Cambridge University Press
- Quantitative Aptitude and Analytical Reasoning by Centre for Management Development
- Digital Literacy and Computer Skills Training by National Institute of Information and Information Technology (NIELIT)
- Basic Electrical training

Currently three Kaushal Kendras have been set up at Kollam, Kozhikode and Palakkad Districts. Upto September 30, 2019, a total of 8448 candidates were registered and trained at Kaushal Kendras.

Kerala State Institute of Design (KSID)

The Kerala State Institute of Design (KSID) was established as a unit of KASE and is located at Chavara, Kollam, for the purpose of creating a vibrant design community in Kerala through synergistic partnership between artisan community, professional designers and the

Table 7.3.3 Number of students enrolled for courses in KSID, 2016 to 2019

Sl No	Year	No of Students
1	2016	16
2	2017	16
3	2018	29
4	2019	23

Source: Industrial Training Department, GoK

general public. It was supported by National Institute of Design (NID) Ahmedabad.

The primary objective of KSID is to promote design education and enhance interplay of technology, management, creativity and design skills among youth, and most importantly to improve the quality of lives, through design application. The Institute provides modern courses like, Integrated Textile and Apparel Design, Integrated Lifestyle Product Design, Information and Technology Integrated Communication Design.

Courses for all three courses commenced in 2015. The number of admissions from 2016 to 2019 are shown in **Table 7.3.3**.

Employability centres

Concerted and systematic efforts are required to make the youth employable and to place them in private sector by making them competent to avail the employment opportunities. With this objective, Government of Kerala through Directorate of Employment and Training and KASE have set up Ten Employability Centres in the Districts of Ernakulam, Kannur, Kozhikode, Kollam, Palakkad, Kottayam, Alappuzha, Thrissur, Malappuram and Kasaragod. These Centres are functioning beside the Employment Exchanges in the respective Districts. The infrastructure facilities to conduct training and other HRD process are available within the Employability Centre itself. Government, through KASE, provides the necessary hardwares and softwares for the smooth functioning of Employability Centres.

- One more Employability Centre in the District of Idukki will be operational by 2020.
- A total number of 1,67,164 candidates were registered up to 31.03.2019, out of which 1,11,687 have completed basic soft skill training and 49,922 candidates were placed in various sectors through Employability Centres.

Career Development Centres

KASE in association with National Employment Service Department, Government of Kerala, is in the process of setting up Career Development Centre/Mini Employability Centre (CDC/MEC) across Kerala. The Centre acts as a destination where individuals can obtain authentic solutions for all kinds of career issues faced by them. The Centre adapts the latest technologies and appropriate tools in Career Management to address the issues of individuals. The Centre offers various services like assessment and counselling, well equipped library with internet facility, various outreach programmes in educational institutions, career lectures/workshops, exposure visits, soft skill training etc.

- Currently Five Career Development Centres have been set up at (Perambra) Kozhikode, (Chittur) Palakkad, (Neyyattinkara and Palode) Thiruvananthapuram and (Kayamkulam) Alappuzha Districts.
- One more Career Development Centre in the District of Ernakulam (Thripunithura) will be operational by 2020. A total number of 18,122 have been registered and trained upto September 30, 2019.

Box 7.3.1 Kerala State Job Portal

Department of Labour and Skills, Government of Kerala has launched a unique single window facility for job seekers and employers to boost employment in the State. State Job Portal (<http://statejobportal.kerala.gov.in/>) is envisaged to be a one-stop solution or all-inclusive support system for job search and recruitment. It is envisaged as a platform beyond a regular job bank and has multiple features that are engaging and interesting for the job seekers and job providers. Students passing out of various Government and non-government institutes across Kerala will get automated access to the Job Portal. Companies who would like to recruit students from colleges or institutes henceforth need not even visit colleges. State Job Portal provides end-to-end recruitment solution starting with job posting till issue of final offer letter.

Current Status of State Job Portal:

Total Job Seekers Registered	: 57875
Total Employers Registered	: 571
Total Partnered Institutes Registered	: 137
Total Vacancies Posted	: 5586
Total Job Applications	: 8006
Total Interview Scheduled	: 1253
Total Job Offered	: 23

Skill Registry

Skill Registry is a mobile application developed to avail the services of skilled workforce for the daily household and commercial needs directly to the public. Skilled labourers can register as Service Providers and those who require their services can register as customers at www.keralaskillregistry.com. The app has been developed by KASE (Kerala Academy for Skills Excellence) in cooperation with Industrial Training Department, Kudumbashree and Panchayat department. The application provides an opportunity for skilled laborers to find day to day jobs and making them capable to find their daily work by themselves. Skilled labourers who are not certified or professionally trained will also be considered on producing a declaration certificate by the Panchayat. This also acts as

a platform for the customers to find their daily job requirements without any intermediaries. Major Services in 24 service sectors namely AC, washing machine, refrigerator, oven, fan/iron box, computer, mixer and grinder service and repair, electrician, plumber, carpenter, painter, coconut climber, day care-child care in home, driver, gardening and landscaping, geriatric care-in home/hospitals, grass cutting, home cleaning, house-keeping, house maid, laundry and ironing, masonry-small construction work/renovation/compost pit/ring work, mobile beauty parlor-services at home, santhwanam-health check-up at home (sugar, cholesterol, BP) television repair and installation has been included in the mobile application. In the primary stage, the application is operational only in Thiruvananthapuram District which will be extended to other Districts gradually. The details are given in **Table 7.3.4**.

Table 7.3.4 Current Status of Skill Registry Mobile Application

Registered Service Providers	Pending service providers for approval	Approved Service Providers	Total customers registered	Total Service orders	Total Services available
6899	550	4643	16377	716	42

Source: Industrial Training Department, GoK

Table 7.3.5 Status of PMKSY 2.0, April 2018 to September 2019

Details	Number
A. Empanelment of Training Partners and Target Allocation	
Eols floated for empanelling Training Partners	3
Training Partners empanelled	73
Training Targets allocated to Training Partners	46570
B. Status of Training	
Candidates enrolled for training	11753
Candidates certified	6728
Candidates Placed	885

Source: Industrial Training Department, GoK

Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 2.0

Kerala Academy for Skills Excellence (KASE) is the nodal agency for the implementation of Centrally Sponsored State Managed (CSSM) component of Pradhan Mantri Kaushal Vikas Yojana (PMKVY) 2.0 scheme, by virtue of its designation as the State Skill Development Mission. PMKVY is the flagship outcome-based Skill Training Scheme of the Ministry of Skill Development and Entrepreneurship (MSDE). This Skill Certification Scheme aims to enable and mobilise a large number of Indian youth to take up skill training and become employable and earn their livelihood. The details are given in **Table 7.3.5**.

Best Practices

- According to PMKVY Scheme guidelines, the trainers should be ToT (Train the Trainer) certified by respective Sector Skill Councils (SSCs) and this should be ensured by the Training Partner. However, for the early commencement of batches, KASE has approached various Sector Skills Councils and exclusive ToT for trainers within Kerala has been done.
- Also, to ensure National Institute for Entrepreneurship and Small Business Development (NIESBUD) certification of Trainers, KASE in association with NIESBUD has conducted exclusive training for the PMKVY Trainers (148 nos) in Kerala.

- KASE in association with National Skills Development Corporation (NSDC) has conducted various handholding sessions to the Training Partners, including the workshop on new skill India portal.

SANKALP

The Government of India has launched a World Bank assisted project Skills Acquisition and Knowledge Awareness Livelihood Promotion (SANKALP) Programme, under Ministry of Skill Development and Entrepreneurship (MSDE), to strengthen the institutional mechanisms for skill development and increase access to quality and market relevant training for youth across the country. As part of implementing the SANKALP project III, regional workshop was held from February 13 to 15, 2019 at Institute of Management in Government (IMG), Thiruvananthapuram with the participation of 45-50 officers from States, MSDE, NSDC and World Bank along with the Senior Officers from the States of Rajasthan, Gujarat, Chandigarh, Daman and Nagaland. In addition to these, the representatives from Wayanad, Idukki and Kasaragod had participated in the Workshop.

Skill learning enables students to get a job in a variety of ways and thereby earn regular income stream. In addition, skill learning helps to increase access to employment opportunities. Central and State Governments have identified such skill gaps and are working to address them and enable skill development.

CHAPTER
08

**INITIATIVES
FOR
SOCIAL INCLUSION**

INITIATIVES FOR SOCIAL INCLUSION

8.1 GENDER AND DEVELOPMENT

Across the globe, women are at the helm of institutions carrying out effective and inclusive Covid-19 responses, from the highest levels of decision-making to frontline service delivery – UN Women

While the pandemic has had a catastrophic effect on the whole humanity, it has specific impact on gender relations at all levels. The pandemic has also been an occasion for revisiting the gendered conceptions and stereotypes of leadership. It is already in the limelight as to how countries like New Zealand, Taiwan, and Germany with women leaders have done much better in countering Covid-19 than others. They have set example for other countries to follow. Studies show that female led countries have shown remarkable spirit and adopted early measures, including lockdown, to control its spread in its initial phases than the rest (Garikipati and Kambhampati, 2020)¹. The situation in the above mentioned women-led countries has been compared with that of other male led countries with the same socio-economic and development profiles. The outcomes of unbiased, inclusive and early measures/initiatives of these women leaders seem to be “systematically and significantly better”.

In the context of Kerala the Health Minister’s active role in crafting the defense against the pandemic in all phases of its spread has been globally appreciated. On earlier occasions also,

the Minister has steered the State during the public health emergency caused by the Nipah virus. If it was not for the sturdy and early state response to the epidemic under her leadership, Nipah could have grown to alarming proportions given its record in different parts of the world including Bangladesh and Singapore. The Health Department under the able leadership of the Minister has been effectively handling the Covid-19 pandemic from the time it has affected Kerala.

The role of women in Covid-19 management has been profound. The women Self Help Groups (SHG) have been one of the major contributing agencies working continuously to tackle the pandemic. In a report published in April, within weeks of lockdown announcement, the World Bank made the observation that “in over 90 per cent of India’s districts, away from the limelight of the cities, SHG women are producing facemasks, running community kitchens, delivering essential food supplies, sensitising people about health and hygiene and combating misinformation”². Kudumbashree, the much lauded women’s programme based on SHGs or NHGs (Neighbourhood Groups) as they call themselves, with a membership base of 45 lakh across Kerala has played a significant role in delivering the benefits of the state’s measures during lockdown period to the marginalised sections. The functionaries of the Social Justice, Women and Child Development Department and

¹ Garikipati, Supriya and Uma Kambhampati (2020). “Are Women Leaders Really Doing Better on Coronavirus? The Data Backs it up”. In *The Conversation*, Retrieved from <https://theconversation.com/are-women-leaders-really-doing-better-on-coronavirus-the-data-backs-it-up-144809>

² UCLG Women. Retrieved from https://www.uclg.org/sites/default/files/uclgwomen_calltoaction_en.pdf

Kudumbasree have initiated several awareness programmes regarding Covid-19 and its protocol, in particular 'Break the Chain Campaign'. Several of the State's financial assistance schemes for women announced in the relief package including the Chief Minister's 'Sahayahastham' (Helping Hands) loan scheme and the KSFE Vidyashree Scheme to support member families to avail laptops to ensure online education to their children, were implemented by Kudumbasree.

Covid-19 – Key Activities undertaken by Kudumbashree

- **Kudumbashree community - based communication network:** Kudumbashree has formed 1.9 lakh WhatsApp groups with

22 lakh NHG members to educate them about Government instructions regarding Covid-19 during the lockdown.

- **I.E.C campaigns for elderly care:** - An IEC campaign was conducted to inform the NHGs that elderly people should take special care to prevent them from getting affected by Covid-19. Various IEC activities like Executive Director's letter to NHGs, posters emphasising elderly care, and SMS to CDS were conducted.

- **Chief Minister's 'Sahayahastham' (Helping Hands) loan scheme:** Kudumbashree NHGs were given interest free loans of ₹2000 crore as per the Chief Minister's 'Sahayahastham' (Helping Hands) loan scheme.

Box 8.1.1 Activities undertaken by WCD in response to Covid-19

- **THR delivery:** Anganwadi workers delivered THR (for children 0-3 years, 3-6 years, pregnant and lactating mothers) at the doorsteps of all beneficiaries.
- **Sanitiser support:** Sanitisers were provided to all District Collectors for setting up kiosks in public places.
- **Psychosocial support:** 1050 counsellors (School counsellors/ICPS counsellors/Family counsellors) were assigned to work with health department
- **Hand washing demonstrations** were conducted by Anganwadi workers at their locality.
- **Elderly survey:** Anganwadi workers conducted a survey of around 44 lakh elderly via phone and the data was shared with various departments for follow ups and intervention.
- **Quarantine support:** Anganwadi workers conducted follow up of quarantined persons and ensured support by linking with health department and LSGD.
- **Anganwadies to home:** Anganwadi workers interacted with each and every beneficiary of their survey area through telephones and are conducting regular follow up.
- **Institution support:** ICDS supervisors contacted the institutions for women and children, elderly, destitute and persons with disabilities in their project areas and followed up the activities of the institution.
- **MILMA milk to beneficiaries:** Initiative has been taken to supply 150 ml flavoured, sweetened, Vitamin A and D fortified milk to pregnant women, lactating mothers and children who are the beneficiaries of anganwadies in all the districts of Kerala. The surplus milk of MILMA will be utilised for this activity. In Kannur District the supply has been started.

Women Protection: A 24 hour Whatsapp/SMS helpline '9400080292' was initiated by the department with the support of NSS technical cell to enable people to report cases related to domestic violence, safety of women and children during lockdown period.

Source: Women and Child Department

- **Grocery kit packing:** - Civil Supplies Department of GoK sought the help of Kudumbashree volunteers to prepare grocery kits for 87 lakh families. 569 volunteers from 210 CDS for 50 days worked for this activity.

- **KSFE Vidyashree Scheme' for school children:** - As 60 per cent of people belong to lower economic strata are Kudumbashree members, Kerala State Financial Enterprise (KSFE) came up with a Micro savings scheme for Kudumbashree members to procure laptops. So far 6 lakh members showed interest to join the scheme in which 5 lakh expressed their interest to purchase laptops. 15,565 NHG members enrolled upto September 30, 2020.

- **Community Kitchens, Janakeeya hotels and Take Away counters:** Around 800 community kitchens have been set up at the Panchayat level across the state and 215 community kitchens in urban areas in convergence with Kudumbashree and Local Governments. As on June 17, 27,21,625 food parcels were distributed through 427 janakeeya hotels run by Kudumbashree across the State. Kudumbashree units are operating takeaway counters at 13 locations. In addition, Kudumbashree Canteen and Catering Units have so far distributed 66,811 food parcels to various Corona Care Centres in the State.

- **Mental health Support to people during the lockdown period:** 360 Community counsellors and Snehitha staff provided mental health support over phone up to June 2020 especially to Women children and elderly people who are under quarantine and in isolation ward. 1,54,000 people benefitted.

- **Social Distancing Campaign:** Kudumbashree has conducted a social distancing campaign across Kerala to convey the need of keeping social distance in public places to the general public. The campaign was done with the tag line of "Kudakaliloode Samoohika Akalam" (Social Distancing through Umbrellas). The campaign was conducted at 678 CDS and 30,000 umbrellas were sold through a one month campaign. The

sales worth 60 lakh were created through the campaign.

- **Karuthal Campaign:** "Karuthal – Product Distribution Campaign" was conducted across Kerala with an objective to revive micro enterprise unit who have suffered loss of market due to pandemic crisis. Karuthal Campaign was conducted in 482 CDS with the participation of 3,522 MEs. 1.47 lakh kit was distributed across NHGs and a total sale worth ₹6.38 crores was generated

The gender revelations during the pandemic reiterates the growing realisation in the past several decades that gender differences are not 'naturally' given; rather they are constructed through a large set of norms practiced through socialisation. Unlike sexual difference between male and female which is a biological difference gender is a social construct. Nevertheless, the world still has a long way to travel to accept this and reach the goal of gender equality. Observations during the pandemic undoubtedly reveal the limitless possibilities for female interventions.

Notwithstanding this, the pandemic lockdown has also another side, perhaps deeper yet more invisible for the time being. It has been a period when domestic violence and other gross forms of gender injustice and oppressions have heightened. Multiple sources have reported that the already serious gender inequalities have worsened during the pandemic lockdown. Not only have more women lost jobs and incomes in this period given the extremely informal nature of their work, there has been an intensification of work at home, with women being overburdened with domestic responsibilities, and emotional care duties in the wake of a lockdown of educational institutions from Anganwadi onwards. The United Cities and Local Governments, an umbrella organisation in Spain for activist organisations, suggests that post lockdown instead of seeking to go back to normal we should be more "ambitious and work towards realising gender equality as solution to the many

challenges we face in terms of health, climate, economy and fundamental human rights” (2020).

Locating Kerala against this larger backdrop of gender not only vis a vis the pandemic and the lockdown but also in the broader respect, it has a much fairer picture of gender equality including women’s status (in terms of education and health) compared to other states and many other developing countries. The State provides equal opportunities to its people in several aspects of human development and hence has made significant achievements in terms of several gender indicators. With regard to the GII (Gender Inequality Index) components, the indicators of maternal mortality rate, adolescent birth rate and proportion of adult females with secondary education are impressive in Kerala. As per the 2011 census, the ratio of women to men for Kerala is 1,084, which is high compared to the national figure of 940. Women constitute 52 per cent of the total population in Kerala. Children aged 0-14 years represent 23.44 per cent of the total population in Kerala, 48.91 per cent of whom are girls. In contrast to the national average of 11 per cent, 22 per cent of all households in Kerala are female-headed. But the indicators related to women’s participation in higher level decision making bodies show that Kerala’s performance is poor and the number of legislative and

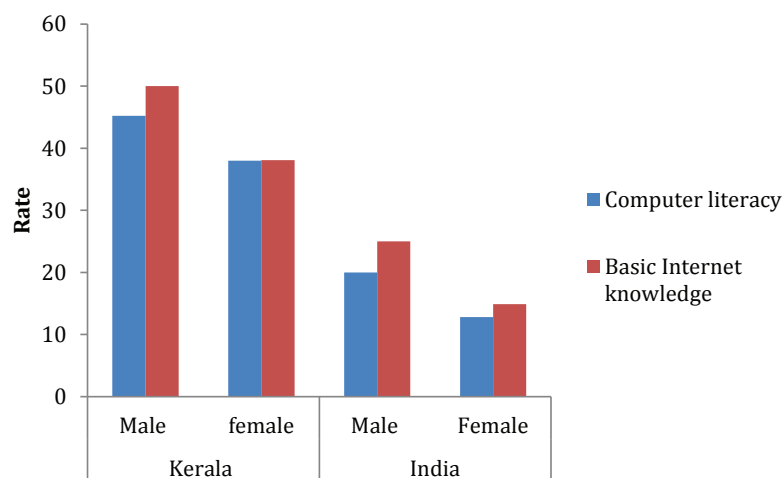
parliamentary seats occupied by females in Kerala is still below all India average.

Education and Gender Parity

The impressive achievements of Kerala with respect to socio-cultural development is often attributed to its high female literacy and education. High literacy can be considered as the basis of ‘take-off’ for the social and political development of Kerala women. Kerala has the highest female literacy rate among Indian states at 92 per cent though a small gender gap exists (Census, 2011). It is also seen that the gender gap has narrowed during these 6 decades in Kerala (for more details, refer Chapter 6 Education of this Review). As per the 75th NSSO round, literacy rate of women has further increased in Kerala. But, women in Kerala as well as India lag behind men in terms of other levels of literacy like computer literacy and basic internet knowledge (**Figure 8.1.1**). The gender gap in terms of the computer and internet literacy is more prominent in rural areas. The gender as well as rural-urban differences in different levels of literacy is given in **Appendix 8.1.1**.

In the case of education, enrolment is universal at the primary level and gender parity has been achieved; girl students constitute 49 per

Figure 8.1.1 Gender gap in Computer and Internet literacy rates



Source: NSSO, 75th Round

cent of total student enrolment in schools. Girls outnumbered boys in terms of enrolment in higher secondary education at 51.19 per cent. At the tertiary level also the enrolment of girls is higher than boys. For example, girls constituted 68.1 per cent of total enrolment for undergraduate courses in various Arts and Science colleges in Kerala in 2019-20. When post-graduation is considered, enrolment of girls was as high as 64.9 per cent of the total enrolment. But when the intake of girls

in engineering colleges and polytechnics is considered, the situation is different. Out of the total enrolled students, girls constitute only 37.8 per cent in engineering colleges and 28.1 per cent in polytechnics. The percentage of girls in technical schools is very low at 5 per cent. Details are given in **Table 8.1.1**.

Enrolment of girls in B. Tech and technical courses like polytechnics and technical high schools is proportionately low; but the

Table 8.1.1 Enrollment of Girls at Different levels-2020-21

Area	Total	Female	Percentage
LP	1329219	653903	49.19
UP	1120713	551367	49.19
HS	1266965	614355	48.49
HSS	381755	196212	51.39
VHSS	23847	10042	42.10
Technical High schools	7771	393	5.00
Poly Technic	12066	3397	28.10
BA, B.Sc and B.com	289524	197148	68.10
B. Tech	5382	2036	37.80
MA, M.Sc and M.Com	42769	27752	64.90
M. Tech	1356	869	64.10
Health and Allied Sciences	22024	17903	81.28

Source: DGE, DCE, DTE, KTU and KUHS, 2020

Table 8.1.2 Proportion of Girls in Medicinal Education

Name of Branch	Type of Course	Male	Female	Total	Female percentage
Modern Medicine	UG	3028	3913	6941	56.38
	PG	884	1270	2154	58.96
Homeo Medicine	UG	42	275	317	86.75
	PG	4	54	58	93.10
Ayurveda Medicine	UG	130	843	973	86.64
	PG	13	163	176	92.61
UNANI	UG	9	41	50	82.00
	PG	0	0	0	0
SIDHA	UG	5	19	24	79.17
	PG	0	0	0	0
Total		4115	6578	10693	61.52

Source: Kerala University of Health Science (KUHS)

proportion is high in the case of health and allied sciences. Compared to any other category, girls constitute a large majority of students in medical science related courses. As seen in the **Table 8.1.1**, more than 80 per cent of the students in health and allied courses are girls. **Table 8.1.2** shows the proportion of girls who pursue degree or post-graduation in medicine of different branches. Here also, girls outnumber boys. This is an indication that in the coming years above 60 per cent of doctors will be ladies.

Earlier girls' preference for professional and technical courses was lower compared to boys. Girls' choices have changed over the years, as shown by 75th round of NSSO. Though in rural areas more boys prefer technical and professional courses than girls, the percentage of girls in professional and technical courses is still higher in Kerala than the all India level. There is an evident gap between girls in Kerala and their counterparts at all India level in terms of the proportion in technical and professional courses. In rural areas 9 per cent of the girl students pursue technical and professional courses in Kerala while the corresponding proportion for India is less than 2 per cent. In urban areas also, this wide gap exists between girl students in Kerala and India. Details are given in **Table 8.1.3**.

All the data related to enrolment of students show that except in technical education, girls outnumber boys at all levels of education including professional education.

Health Status of Women in Kerala

Kerala's high social development is mostly reflected in women's health status in comparison to their male counter parts in the State as well as with women in other parts of the country. Most of the health indicators are highly favourable to women in the State. Life Expectancy at birth of women in Kerala at 77.8 years is the highest in India; much higher than for women in India as a whole, which is 70.4 years. As per the figures released by Registrar General of India, all the demographic indicators are favourable to women of Kerala (**Table 8.1.4**).

Low maternal mortality rate and high female life expectancy in Kerala are attributed to the extensive public provisioning for maternal care in the State. The universal access to health care institutions helps to ensure maternal care as well as institutional delivery to all. Likewise, the adolescent pregnancy is very low in Kerala. Details are provided in **Table 8.1.5**. These achievements are the results of decadal long

Table 8.1.3 Percentage Distribution of Students by the Type of Course Pursuing

		Kerala			India		
		General course	Technical/ Professional course	All	General course	Technical/ Professional course	All
Rural	Male	88.8	11.2	100	97.1	2.9	100
	Female	91.1	8.9	100	98.3	1.7	100
	Total	89.8	10.2	100	97.6	2.4	100
Urban	Male	90.8	9.2	100	91.7	8.3	100
	Female	87.8	12.2	100	93.7	6.3	100
	Total	89.3	10.7	100	92.6	7.4	100
Total	Male	89.6	10.4	100	95.5	4.5	100
	Female	89.5	10.5	100	96.9	3.1	100
	Total	89.6	10.4	100	96.1	3.9	100

Source: NSSO 75th round, GoI

Table 8.1.4 Health Status of Women in India and Kerala

Sl.No.	Indicator		Kerala	India	
1	Infant Mortality Rate #		Total	7	32
			Male	9	32
			Female	5	33
2	Mean age at effective Marriage*		Below 18	17	16.8
			18-20	19.1	19.2
			Above 21	24.6	24
			All age	23.2	22.3
3	Maternal Mortality Rate**		Total	43	113
4	Population in the age group of 60 years and above to Total Population by sex and residence*		Total	12.9	8.1
			Male	12.2	7.8
			Female	13.7	8.4
5	Expectancy of Life at Birth***		Total	75.3	69.4
			Male	72.5	68.2
			Female	77.9	70.7

Source: # SRS 2020 May / *SRS Statistical Report 2018/

Special Bulletin on MMR 2016-18 / *SRS Life Table 2014-18

efforts of Kerala Government since its formation in providing public health care.

The high literacy, educational status and the favourable health indicators are not reflected in the life style health indicators. In terms of Body Mass Index, obesity and anaemia, women's position is not better as per the reports of NFHS, 2015-16. In Kerala as well as India, the percentage of women with Body Mass Index below normal is high compared to their male counterparts even though Kerala women are better compared to all India average. But in the case of obesity, the percentage of women in Kerala is higher than that of India as well as that of their male counterparts in the State. In the case of anaemia, it is seen that the percentage has increased from 2005-06 to 2015-16 though Kerala's situation is better than that of all India average (**Appendix 8.1.2**).

The WCD has opened Nutrition Clinics for women and children across the state to improve nutritional levels as part of the Sampushta Keralam project. The clinics will function in ICDS offices in all 152 blocks and six corporations in

the state. That this is imperative and very timely is suggested by the not so rosy picture on anemia revealed by the latest NFHS 2019-20 for Kerala. Wasting, stunting and underweight in children under 5 and anemia across all age groups and pregnant women have increased since 2015-16 (*The Hindu, Dated: December 13, 2020*).

Participation in Economy

Though in terms of health, education and many other development indicators, women of Kerala are better than their male counterparts; their participation in economic domain is yet to improve. During the previous rounds of NSSO, there were wide gaps between men and women both in terms of the Labour Force Participation Rates (LFPR) and Work Participation Rates (WPR). Likewise, both LFPR and WPR of Kerala women were much lower than those of women in India. But the recent Periodic Labour Force Surveys (PLFS) show that gap between men and women has been to some extent reduced in this regard. Likewise, in 2018-19, they have reached a better position when compared to their counterparts in India. Details are given in **Table 8.1.6**.

Table 8.1.5 Indicators of Maternal Care

Indicators	India				Kerala			
	NFHS-2 (1998-99)	NFHS-3 (2005-06)	NFHS-4 (2015-16)	NFHS-5 (2019-20)	NFHS-2 (1998-99)	NFHS-3 (2005-06)	NFHS-4 (2015-16)	NFHS-5 (2019-20)
Adolescent pregnancy		16	7.9	NA		5.8	3	2.4
Mothers with Antenatal Check-ups	20.0**	43.9	58.6	NA	64.9**	91.9	95.1	93.6
Institutional Births (per cent)	33.6	38.7	78.9	NA	93.0	99.3	99.8	99.8
Mother and Child Protection (MCP) card holder (per cent)	NA	NA	89.3	NA	NA	Na	84.2	91.3
Total Fertility Rate (children per women)	2.85	2.7	2.2	NA	1.96	1.9	1.6	1.8
Full Antenatal Care (per cent)	NA	11.6	21	NA	NA	66.7	61.2	NA
Mothers received post natal care (per cent)	NA	34.6	62.4	NA	NA	84.6	88.7	93.3
Delivery by caesarean (per cent)	7.1	8.5	17.2	NA	29.3	30.1	35.8	38.9
Anaemic adolescent (per cent)	73.3*	55.3	53.1	NA	45.7*	32.8	34.3	36.3
Experienced violence during pregnancy (per cent)	NA	NA	3.9	NA	NA	NA	1.2	0.5

Source : National Family Health Survey

*including all girl children **three or more antenatal check-ups considered

There are three important advancements in the economic participation in Kerala especially of women as per the last two PLFS:

1. Though both male and female LFPR and WPR have increased, the increase of female LFPR and WPR is more evident.
2. Female WPR has increased from 16.4 per cent in 2017-18 to 20.4 per cent in 2018-19
3. For the first time, as per the recent PLFS, overall, both men and women in Kerala participated in economic activities better than their counterparts in India. It must be noted that female urban WPR in Kerala has always been higher than all-India.
4. Kerala women have a higher participation

rate than that of all India average at all age groups except the age group of 15-29 years. In the productive age group of 15-59 years, the WPR of women in Kerala is 28.5 while the all India average is only 25.

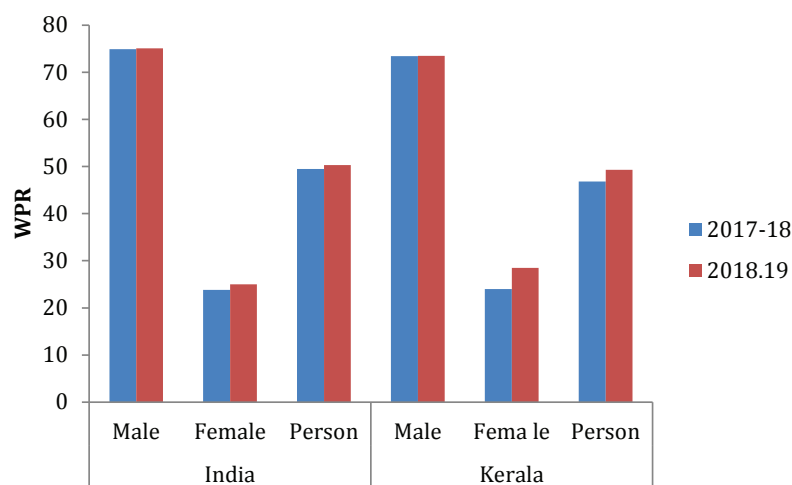
The gender gap in levels of employment both in India and Kerala in terms of WPR is brought out in **Figure 8.1.2**. Though both male as well as female WPRs show upward trends, the increase in female WPR in Kerala is more than of men and their counterparts in India. The increase was taken up by self-employment and casual labour; especially in rural areas. The increase in casual labour and self-employment could certainly

Table 8.1.6 Women's Participation in Economic Activities- India and Kerala

Age Group	Labour Force Participation Rate (LFPR)						Worker Participation Rate (WPR)					
	India			Kerala			India			Kerala		
	Male	Female	Person	Male	Female	Person	Male	Female	Person	Male	Female	Person
	2017-18											
15-29 years	58.8	16.4	38.2	52.2	23.6	37.4	48.3	13.5	31.4	40.1	8.6	23.8
15-59 years	80.2	25.3	53	78.9	31.9	53.6	74.9	23.8	49.5	73.4	24	46.8
15 years and above	75.8	23.3	49.8	70.1	26.5	46.5	71.2	22	46.8	65.8	20.4	41.2
All ages	55.5	17.5	36.9	53.9	21.3	36.6	52.1	16.5	34.7	50.5	16.4	32.4
	2018-19											
15-29 years	58.8	16.2	38.1	47	25.8	36	48.6	13.3	31.5	36.1	11.5	23.4
15-59 years	80.3	26.5	53.6	78.1	35.2	55	75.1	25	50.3	73.5	28.5	49.3
15 years and above	75.5	24.5	50.2	71.2	30.6	49.3	71	23.3	47.3	67.7	25.3	44.9
All ages(0+)	55.6	18.6	37.5	56.6	24.6	39.5	52.3	17.6	35.3	53.8	20.4	35.9

Source: Periodic Labour Force Survey-2017-18 and 2018-19

Figure 8.1.2 Work Participation Rates of Males and Females in Kerala (Age group of 15-59 years) at Usual Status



Source: Periodic Labour Force Survey - 2017-18 and 2018-19

be due to the special emphasis on NREGA and AUEGS and self-employment (particularly own account enterprises) promoted through micro/nano enterprises to provide remunerative work to women in the post 2018 flood recovery phase and continuing since then. Government policy

in this respect has paid off. Nonetheless that it is still very low (20.4 per cent) is a matter of concern and efforts should be made to sustain this increase. The detailed discussion on LFPR and WPR is given in the section of Labour and Labour Welfare in Chapter 7 of this Review.

Table 8.1.7 Gender Difference in Average Wage/Salary/Earnings

Period	Kerala/ India	Average wage/salary earnings (in ₹) during a month from regular wage/salaried employment		Average wage/salary earnings (in ₹) per day from casual labour work		Average gross earnings (in ₹) during the 30 days from self-employment	
		Male	Female	Male	Female	Male	Female
July-September, 2018	Kerala	18,372.48	16,787.13	664.82	375.60	14,105.77	5,469.92
	India	16,556.88	12,182.87	287.88	174.54	10,711.29	4,460.54
October-December, 2018	Kerala	18,894.56	17,920.15	666.26	375.43	14,385.47	5,587.08
	India	16,874.30	12,629.24	297.86	190.26	11,007.22	5,004.92
January-March, 2019	Kerala	19,381.29	15,400.67	680.07	374.84	14,185.95	4,983.03
	India	16,842.19	12,285.27	299.08	193.44	11,292.21	4,996.05
April-June, 2019	Kerala	21,091.19	15,237.44	710.77	381.59	15,260.36	6,118.94
	India	17,160.97	12,850.52	309.77	204.49	11,674.05	4,919.48

Source: PLFS 2018-19

Inequality in Wage Rates

In terms of wages and remuneration, significant gender inequality exists in the State as well as at national level. The prevalence of inequality in the wage rates among men and women in salaried job, self-employment and casual work have been detailed in the section on Labour in Chapter 7 of this Review. The gender disparity in wage rate is prevalent not only in informal or unorganised sector but also in regular/salaried employment as shown in **Table 8.1.7**.

The gender difference in earnings is more prevalent in casual labour works than salaried jobs and self-employment. Though women and men in Kerala are higher paid in casual work than their counterparts in India, the gender difference in wage rate persists in Kerala too with every possibility of increasing during the pandemic. This is well explained in **Figure 8.1.3**.

Economic empowerment and social empowerment are complementary to each other. The economic empowerment of women is attained when they become an integral part of labour force and be gainfully employed without having to bear the full burden of household and care responsibilities. It is necessary that this is recognised, and efforts are taken to reduce and

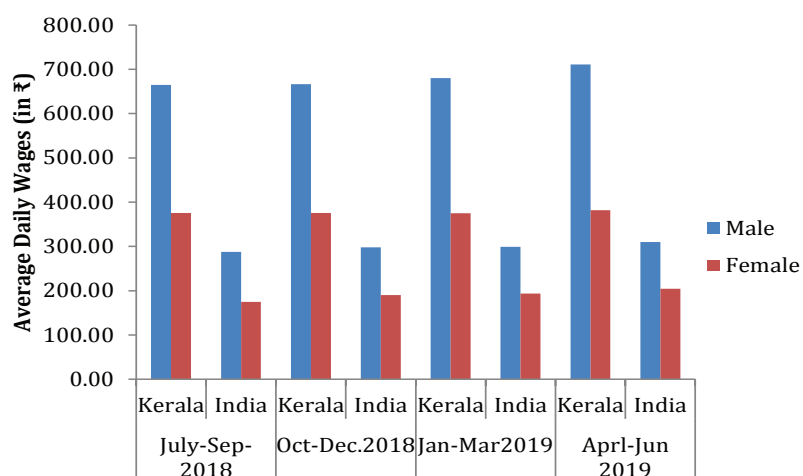
redistribute unpaid household and care work in more just ways promoting shared responsibility within the household. The State should play a crucial role in designing appropriate policies/schemes that support its reduction and redistribution.

Industrial Distribution of Women Workers

That Kerala has a much more diversified pattern of female employment even in rural areas, historically, comes out very sharply from **Table 8.1.8**. As an earlier study showed the shift of the female workforce away from agriculture was quite marked in Kerala between 2004-05 and 2011-12.

However, despite the sharp fall in female employment in agriculture during that period, female participation rate in rural Kerala did not decline as much as it did in rest of India because of a sizable increase in employment opportunities in construction and services sector for rural women. This helped in some leveling of WPRs in Kerala with India (pointed out earlier). Proportion of women in Manufacturing is high in Kerala compared to all India (data for all India not given here). This may be because large numbers of women are

Figure 8.1.3 Average wage/salary earning per day from casual labour work other than public works in CWS in India and Kerala



Source: PLFS, 2018-19

Table 8.1.8 Industry-wise proportion of female workforce, all ages, by UPSS: 2017-18 and 2018-19, in per cent

	Kerala 2017-18			Kerala 2018-19		
	Overall female	Rural female	Urban female	Overall female	Rural female	Urban female
Agriculture and Allied	19.0	26.0	9.7	19.0	26.3	9.7
Mining and Quarrying	neg	neg	neg	0.1	0.1	0.1
Manufacturing	13.7	13.1	14.6	14.8	13.3	16.6
Electricity, Water	0.4	0.1	0.9	0.2	0.8	0.6
Construction	11.4	13.0	9.3	15.5	19.9	9.9
Trade, Hotel, Restaurant	10.6	10.9	10.1	11.5	8.3	15.3
Transport, Storage and Communication	2.8	2.3	3.3	2.7	0.9	4.9
Other Services	42.1	34.6	52.1	36.2	30.4	42.9

Source: PLFS 2017-18 and 2018-19

engaged in low productivity, labour intensive traditional industries like handlooms, khadi, coir, and cashew. Concentration of women in low remunerative industries would be clear from the membership of females in different Welfare Fund Boards in Kerala. For example, among cashew workers and beedi workers, women constitute 95 per cent and 99 per cent of the work force respectively.

On the other hand, a remarkable feature of the female workforce in Kerala is the high share of

it in selected number of service sector activities, especially in urban areas, in which wages per worker would be higher and require skilled and educated workers (Jayan Jose, 2018). The proportion of women employed in public administration, education, health, information services (all part of community, social and personal services), finance and business, reveal very high shares of women workers, almost double of India's even in rural areas and higher than other states such as Gujarat or Karnataka (Jayan Jose, 2018).

While in 2018-19, given the increase in FWPR in Kerala, there is a slight increase in women engaged in Agriculture in rural and urban areas, the larger increase in rural Kerala is in construction and certain services. In urban Kerala, the increase has been sharper in Trade, hotels and restaurants, followed by manufacturing and services. Hence the increase in rural female participation rate in 2018-19, has been to some extent in agriculture, given the hike in NREGA employment but is found in other non-agricultural sectors also. We must also consider the fact that permissible works under NREGA include construction of anganwadis, poultry sheds, cattle sheds, all of which could be coming under “construction”. However, it has been largely in terms of casual or informal work (for eg in construction, trade hotels and services) or in self-employment in manufacturing, trade, hotels. The sharp decline in “Other services” which includes, Finance; Real estate; Education; Health; Information services, Public and personal Services; Arts and entertainment, needs further probing, disaggregated by sub-industry group. The decline here is reflected in the decline in share of regular employment between the two years.

Status of Employment

A further disaggregation of female work force by status of employment as shown in **Table 8.1.9** shows that proportion of self employment is relatively much lower in Kerala. The role of self-employment in enhancing the share of economically active women is very important in a State like Kerala where the educational level of women is relatively high and women appear unwilling to take up wage employment in low paid informal jobs. Surprisingly, even with a large number of opportunities for self-employment, the share of female self-employed workers seems to be significantly lower in Kerala than many other states in India. The percentage of female self-employed workers (FSEW) in Kerala overall is 32.2 while it is 53.4 per cent for all India. However, the 2018-19 showed an increase over the previous year. Details are given in **Table 8.1.9**.

While women workers are grossly underestimated in Kerala as argued elsewhere, those working appear to be better off than their counterparts in rest of India since proportion of regular workers is much higher in Kerala:

Table 8.1.9 Percentage distribution of female workers in usual status (ps+ss) by broad status in employment, 2017-18 and 2018-19, in per cent

Kerala								
	2017-18				2018-19			
	Self employment		Regular/ salaried	Casual	Self employment		Regular/ Salaried	Casual
	OAE	Helper			OAE	Helper		
Rural female	21.23	9.23	41.34	28.15	25.60	8.50	33.6	32.2
Urban female	22.79	5.67	55.75	15.8	22.50	7.20	53.2	17.10
Overall female	21.92	7.71	47.52	22.86	24.3	7.9	42.3	25.5
All India								
Rural female	19.03	38.70	10.52	31.76	21.8	37.9	11.0	29.30
Urban female	23.72	11.02	52.14	13.12	24.9	9.6	54.7	10.7
Overall female	20.21	31.71	21.03	27.05	22.5	30.9	21.9	24.7

Source: PLFS 2017-18 and 2018-19
Note: OAE- own account worker/employer

47.50 per cent of women workers were regular workers in 2017-18 (41.3 in rural and 55.8 in urban areas). For India the figures were 22.5 per cent (10.5 per cent in rural and 52.1 per cent in urban areas). However, in 2018-19, there is a sharp decline in female regular workers in Kerala to 42 per cent (33.6 per cent in rural and 53.2 per cent in urban areas) though still almost double the average for all India. The increase in FWPR in Kerala in 2018-19, was taken up by self-employment and casual labour, especially in rural areas. A small improvement seen is the shift within self-employment to own account enterprise/employer from family helper, largely unpaid. The increase at all India level is taken up largely by self-employment with a decline in percentage of casual workers; regular employment remains almost the same at 21-22 per cent.

Women in Organised Sector

Proportion of women workers (44.2 per cent) in organised sector is low compared to that of men (55.8 per cent). But the total number of women workers in the organised sector has increased in the last ten years. It is shown in **Appendix 8.1.3**. But it can be seen that out of the total women workers (588779) in the organised sector, majority (62.6 per cent) are engaged in the private sector.

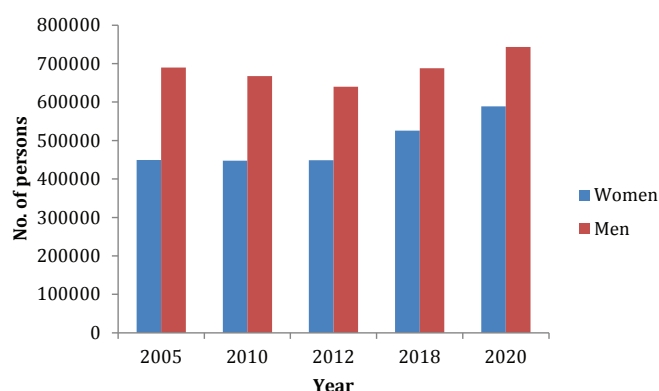
An examination of sector-wise percentage share of employment statistics in the organised sector reveals that females are in a disadvantaged position compared to their male counterparts in public sector. Women employment share in public sector is 2.2 lakh which accounts for 34.6 per cent in 2020. The situation is better in the case of private sector which accounts for 3.7 lakh women (51 per cent). Details are given in **Table 8.1.10**.

The employment of women in organised sector is growing over the last 15 years, both in public and private sectors (**Figure 8.1.4**). The increase in the private sector employment is more than that of public sector and women outnumber men in private sector. The growth of employment among women exceeds that of men as seen in **Figure 8.1.4**.

An examination of distribution of public sector employment of women in different types of Government organisation reveals that the proportion of women is high in the State Government employment department followed by Local Self Government (LSG). Though the number of women employed is more also in the state Government departments. Distribution of women employees are given in **Table 8.1.11**.

The District-wise employment of women in different type of Government organisation is

Figure 8.1.4 Growth of women's employment in organised sector



Source: Directorate of Employment

Table 8.1.10 Employment in the Organised Sector

Year (as on March 31, 2020)	Public Sector			Private Sector			Total		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
2018	363982	189942	553924	324301	335752	660053	688283	525694	1213977
Percentage to the total	65.7	34.3	100	49.1	50.9	100	56.7	43.3	100
2019	366812	193807	560619	344004	342877	686881	710816	536684	1247500
Percentage to the total	65.4	34.6	100	50.1	49.9	100	57	43	100
2020	361695	193224	554919	331294	368153	699447	692989	561377	1254366
Percentage to the total	63.81	36.19	100	49.03	50.97	100	55.79	44.21	100

Source: Directorate of Employment

given in **Appendix 8.1.4**. Both the number and proportion of women workers in public sector is highest in Kollam. But the highest number of women workers in state Government is from Thiruvananthapuram followed by Ernakulam. In the case of women in central Government employment, Thiruvananthapuram followed by Ernakulam stands ahead.

Economic Participation of Women through Kudumbashree

Financial inclusion through Neighbourhood Groups (NHGs)

Financial inclusion is the process of including the disadvantaged and low income earning category into the financial services at affordable cost. Kudumbashree has played an important

role for the financial inclusion of poor women and has enhanced the financial status of less privileged women through its thrift and credit programmes. Internal loan is given to the deserving members from the pooled small regular savings (thrift) of neighbourhood groups. Neighbourhood Groups (NHGs) are the primary units of the Kudumbashree community organisation. Ten to twenty women from a neighbourhood form a NHG. The internal loans help the NHG members to meet the immediate financial needs and unexpected contingencies without formalities. The function of thrift and credit is the basic activity of the Kudumbashree NHGs and the amount of affordable weekly thrift amount is decided by the NHG collectively. Likewise, the loan amount and priority of disbursement are according to the discretion of NHG and loan is repaid at the weekly meeting

Table 8.1.11 Distribution of women employees in different levels of Government

Year	2018-19			2019-20		
	Total	Women	Percentage to the Total	Total	Women	Percentage to the total
Central Government	59924	14594	24.4	59971	14745	24.5
State Government	262046	105004	40.1	260170	104628	40.2
Central Quasi	82154	25828	31.4	80800	25968	32.1
State Quasi	131597	39218	29.8	129290	38666	29.9
LSGI	24898	9163	36.8	24688	9217	37.3
Total	560619	193807	34.6	554919	193224	34.8

Source: Directorate of Employment

Table 8.1.12 Financial Inclusion through Neighbourhood Groups

	2018-19	2019-20
No of NHGs	291507	287723
No of NHG Members (in lakh)	43.9	45.1
Amount of Thrift (in crore)	410.7	443.7
No of Bank linked NHGs	79458	73522
Total Disbursement Amt.(in crore)	4131.9	2670
Internal Loan (in crore)	2059.5	1778.4

Source: Kudumbashree

of NHG. Though, NHG is autonomous and has a discretionary role in financial activities, each and every NHG is bound to act in accordance with the Kudumbashree bylaw. The activities are to be reported to Area Development Society (ADS) and Community Development Society (CDS). The total thrift collected by NHGs in 2018-19 was more than ₹410.7 crore and the internal loan generated out of this thrift amount comes more than four times of the thrift amount (Table 8.1.12).

Kudumbashree members in Income Generation Activities

The major income generation activities under Kudumbashree are Joint Liability Groups (JLGs) and enterprises. Nearly 4.41 lakh women involve in the various income generation activities of Kudumbashree.

Joint Liability Groups (JLGs) under Kudumbashree are collective farming groups of women with 4 to 10 members. More than 3.5 lakh of women farmers are actively involved in farming and they are cultivating in more than

50 thousand acres of land. The figure is very crucial in Kerala where men are increasingly moving away from cultivation and the cultivable land (including paddy fields) are converted into other purposes. Table 8.1.13 provide details of the Joint Liability Groups and Micro Enterprises under Kudumbashree.

Collective farming under Kudumbashree was started in 2008 as Lease Land Farming groups with the objective of providing livelihoods to women and conversion of fallow land into cultivation, thus ensuring food security. But after two decades of activities, this project has achieved more than the objectives of food security and livelihood. It has become a way for economic and social empowerment through collectivism. The project is a success story of integration of projects and agencies/departments. Most of the women involved in collective farming activities had the experience in farming as wage earners, workers or helpers to their husbands/parents. Now the project has transformed them from the status of labourer to women farmers.

Table 8.1.13 Joint Liability Groups and Micro Enterprises under Kudumbashree

Joint Liability Groups (JLGs) under Kudumbashree		
Year	2018-19	2019-20
No. of JLGs	62527	71572
No. of JLG members	330516	354122
Total area cultivated (in Ha)	54084	50000
Area of Fallow land cultivated (in acre)	5324.9	
Women Enterprises under Kudumbashree		
No. of Enterprises	21365	26448
No. of Women in enterprises	57149	87239

Source: Kudumbashree

Mahatma Gandhi National Rural Employment Guarantee Scheme (NREGA)

In Kerala over 90 per cent of the workers in NREGA are women. The spike in persondays of employment generated in 2018-19 needs to be noted; notified unskilled wage rate for this programme in 2017-18 was ₹258 per day and was enhanced to ₹271 from April 1, 2018 onwards. In the context of the pandemic, the unskilled wage rate has been increased to ₹291 for the state. The Government also initiated the process of geo-tagging all Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) assets, thereby enabling greater transparency and better real time identification. **Table 8.1.14** gives the status of NREGA employment provided in Kerala.

In the post-flood restoration efforts undertaken in the State, MGNREGS played a crucial role in rebuilding Kerala through renovation of the public assets and livelihood regeneration of vulnerable sections of the society. At the end of the financial year 2018-19, 9.75 crore person days was ensured. Initially, the State had got sanction for additional 50 days of employment per household in seven heavily flood affected districts. Subsequently, an additional employment of 50 days was also given in flood

affected regions for 87 Grama Panchayats in six partially flood affected districts. In 2018-19, after the flood (from August 16, 2018 to March 31, 2019), employment has been provided to 12.02 lakh individuals from 10.31 lakh families, of which 6.12 lakh individuals from 4.83 lakh families were newly employed. After the flood, new job cards were issued to 82,605 families. As a result of providing 7.63 crore person days, ₹2068.74 crore worth of employment (i.e. ₹271 wage per day) was generated. No doubt, the increase in NREGA employment in 2018-19 facilitated an increase in female WPR.

The flexible nature of MGNREGS makes it a scheme widely suitable for convergence with other schemes. Both the humanpower and material component provided by the scheme can be utilised to complement other schemes to hasten the development potential of all types of projects. At the same time, this also addresses the problem of finding productive and asset creation works for MGNREGS beneficiaries. Keeping the above in mind, extensive plans have been formulated to bring in line departments into the planning process of MGNREGS. The scheme has been converged with LIFE Mission also to ensure maximum employment.

The scheme is also a part of Subhikshakeralam programme and has been contributing in the

Table 8.1.14 Status of NREGA employment provided in Kerala from 2016-17 to 2020-21

Year	No. of Active Job Cards (No. in Lakh)	No. of households got Job (No. in Lakh)	% of household got Job	Person days generated (No. in Lakh)	Average days of employment provided to a household	No. of Families completed 100 days	% of household completed 100 days against total household Employed
2016-17	20.31	14.52	71.49	684.62	46.97	1,13,186	7.76%
2017-18	19.39	13.04	67.25	619.59	47.24	1,17,370	8.94%
2018-19	20.20	14.78	73.19	975.25	65.97	4,41,480	29.80%
2019-20	20.00	14.38	71.95	801.89	55.73	2,50,584	17.42%
2020-21 (as on August 21, 2020)	19.09	11.19	58.64	272.17	24.31		

Source: NREGA data base

preparation of the soil, construction of cattle sheds and poultry sheds, renovation of ponds and water bodies and rainwater harvesting activities.

Women empowerment and participation in decision making

Women’s participation in decision making is a major indicator to measure their empowerment. Women have to play a pro-active role in the decision making at home as well as in the policy decisions of the State which would ensure an integration of their needs and interests into the development process and developing a gender just society. Women’s participation in decision making of the family is considered here in terms of three indicators as gathered in NFHS 2015-16, namely, the percentage of women who usually participate in the household decisions, percentage of women having a bank/savings account that is operated by them and percentage of women having a mobile phone that they themselves use. As shown in

Table 8.1.15, women in Kerala actively participate in the decision making process more than their counterparts at all India level.

The participation of women electors in the Lok Sabha elections has increased over the years from 46.63 per cent in the third Lok Sabha election in 1962 to 66 per cent in the election for 16th Lok Sabha. The participation of women electors in Kerala is very high compared to all India average. But in terms of women’s representation in Parliament and Legislative Assembly, Kerala lags behind. In 16th Lok Sabha, women constitute 12 per cent of the total Members of Parliament while one woman MP (5 per cent) only could reach the Parliament from Kerala. Likewise representation of women in State Assembly is also low.

But the participation of women in Panchayati Raj institutions is higher than the all India average and half the positions in decision making bodies of Local Governments are reserved for women. Women outnumbered men in terms of proportion of elected representatives in local bodies, 54 per

Table 8.1.15 Women’s Participation in Decision Making

Indicators	India					Kerala				
	NFHS -5 (2019-20)			NFHS-4 (2015-16)	NFHS-3 (2005-06)	NFHS -5 (2019-20)			NFHS-4 (2015-16)	NFHS-3 (2005-06)
	Urban	Rural	Total	Total	Total	Urban	Rural	Total	Total	Total
Currently married women who usually participate in household decisions (per cent).	NA	NA	NA	84	76.5	93.6	94.6	94.1	92.1	88
Women having a bank/savings account that they themselves use (per cent)	NA	NA	NA	53	15.1	78.9	78.2	78.5	70.6	27
Women having a mobile phone that they themselves use (per cent)	NA	NA	NA	45.9	NA	86.2	86.9	86.6	81.2	NA

Source: NFHS, 2015-16

cent are women. The representation of women in courts and civil services is also very low.

Crimes against Women

Crimes against women continue to be a major threat in Kerala, though total number of crimes against women has decreased in the last two years. Even when we want women to come out of their homes and take up employment, safety of women is a serious issue. Greater efforts are required in this direction, to enable women to take up gainful economic activities outside the home. 'Cruelty by husband/relatives' still constitutes a major component in crimes against women. As per the crime statistics of India in 2016, majority of cases under crimes against women were reported under cruelty by husband or his relatives (32.6 per cent) followed by assault on women with intent to outrage her modesty (25.0 per cent), kidnaping and abduction of women (19.0 per cent) and Rape (11.5 per cent). Uttar Pradesh reported 14.5 per cent (46072 out of 329067 cases) of total cases of crimes against women followed by West Bengal (9.6 per cent) (33052 cases) in 2016.

The total number of crimes in Kerala has decreased since 2016 (**Figure 8.1.5**). The details of crimes against women in Kerala are given in **Appendix 8.1.5**.

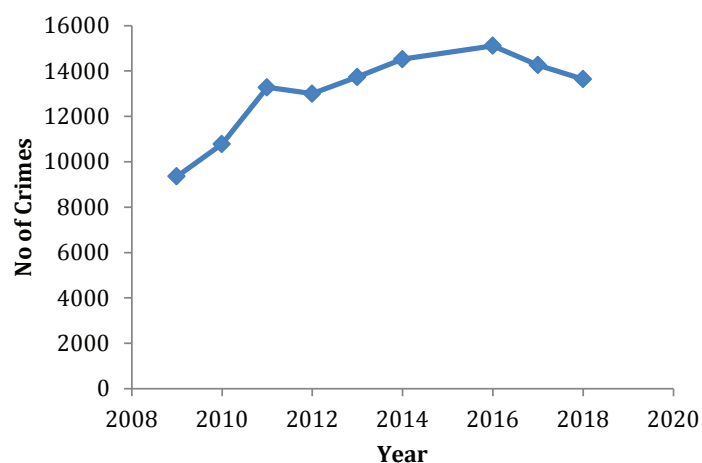
Major Gender Awareness/Gender Programmes

In the context of incidence of a large number of crimes (though the number has decreased during the last two years), preventive measures in the form of awareness programmes are very important. Different departments and agencies conduct gender sensitisation programmes at various levels- from children to adults.

- **Gender Sensitisation Programme for Police Personnel- Bodhyam**

Violence against women has emerged as a major concern for the police force of the State. At present an affected woman would come to police for help only as a last resort, when all other options are exhausted. It is the need of the hour to change the attitude, approach and work culture of the force, so that an affected woman would voluntarily seek the help of the police personnel. Gender sensitisation will enable police personnel to reflect on their personal attitudes and beliefs and question the pre-conceived notions they have about the victims and bring about a change. Bodhyam – Gender Sensitisation Training for Police was launched by KSWDC on September 4, 2019 and was piloted in the same year. The training was conducted in batches of 30 personnel each (civil police officers) at Police Training College (PTC),

Figure 8.1.5 Number of Total Crimes



Source: Crimes Records Bureau, Kerala

Thiruvananthapuram and Kerala Police Academy (KEPA), Thrissur. In 2019-20 the corporation completed training of 484 police personnel. The State police team constitutes of nearly 50,000 civil police officers and hence this training is envisaged as a continuing programme. The aim of the programme is to improve effectiveness of emergency response services for women as well as to create a gender-friendly environment in the State.

- **Women Cells in Women's Colleges**

As part of its gender awareness programmes, Kerala State Women's Development Corporation has started Women Cells in selected colleges in the State. The main objective of a women cell is to make the youth aware of the issues involved in the society and to equip them with adequate management skills to handle day-to-day affairs. Through Women cell, KSWDC has initiated various programmes like gender awareness trainings, pre-marital counselling, open forums, cultural programmes, manuscript publishing, training in IT/Soft skill, creative workshops and community intervention programmes in the selected women's colleges in Kerala. Currently, KSWDC women cells are functioning in 62 women colleges with over 5000 members. Women cells were started in mixed colleges to promote the idea of gender equality and create gender friendly campuses in the State. In March 2020, a seminar was organised on the topic – *Sthreepaksha Keralam* which was organised with the support from Women Cell members.

- **24/7 Women Information and Assistance Centre**

Mithra Helpline (181) was launched in Kerala on March 27, 2017 by KSWDC and is presently functioning successfully as a 24/7 accessible and emergency response service for women in need. The helpline is envisioned to create an infrastructure of support for women at all times and for varied

purposes with the principles of efficiency and continuous feedback mechanisms at its core and as an emergency response system for women in distress. Till date the helpline has provided effective intervention in over 78,436 cases where such services were required and has gained public recognition for rendering prompt and judicious services by the skilled Mithra Call Response Team together with the pro-active support of the police, medical and legal system. The concerted efforts of Mithra 181, OSCs (One stop centres called *Sakhi*) and the State Police can strengthen the safety infrastructure for women of the State.

- The Corporation has piloted a scheme, Setting up of Integrated Skill Development Centre for Tribal Women in Chakkittapara GP, Kozhikode. Community social workers were appointed by the Corporation to understand the skill and livelihood requirements of the women. Several training programmes and workshops have been conducted. A community kitchen is also functioning and the centre has developed into a hub for community development activities by functioning as an information centre and successfully provided advanced training for tailoring to 4 tribal women at KINFRA Apparel Park.
- In addition KSWDC has initiated a scheme in association with CMD and ODPEC for a comprehensive finishing programme for Graduate/GNM nurses aspiring to have a career abroad.
- **Sadhairyam Munnottu - Fearless, Forward**
Sadhairyam Munnottu is a State wide ongoing project of WCD started in the year 2018. It is basically a comprehensive gender awareness programme, which is divided into two sections. One is the awareness creation in the Government departments, institutions, public sector and other work places like unorganised and informal sectors. The second section covers the public and those

interacting with the public, men, women, transgenders and other sexual and gender minorities. This awareness campaign has to reach all the areas like Kudumbhasree, ASHA workers, MGNREGA, JPHN, JHN, School mid-day meal workers, ICDS workers including the homemakers. The awareness campaign will be carried out with the help of modules, skits, songs, kalajatha, poster exhibitions, video shows, short film festivals, bringing out small handbooks on women and media, women and law, women and labour, and women and society. The series of night walks organised by the department, was a major milestone towards creating a society free of gender bias and discrimination. The public places and roads began to be owned by women starting from December 2019 coinciding with Nirbhaya day. However, it had to be stopped due to the pandemic.

- **Dowry prohibition Campaign:** A popular campaign to eradicate dowry was initiated by the Women and Child Development department in 2019-20. A five year long action plan prepared aiming at complete eradication of dowry through awareness creation and empowerment. Importance of women's education, economic independence and free thinking men- all are highlighted to ensure an umbrella approach towards this age old custom which is demeaning to women. The campaign will continue over the years.
- **Gender Park:** It is an initiative of the Women and Child Development Department to pioneer gender equity and empowerment in the State with its main campus located at Kozhikode, a convergence centre for various projects, cultural and academic programmes. It includes an International Convention Centre, Amphitheatre, Gender Library, Gender Museum. 'She Taxi' is to encourage women to take up driving for livelihood. Women in Sustainable Entrepreneurship(WiSE) is a fellowship programme to put in practice women's entrepreneurial ventures and an

International Conference on Gender and Sustainable Entrepreneurship early next year are the other activities of Gender Park. A Gender Data Centre will be established in collaboration with UN Women, along with Heritage Museum and Library which would make Gender Park the South Asian hub for Gender activities. As announced in the Last year's Budget an International Women's Trade Centre (iWTC) will be launched together with the Conference and will be set up with financial assistance from KIIFB.

- **Gender Self-Learning Programme (GSLP):** GSLP was initiated by Kudumbashree in 2007 in order to make women capable of learning and understanding the gender issues themselves. It is a "participatory education programme through which women in NHGs address gender and its manifestations in their lived experience". The learning process helps the women to develop a collective consciousness on women issues and understanding of how to express their views. Under this programme, nearly 4.5 lakh Kudumbashree women were trained as resource persons and supporting team members. It is expected that all 45 lakh NHG members will undergo this self-learning programmes with the support of resource persons. The four thematic areas selected for the learning process are: 1) women and work, 2) women and health, 3) women and mobility and 4) women and entertainment.
- **Gender Awareness Programme of Kerala Women's Commission**
A significant activity of KWC is the training of Jagrata Samithi (a watchdog institution at the grass root level) members, which can work very effectively in prevention of crime with community participation. In 2019-20, the Commission conducted 148 seminars/legal workshops, 32 training programmes for Panchayat Jagratha Samithis on various laws related to women and other legal procedures and 119 adalaths. Under gender awareness programme, the Commission undertook

28 pre-marital counselling sessions across the State with the participation of women NGOs and conducted Kalalaya Jyothi in 254 educational institutions.

Transgender community in Kerala

Kerala is the first State in India which declared a Transgender Policy in 2015. GoK has issued a rights based State Policy for Transgenders within a clear results framework after the landmark judgment of the Supreme Court of India³ in 2014 which firmly established the right to equality and equal protection for transgender persons (TGs). In India, the transgenders are now considered to be the Third Gender. The scrapping of Article 377 is also a landmark judgment in the Queer discourse; though, the recognition of all non-normative sexual orientations as legal remains a distant dream. However, the recent Transgender Persons (Protection of Rights) Act, 2019, has raised several concerns regarding the status of transgender people in India, especially with respect to right of self identification.

Consistent with the 2014 Supreme Court judgement, the State policy allows for the self identification of a person as a Transgender. The Policy also recommends the establishment of District-level TG Boards that can register TGs and issue identification cards.

The survey conducted by the Social Justice Department on TGs revealed that they are unable to acquire even basic capabilities essential to a life of well-being and dignity. Hence, interventions for inclusion of TGs cannot be limited to merely economic measures.

Various schemes for the welfare of TGs are being implemented by various departments, primarily by Social Justice Department (Schemes of Social Justice Department have been given in **Box 8.1.2**. Apart from these, Kerala State Literacy Mission Authority (KSLMA) has initiated special literacy programme, Samanwaya that

focuses on providing free and continuing education for the minority gender in the state. As part of this programme, they have joined 4th, 7th, 10th and 12th equivalency programme of KSLMA. In 2018-19, 65 persons have passed the 10th and 12th equivalency programmes while in 2019-20, the number of transgender persons who passed the same is 52. The Kerala State Literacy Mission launched a new programme for the transgender community to provide monthly scholarships and shelter homes for TG students in four districts, Thiruvananthapuram, Kollam, Pathanamthitta, and Alappuzha. Likewise, schemes/programmes aiming at the welfare of LGBTs have been initiated under Health and Family Welfare Department. The facilities for free sex reassignment surgeries have been established in Kottayam Medical College. A programme, namely, Nisarga has been started by Directorate of Homeopathy for counseling and medication for transgender.

Gender Budgeting

A gender-responsive Budget at the local level was introduced in Kerala at the time of 9th Plan itself with the mandatory inclusion of Women Component Plan (WCP) in local bodies' Annual Plan. With the devolution of 35-40 per cent of funds from the state to the Local Self-Government Institutions (LSGIs), the first form of Gender Budgeting was seen in the State in 1996 where each Panchayat was directed to prepare a chapter on the status of women in their Development Plan document. During 9th Plan, 10 per cent of the Plan Outlay of the local bodies had to be set apart for needs of women or women specific projects, which came to be known as the Woman Component Plan (WCP).

To institutionalise the process of Gender Budgeting, the Gender Budget Statement had been introduced in the Union Budget 2005-06. In Kerala, conscious efforts have been taken to make the State Budget gender responsive. While

³The Supreme Court in its judgment stated that "Given the constitutional guarantee, the transgender community is entitled to basic rights specifically, freedom of expression, right against violence, right to Personal Liberty, dignity, Right to Education and Empowerment, discrimination, exploitation, and right to work. Hence, every person must have the right to decide his or her gender identity and expression including Hijras, transsexuals, transgender and should have the right to freely express their identity and be considered as a third sex"

the process started with the 11th Plan, the first Gender Budget for the State Plan was released in 2017-18 aggregating resources earmarked for girls/women across departments as a separate document included in the Budget papers.

The thrust areas in the Annual Plan 2019-20 continue to be the economic, social and political empowerment of women with a greater focus on creating an enabling environment for women in the domain of public employment. With this in mind the approach in the Plan is to enhance, every year, allocations for women's wage employment, self-employment and livelihoods, skill development, special facilities at the workplace, child care, working women's hostels, ensuring their security at the workplace and protecting them from violence at home and in the public domain.

In 2019-20, ₹1421.6 crore was provided for women specific schemes and an amount of ₹2470.11 crore was available for women in composite schemes. Including both Parts A and B, a total of ₹3891.71 crore was for girls/women, which is 16.9 per cent of State Plan outlay, 6.2 per cent in Part A and 10.7 per cent in Part B (excluding Local Governments), a reasonable increase over the last two years. In 2020-21, an amount of ₹1509.33 crore (7.3 per cent) has been provided for women specific schemes (Part A) and an amount of ₹2300.54 crore (11.1 per cent) for composite schemes in Part B has been made available for women. A total amount of ₹3809.87

crore has been earmarked for women which is 18.4 per cent of total outlay. Out of this amount, ₹5 crore is allocated for Mazhavillu, scheme for transgenders outlined earlier. It is observed that over the four years, 2017-18 to 2020-21, allocation and proportion of budgetary resources for women specific schemes has increased.

Way Forward

Gender is an integral part of the State Plan. Kerala continues to strive towards gender equality and in promoting and encouraging women's development in the State. Special efforts have been taken in times of crisis so that interests of women are safeguarded. Kerala is way ahead of other States in terms of some dimensions of women empowerment. However, there are areas of concern such as wage disparity and concentration of women in low income jobs and gender based violence that need to be addressed. Likewise the participation of women in the decision making bodies at higher levels (legislative assembly and parliament) is also very low which needs to be considered seriously.

Due to the unprecedented floods/landslides in August 2018, 2019 and pandemic in 2020, the Budgets of last 3 years have given focus on the livelihood revival/rebuilding Kerala giving more priority to women. Prominent among livelihood programmes is the large expansion envisaged through NREGS, enhanced self-employment programmes of various Government

Box 8.1.2 Programmes implemented by Social Justice Department for Transgenders

- In 2018-19, the TG cell in the Directorate was set up for design, coordination and implementation of various activities for the TGs giving them a voice in their own planning.
- Various schemes, under the umbrella programme, Mazhavillu, were implemented by the Department of Social Justice in 2019-20 for the welfare of transgenders
- Skill development training has been given to 30 Transgenders
- 7 Transgenders have been provided self-employment assistance
- Beautician training has been given to 100 Transgenders

- Educational scholarship given to 20 Transgender students
- 20 have been given financial assistance for hostel facilities,
- Financial assistance given to 41 Transgenders for sex reassignment surgery (SRS),
- 33 Transgenders given financial assistance for aftercare SRS,
- Financial assistance provided to one student for aviation course,
- 12 sewing machines given for livelihood
- 5 Transgenders were given training for driving

Department was able to conduct sensitisation programme in Schools/Colleges and offices and also held an art festival, named 'Varnapakittu'

Source: Social Justice Department

agencies like Kerala State Women's Development Corporation, revival of livelihoods of women in the small/medium cashew factories and a substantial increase in Ayyankali urban employment scheme.

Despite resource constraints, Government focuses on women's employment with a big thrust in particular on women entrepreneurship, both agro-based and non-agro based, traditional and non-traditional, During this period, the State has witnessed more individual women start-ups, nano-micro enterprises under IT and Industries sector, the special livelihood development package of Kudumbashree and SHGs of other organisations which need to be sustained to ensure the women's participation in economic activities.

8.2 ADDRESSING SOCIO-ECONOMIC VULNERABILITIES

Welfare of Scheduled Castes, Scheduled Tribes, Other Backward Classes, Minorities and Forward Communities

An important feature of the Thirteenth Five Year Plan in Kerala is its determination that the “planning process will work to protect the rights of the people of the Scheduled Castes and Scheduled Tribes, and to expand the socio-economic achievements of all people of the Scheduled Castes and Scheduled Tribes in the State (Approach Paper, p. 16).”

In Kerala, people of the Scheduled Castes constitute 9.1 per cent of the population, and people of the Scheduled Tribes constitute 1.45 per cent of the population (**Table 8.2.1**). Over the period of the Thirteenth Plan, the policy of the State Government has been to ensure that allocations to the Scheduled Caste Sub Plan (SCSP) for the people of the Scheduled Castes and the Tribal Sub-Plan (TSP) for the people of the Scheduled Tribes consistently exceed the share of the population of Scheduled Castes and Scheduled Tribes in the population of the State.

Article 46 of the Constitution of India provides that “the State shall promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, the, of the Scheduled Castes and Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation.” It is in this spirit that

the State Government has dedicated its effort to enhance human development and incomes among the people of the Scheduled Castes and Tribes, and to the destruction of all forms of social discrimination against them.

District-wise details of Scheduled Castes and Scheduled Tribes population are given in **Appendix 8.2.1 and 8.2.2** respectively. Compared to the status of SCs at national level, their position is slightly better in Kerala. A comparative picture regarding literacy and sex ratio of SC and ST population in Kerala with the national level is furnished in **Appendix 8.2.3**. In Kerala, as per Rule 14(a) of the Kerala State and Subordinate Service Rules 1958, 10 per cent representation (8 per cent for SCs, 2 per cent for STs only) is reserved to SCs/STs in Gazetted, Non-Gazetted and Last Grade categories in Government departments. According to annual review data from 39 out of 88 departments on January 1, 2020, the representation of SCs and STs was reported to be 11.37 per cent of the total. Of this, 9.41 per cent were SCs and 1.96 per cent were STs. Details of the representation of SC/ST employees in Government service are in **Appendix 8.2.4**.

Development Programmes for Scheduled Castes and Scheduled Tribes

The State Government earmarks a portion of State Plan outlay annually for the development

Table 8.2.1 General profile of SC and ST population in Kerala

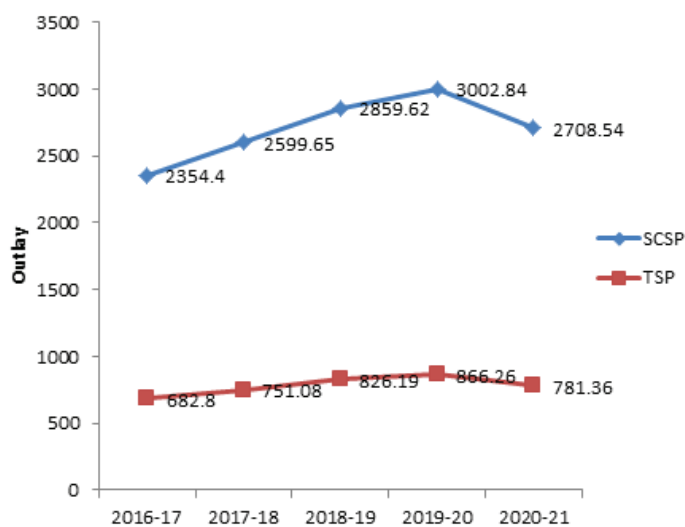
Sl. No.	Indicators	SC	ST
1	Total Population *	30.39 lakh	4.84 lakh
2	Percentage*	9.1	1.45
3	No. of settlements**	26,342	4,762
4	No. of communities*	53	37
5	Literacy rate**	88.70%	74.44%
6	Unemployment rate**	49%	30.27
7	Deprivation rate***	57.66%	61.68%

Source: *Census 2011, SECC 2011***, SC and ST Survey 2013**

of SCs and STs as Scheduled Caste Sub Plan (SCSP) fund and Tribal Sub Plan (TSP) fund. The share of Plan outlay exceeds the share of the SC and ST population respectively as per latest Census figures. At present, 9.81 per cent of total State Plan outlay is earmarked for the welfare of SCs and 2.82 per cent for the STs. Out of this, a certain percentage of funds are allocated to Local Governments for implementation of schemes under decentralised planning and the remaining to the SC/ST Development Departments.

The total plan provision set apart for the development of SCs and STs in 2019-20 was ₹3,002.84 crore and ₹866.56 crore respectively of the total State Plan outlay of ₹ 30,610 crore. In 2020-21, ₹2,708.54 crore was earmarked to SC Development Department and ₹781.36 crore to ST Development Department of the total State Plan outlay of ₹27,610 crore. Year-wise details of allocation to SC and ST development Departments from 2016-17 to 2020-21 for SC and ST Development departments are given in **Figure 8.2.1**.

Figure 8.2.1 SCSP/TSP-Year-wise Outlay for the last five years, in ₹ crore



Source: Budget documents

Development of Scheduled Castes

State Government allocates Plan fund to the SC Development Department and the Local Governments for implementing Plan schemes. Besides this, Central Government allocates fund for the implementation of Centrally Sponsored Schemes. An amount of ₹3,002.84 crore was earmarked for the Welfare of Scheduled Castes in 2019-20. Out of this, an amount of ₹1,649.00 crore was allocated for the SC Development Department and ₹1,353.84 crore for LSGIs. SC Development Department expended ₹777.20 crore out of the allotted budgeted outlay (47.13 per cent). Allocation of SCSP funds from State Plan Outlay from 2016-17 to 2020-21, is given in **Appendix 8.2.5**. Scheme-wise outlay and expenditure and the physical targets and achievements for the years 2019-20 and 2020-21 (as on September 30, 2020) of the schemes implemented by SC Development Department are given in **Appendix 8.2.6 and 8.2.7** respectively. Major programmes undertaken for the welfare of Scheduled Castes are summarised below.

Major Development programmes undertaken for the welfare of Scheduled Castes

Land and Housing

State Government provides financial assistance for purchasing land to the landless Scheduled Caste families. As per the estimates of SC Development Department, 1,00,475 number of SCs are landless. Of which, 4,225 families were assisted under this scheme in 2019-20. Out of the budgeted outlay of ₹185.00 crore, ₹164.52 crore (89 per cent) was expended in 2019-20. Number of families benefited under this scheme from 2016-17 to 2019-20 are given in **Figure 8.2.2**.

District wise details of land provided to SCs under the land to landless scheme from 2018-19 to 2020-21 (as on September 30, 2020) is given in **Appendix 8.2.8**.

Under the Housing scheme, LIFE Mission has undertaken the construction of the new houses and spillover work implemented by SC Development Department from 2007-08 to 2016-17. In the first phase of LIFE Mission, out of the 3,893 incomplete houses which were sanctioned under the housing scheme of SC Development Department from 2007-08 to 2015-16, construction works of 3,844 houses were completed. In the second phase, out of the 13,017 eligible SC beneficiaries, 12,007 beneficiaries started construction and 7,721 houses were completed. Mission has identified 54,949 SC beneficiaries without land and house for the third phase.

Education

For imparting education for the SC students, the SC Development Department runs 85 nursery schools, 11 Model Residential Schools, 44 Industrial Training Institutes, 87 pre-matric hostels, 17 post-matric hostels, 4 Pre-Examination Training Centres, a community college in Vadakkancherry and a medical college in Palakkad. Government provides various types of educational assistances such as primary education aid, lumpsum grant, stipend, pre-matric and post-matric scholarships and overseas scholarships for improving the educational status of SC students. Two new Model Residential Schools were started in Kozhikode and Kannur districts in 2020-21. In 2019-20, the rate of assistances including lumpsum grant, stipend, and scholarships given to SCs, STs and OEC students for pre-matric, post-matric and professional courses were enhanced. For the students in high school and higher secondary classes having annual income of ₹1.00 lakh, 11,218 study rooms were constructed so far. Major educational assistance given to SC students in 2019-20 are given in **Box 8.2.1**.

Details of lumpsum grant, stipend and pocket money provided to Scheduled Caste students in 2019-20 and 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.9** and the number of students who availed various kinds

of scholarships and assistance from 2016-17 to 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.10**.

Health

Under the Health care scheme, 15,180 persons availed treatment assistance for various diseases and 483 medical camps were organised throughout the State. Besides this, 29 Homeo dispensaries are functioning in SC colonies. In 2019-20, ₹39.44 crore (66 per cent) was spent for the scheme. In 2020-21, ₹26.37 crore was spent (as on September 30, 2020). Details of outlay and expenditure under Health care scheme and number of patients availed treatment assistance for the last five years are given in **Appendix 8.2.11**.

Skill Training and Employment

For providing livelihood security to the weaker sections, various types of skill development training programmes including job oriented training programmes, were implemented for people of the Scheduled Castes. In 2019-20, ₹38.00 crore was allotted for the scheme and ₹36.97 crore was expended. 5,495 SC youths received skilling through 119 skill programmes. Of the candidates who completed trainings

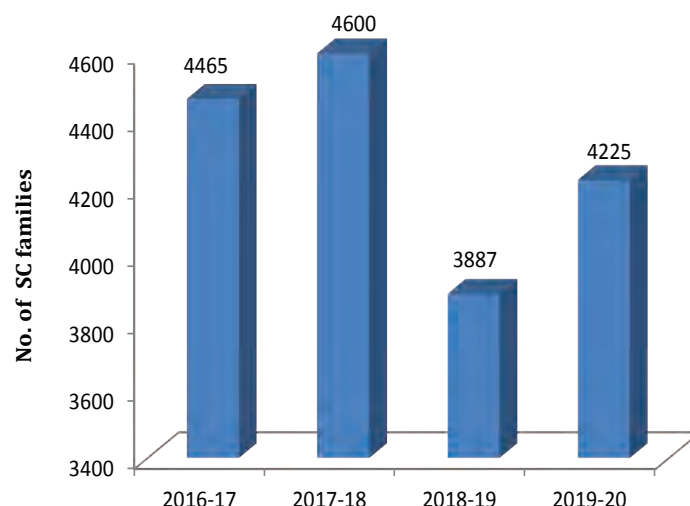
1,297 candidates were placed in India and 201 candidates abroad in the last five years in the last four year.

Self-employment assistance is given to the individuals/self-help groups with one-third of the loan as subsidy for undertaking self-employment ventures. In 2019-20, 207 beneficiaries received self-employment subsidy. Number of persons benefited under the self-employment scheme in 2019-20 and 2020-21 (as on September 30, 2020) is given in **Appendix 8.2.12**. Financial assistance up to ₹1.00 lakh is given for unemployed SC youths with annual family income limit of below ₹2.50 lakh for seeking job abroad. In 2019-20, 1,922 persons availed assistance for seeking job abroad.

Infrastructure Development in SC colonies

For providing better infrastructure facilities in the habitats, the “Ambedkar Village Development Scheme” was launched in all SC colonies in which more than 30 SC families reside. Under this scheme, ₹1.00 crore is provided to each colony for undertaking development activities including provision of drinking water, toilet and sanitation, waste management, road connectivity, electrification, construction of land protection

Figure 8.2.2 No. of families availed land, 2016-17 to 2019-20



Source: SC Development Department

wall, irrigation, playground and community hall and renovation of houses, financial support for income generating activities, assistance for protection and renovation of burial grounds inside the colony/situated adjacent to the colony. Out of the 216 self-sufficient villages undertaken in previous years, development activities of 164 villages were completed in 2019-20. Of the 50 villages undertaken under Ambedkar Village Development scheme, development activities of 39 villages were completed so far.

Other Social development Programmes

Assistance for Marriage

₹75,000 was given to SC families as financial support for the marriage of SC girls. In 2019-20, 8,677 SC families were assisted under the scheme and ₹62.08 crore was expended out of the budgeted outlay of ₹70.00 crore. In 2020-21, ₹42.77 crore was incurred (as on September 30, 2020) out of the budgeted outlay of ₹70.00 crore. The rate of marriage assistance was enhanced from ₹50,000 to ₹75,000 in 2016-17. Outlay and expenditure under marriage assistance and number of persons benefited from the scheme for the last five years is given in **Figure 8.2.3**.

Special package for Vulnerable Communities

For vulnerable communities such as Vedar,

Nayadi, Kalladi and Arundhathiyar/Chakkliar a new programme for providing assistance for purchase of agricultural land has been introduced in 2019-20. Assistance was provided up to a maximum of ₹10.00 lakh for purchasing minimum 25 cents of land. Out of ₹50 crore earmarked for the development activities for the vulnerable communities, ₹31.71 crore was expended in 2019-20. Of this, 135 beneficiaries received assistance for purchase of agricultural land in the year. Assistance was also given to 598 families for house repair and 352 study rooms were constructed for the students from vulnerable communities in the year.

Legal services

The Constitution of India ensured reservation in elections to the Lok Sabha, State Legislative Assemblies and in Government jobs for Scheduled Castes. As per Article 17 of Indian Constitution, 'Untouchability' is abolished and its practice is forbidden. Protection of Civil Rights and Enforcement of Prevention of Atrocities Act for SC and ST, 1989 was enacted to prevent offences against the members of the SCs and STs. The Act prescribes punishment for the enforcement of any disability arising from the preaching and practice of 'Untouchability' and prevents atrocities against members of SCs and STs. Special Court, SC Protection Cell and Special Police Stations have been formed for the trial of offences and provision of relief and rehabilitation of the victims of atrocities. In 2019-20, ₹12.50 crore was earmarked for this scheme and

Box 8.2.1 Major Educational assistances given to SC students in 2019-20 (No. of students benefited)

- Pre-matric scholarships	-	3,64,403
- Post-matric scholarships	-	1,45,095
- Entrance coaching	-	506
- Assistance for studying abroad	-	21
- Assistance for studying in other States	-	4,561
- Assistance for purchasing Laptop	-	1,543
- Assistance for purchasing stethoscope	-	335
- Ayyankali Talent Search scholarship	-	4,680
- Construction of Padanamuri	-	4,556

Source: SC Development Department

₹9.77 crore was expended. Inter caste marriage assistance was also provided at the rate of ₹75,000 under this scheme. In 2019-20, 1,842 couples received assistance. Year-wise details of beneficiaries received inter caste marriage assistance for the last five years are given in **Appendix 8.2.13**.

Valsalyanidhi

An insurance linked social security scheme namely, 'Valsalyanidhi' was launched in 2017-18 for the holistic development of the Scheduled Caste girl child. Under this scheme, SC Development Department deposits ₹1,38,000 in the name of the girl in LIC in 4 installments. ₹30,000 as 1st installment, when the child attains 6 months, ₹33,000 as second installment when she gets admission in primary school and attains 5 years, ₹36,000 as third installment on 5th standard or at the age of 10 and ₹39,000 as 4th installment on completion of 10th standard. ₹3,00,000 is assured when she attains 18 year. Besides this, insurance benefits are also available to the income earning member of the family. Educational assistance of ₹1000 is also given to the brother or sister of the girl child studying from 9th standard to 12th standard yearly. In 2019-20, ₹11.00 crore was earmarked for the scheme and ₹10.99 crore was expended. 5,896

girls are registered under this programme so far.

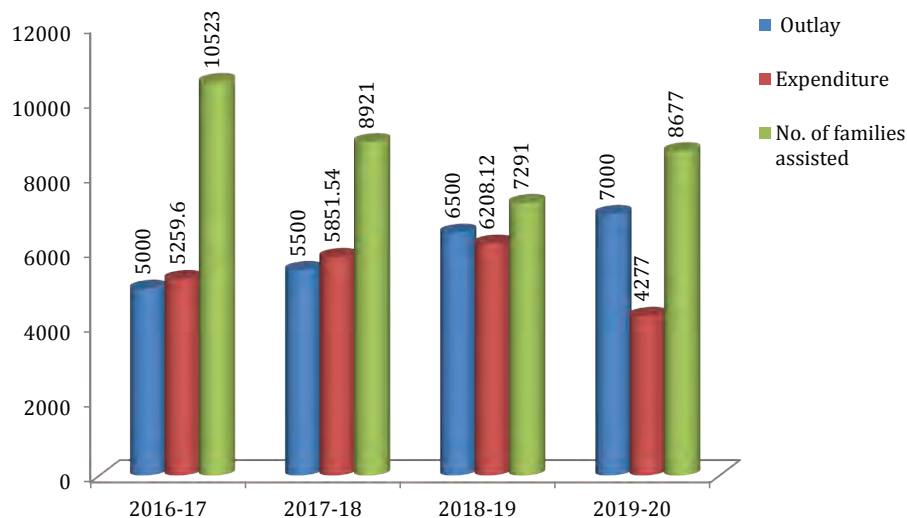
Corpus Fund for SCSP (Critical Gap Filling)

SC Development Department earmarks a portion of outlay as Corpus fund in the Budget annually for filling critical gaps identified in the Scheduled Caste Sub Plan schemes. Corpus fund is intended to provide funds for filling any critical gap in the SCSP provision made under various schemes on project basis with emphasis on human resource development, basic needs and economic development. Administrative sanction for schemes up to ₹25.00 lakh can be accorded at the districts by District Level Committee for SC/ST. In 2019-20, ₹15.27 crore was spend for the scheme. Out of the 520 sanctioned projects, 211 projects were completed. This includes 88 road works, 86 Drinking Water schemes, 3 cultural centres and 34 side protections for SC houses. Outlay and expenditure under the scheme from 2016-17 to 2020-21(as on September 30, 2020) is given in **Appendix 8.2.14**.

Special Central Assistance to Scheduled Caste Sub Plan (SCA to SCSP)

The SCA to SCSP is provided by Government of

Figure 8.2.3 Outlay and expenditure under Marriage assistance and no. of families benefitted, in ₹ lakh



Source: SC Development Department

India to States for undertaking mainly economic development programmes for SCs. It helps to fill the gaps which is not met from the Central, State and Local Government Plans. Out of the total funds received under SCA to SCSP, 75 per cent of the fund is distributed to the District Collectors on the basis of SC population in the districts. The balance 25 per cent is implemented by the Director, SC Development Department. Activities that can be taken up under SCA to SCSP are assistance to SC families for taking up viable income generating activities, through a mix of institutional finance and subsidy. The outlay and expenditure details of SCA to SCSP from 2016-17 to 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.15**.

Development of Scheduled Tribes

Tribal development has been a major objective of planned development since the Fifth Five Year Plan where the Tribal Sub Plan concept was introduced in 1974-75. Accordingly special administrative attention was drawn to channelise financial resources for the development of socio-economically vulnerable Scheduled Tribe communities across the State. In spite of constitutional mandates and legislative obligations to safeguard and promote tribal development, few stumbling blocks are constantly hampering the progress at the ground level. The true spirit of development of tribals lies in making them to realise their rights and ensuring that the rights are protected through institutional means. There are a number of State Government and central Government

Box 8.2.2 The measures taken by the Scheduled Caste Development Department in wake of COVID-19.

The Scheduled Caste Development Department took the following measures in wake of COVID-19.

- (i) Issued detailed circular to all the subordinate offices on awareness programmes and preventive measures on March 18, 2020.
- (ii) Conducted 'Break the Chain' campaign about personal hygiene and social distancing in all SC colonies in the State with the support of health Department. Scheduled Caste(SC) promoters and SC District Development Officers working under the Department distributed information materials in the colonies as part of the awareness campaign.
- (iii) Covid-19 Cell has been opened in the Directorate to co-ordinate with all field-level officers. The Cell collects information from District about the details on persons under isolation, and observation on daily basis.
- (iv) Took measures to ensure timely testing, home quarantine of any affected or suspected Covid-19 cases among SC population.
- (v) Provides support those who are either in quarantine or isolation by providing timely assistance like providing food and other essentials with the help of LSGIs.
- (vi) Took steps to ensure supply of essential food items, medicines, and safe drinking water in all SC colonies and also special attention was given to the old age people, pregnant ladies, disabled and children.
- (vii) Extended the tenure of promoters working at the grass root-level to ensure uninterrupted service of those promoters in the field.
- (viii) Closed all hostels and Model Residential Schools under the Department based on the direction of the Government.
- (ix) Department handed over majority of the institutions like hostels and schools to District Collectors for using it as Covid Care Centres.
- (x) All field-level officers in the Department including District officers are working in the field for ensuring timely assistance to people by co-ordinating with District administration as well as LSGIs.

Source: SC Development Department

schemes under which the funds flow to the tribal welfare. But, still the basic facilities like health, education, accessibility, basic amenities, telecom connectivity and livelihood has remained the major challenge in the tribal areas. Creating enabling environment to realise their developmental potential is the way forward for the tribal development. Effective monitoring of the funds meant for various tribal development activities is necessary.

Schemes implemented by ST Development Department for the welfare of Scheduled Tribes are classified as educational programmes, housing, health, socio-economic upliftment and legal protection measures. The major sources of fund for Scheduled Tribes Development Department are State Plan, fund from Tribal Sub Plan component of Centrally Sponsored scheme and Special Central Assistance to Tribal Sub Plan (SCA to TSP). An amount of ₹866.26 crore was earmarked for the Welfare of Scheduled Tribes in 2019-20. Out of this, an amount of ₹663.27 crore was allocated for the ST Development Department and ₹202.99 crore for LSGIs. Scheduled Tribes Development Department expended ₹423.47 crore out of the budgeted outlay. Allocation of TSP funds from State Plan Outlay from 2016-17 to 2020-21, is given in **Appendix 8.2.16**. Details of financial and physical achievements of schemes implemented by the Department in 2019-20 and 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.17** and in **Appendix 8.2.18**. Major programmes undertaken for the welfare of STs are summarised below.

Major Developmental programmes undertaken for the welfare of STs

Land

The Tribal Resettlement and Development Mission (TRDM) was set up in 2001, for providing land to landless tribals. Major programmes of TRDM are provision of land to landless and overall development of the Resettlement areas. As per the estimate of ST Department, there are 10,944 landless STs in the State. The land

distribution under TRDM is through Land Bank Scheme, Distribution of Vested Forest Land and Forest Rights Act. Major achievements under the scheme in 2019-20 are listed below.

- Under the Land Bank scheme, 10.06 acre of land were distributed to 58 beneficiaries, of which, 34 beneficiaries in Malappuram District availed 5.27 acre of land and 24 beneficiaries in Kannur District availed 4.79 acre of land.
- 73.19 acre of land under Vested Forest was distributed to 456 tribals in Wayanad District.
- Under Forest Right Act, 596.39 acre of land was distributed to 549 tribals.

In 2019-20, altogether, 679.68 acre of land were distributed among 1,061 tribals under various schemes. In 2020-21, 328 tribals were provided land under the scheme (as on September 30, 2020). District-wise details of land distribution from 2016-17 to 2019-20 is given in **Appendix 8.2.19**.

Housing

The policy of the State Government is to provide housing to all Scheduled Tribes so that there will be no Scheduled Tribe family without a home in the State. As per the Survey conducted by the ST Development Department in 2019-20, it is estimated that about 16,070 tribal families possessing land are houseless and 10,944 families are landless. From 2017-18 onwards housing programme is implemented through LIFE Mission. Apart from the financial assistance from State Plan, assistance for housing is also provided by Kerala Urban and Rural Development Finance Corporation Ltd. (KURDFC). The funds earmarked by the Local Governments from their Tribal Sub Plan fund and Prime Ministers Awaas Yojana are also utilised for providing housing for STs. Out of the 6,709 houses sanctioned by the ST Department under various housing schemes in 2016-17, 702 houses were completed in 2019-20. In the phase I of LIFE Mission, 12,054 incomplete houses was targeted, of which 11,087 have been completed, Out of this, 1,255 houses were completed in 2019-20. Under Phase II of

LIFE Mission, 6,107 houses have been sanctioned, of which 2,001 houses have been completed. Outlay and expenditure of housing scheme from 2016-17 to 2019-20 is given in **Appendix 8.2.20**.

Educational Programmes

As education is an instrument not only to increase the awareness levels but also enable the Scheduled Tribes to access better employment and human development many educational institutions are run by the ST Department. There are 13 Nursery Schools, 10 Kindergarten, 3 Balavadies, 1 Vikasvadi, 3 Balavijnan Kendrams, 7 Peripatetic education centres for Particularly Vulnerable Tribal Groups, 20 Model Residential Schools, 22 single teacher schools, 106 Pre-matric hostels, 9 post-matric hostels, 12 training centres, 2 Vocational Training Centres, 1 Industrial Training Institute under the ST Development Department. Apart from Post-matric and Pre-matric scholarships, Ayyankali Talent Search scholarship, Peripatetic education and Sports promotion helps to build over all development of Tribal students. Major physical achievements in education sector in 2019-20 are given in **Box 8.2.3**.

Number of students availed scholarships and assistance from 2016-17 to 2020-21 (as on September 30, 2020) is shown in **Appendix 8.2.21**. Details of lumpsum

grant, stipend and pocket money provided to ST students in 2019-20 and 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.22**. In 2019-20, out of the budgeted outlay of ₹179.39 crore, ₹100.06 crore was expended for education. Year-wise details of outlay and expenditure under Education is given in **Appendix 8.2.23**.

Health programmes

Various programmes were undertaken for providing health care to the tribal people. Comprehensive Tribal Health Programme, Janani Janmaraksha, Assistance to Sickle Cell Anemia patients, financial assistance to tribal healers, running of Mobile Medical Clinics are major health care schemes undertaken for STs. Major physical achievements in health sector in 2019-20 are given in **Box 8.2.4**.

In 2019-20, out of the budgeted amount of ₹43.73 crore, ₹32.81 crore was expended for programmes under health sector. In 2020-21, ₹16.56 crore was expended as on September 30, 2020. Details of outlay expenditure and physical achievement under health sector for the last five years is shown in **Appendix 8.2.24** and **Appendix 8.2.25**.

Box 8.2.3 Major achievements in Education Sector in 2019-20

- 18,306 tribal children of 476 schools were provided transportation facilities under the scheme 'Gothrasarathy'
- In addition to the existing 150 community study centres 100 Centres were started for providing tuition and e-learning facilities among the tribals.
- 1200 talented tribal students were assisted under the 'Ayyankali Memorial Talent Search and Development Scheme'.
- 625 orphans availed Special assistance.
- 72,415 Students availed pre-matric scholarship.
- 18,329 students availed post- matric scholarship.
- Overseas scholarship benefited 5 students.
- Special incentives availed by 776 brilliant students.
- 86 students received entrance coaching.
- 3,419 students availed tutorial grant.

Source: Scheduled Tribes Development Department

Box 8.2.4 Major physical achievements in Health sector in 2019-20

- 742 Sickle Cell Anemia Patients received monthly financial assistance @ ₹2500
- 8,700 pregnant women and lactating mothers received monthly financial assistance @ ₹2,000 under the scheme Janani Janmaraksha.
- Under the scheme, 'Traditional Tribal Healers' annual grant was given to 342 tribal healers @ ₹10,000.
- 33,000 tribals availed treatment facilities under the Comprehensive health care scheme.
- 3,684 medical camps were organised by the Mobile medical clinics for ensuring health services to the tribals at their door steps.

Source: Scheduled Tribes Development Department

Skill development, Employment and Livelihood programme

Various skill training programmes and career guidance campaigns were organised for improving livelihood activities among STs. In 2019-20, 1,148 ST youths participated in 25 skill training programmes. Of the completed training programmes, 317 youth were successfully placed in private enterprises. Details of skill trainings conducted and placement effected for the last four years are given in **Appendix 8.2.26** and in **Figure 8.2.4**. Key initiatives in skill development in 2019-20 are shown in **Box 8.2.5** and **Box 8.2.6**.

Kerala Tribal Plus under MGNREGA

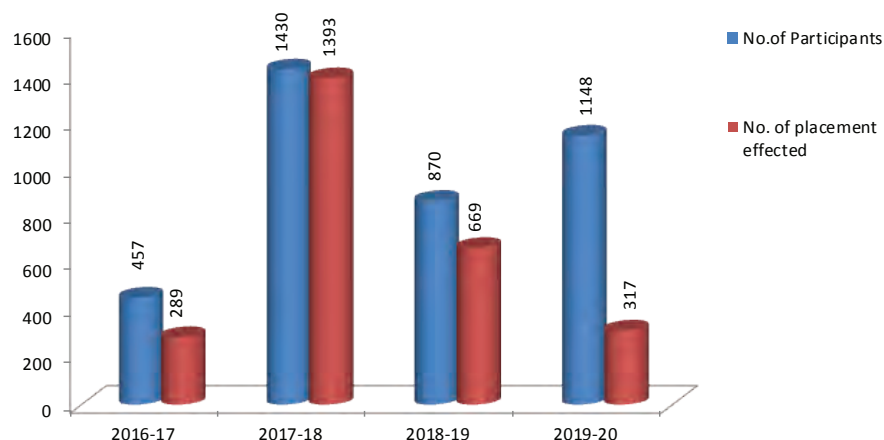
The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA) provides 100 person days of work for the people engaged in this scheme. Since 2017-18, under the scheme Kerala Tribal plus of MGNREGA, Kerala Government enhanced the job days for all ST families from 100 person days to 200 person days. In order to motivate the participation of ST workers under the scheme the State Government has initiated a system to give advance payment of wages to ST workers from State Plan Fund of ST Department through Kudumbashree which is being implemented in Wayanad, Attappady and Aaralam. The State Government has devised a system to pay the unskilled wages every

week to the beneficiaries using a set apart corpus fund which will be recouped from the beneficiaries bank account as soon as the wages under MGNREGS is credited to the respective bank accounts. Details of families assisted under MGNREGA and Kerala Tribal plus Programme are given in **Figure 8.2.5**.

Food security and nutritional development programmes

For addressing the issue of malnutrition and poverty among the STs, food grains are distributed every month during the monsoons, from June to September in the tribal areas of all the districts under the Food Security scheme. In 2019-20, apart from the ongoing food support programme 80,000 Food kits and 1,59,753 Onam kits were distributed among tribals. Community kitchen programme is also implemented for the nourishment of the vulnerable population including pregnant and lactating mothers, children, adolescents, senior citizens and chronically ill tribes of Attappady and Wayanad. Several agricultural projects were taken up in various districts using the Corpus Fund and Pooled Fund of ST Department. In addition, the Millet Village Programme and Nutrition Sufficiency Programme were implemented in Attappady for addressing the nutrition issues and the details are shown in **Box 8.2.7** and in **Box 8.2.8**.

Figure 8.2.4 Number of participants in skill training and number of placement effected, 2016-17 to 2019-20



Source: Scheduled Tribes Development Department

Box 8.2.5 GOTHRAJEEVIKA–A Milestone in Skill Development

Gothrajeevika is a remarkable initiative of the ST Development Department, for providing skills to Scheduled Tribes. The strategy adopted by the programme was the identification of beneficiaries from various tribal communities and provide skill development programmes for various functional areas which have constant demand in the labour market. It was a process of transformation of unskilled/semiskilled tribal workers into skilled labourers. The objective of the programme was to develop a labour force from tribal groups to carry out the construction activities including houses in tribal areas. 1,170 tribal youth were trained in various areas such as masonry, plumbing, electrical wiring, carpentry, electrical house wiring, building materials, painting, tile works, etc. The beneficiaries of the programmes were organised into 53 self-help groups. These groups are now engaged in various construction activities and they are entering into contracts for construction works from public as well as private clients

One of the outstanding projects undertaken by the Self Help Groups of Gothrajeevika programme is 'Panthapra Housing Project', at Kuttampuzha in Ernakulam District. House construction of 57 tribal families rehabilitated under TRDM was carried out by ST self-help groups of Gothrajeevika. This housing project is one of the largest tribal projects implemented solely by the participation of tribal groups in India. It highlights the aspect of empowerment and upliftment of a community that has often been downtrodden and marginalised by the mainstream of the society.

Source: Scheduled Tribes Development Department

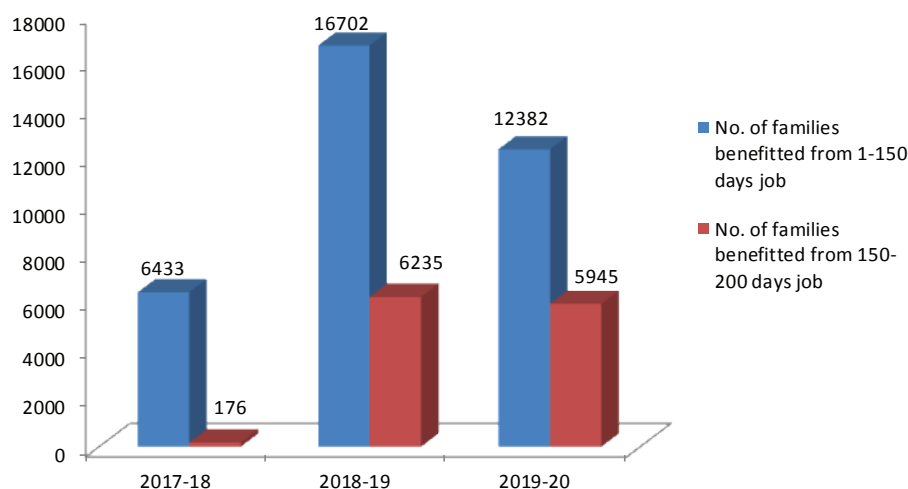
Box 8.2.6 Attappady Tribal Apparel Park (ATAP)

Attappady Tribal Apparel Park is the first initiative of its kind by the Scheduled Tribes Development Department aiming at social and economic empowerment of tribal women of Attappady. Lack of enterprises is one of the reasons for economic backwardness among tribals. Lack of skill among tribal women is one of the serious issues to be addressed and keeping this in view the Tribal Department took initiatives to provide skill trainings to tribal women throughout the State. 250 ST women of Attappady were identified from various tribal communities of Attappady and provided training in highly mechanised decorative apparel making and a production unit has been established in the Mini Civil Station Complex at Attappady Block in Palakkad District. The Scheduled Tribes Development Department liaised well in supporting the enterprise by providing required furniture, machinery and equipment. The District Administration also provided necessary help in terms of space and initial handholding. The programme helped in skill

development, livelihood and empowerment of ST women in Attappady by engaging 200 women thereby ensuring their livelihood. At present, these women are stitching the uniforms for the children in the hostels and Model Residential Schools under the ST Development Department. It is one of the model projects in terms of the economic, social and leadership changes that happened to the women beneficiaries and families. This project is being replicated in Wayanad and Thiruvananthapuram districts too.

Source: Scheduled Tribes Development Department

Figure 8.2.5 Number of Tribal families assisted under MGNREGA Kerala Tribal Plus Programme



Source: Rural Development Department

Box 8.2.7 Millet Village Scheme

‘Millet Village Scheme’, implemented jointly by the Agriculture Department and Scheduled Tribes Development Department, is intended for rejuvenating agriculture in Attappady. The total project cost is ₹7.41 crore. The scheme is in progress in 70 settlements covering 1900 acre. Vegetables, Finger millets, little millet, fox tale millet, kodomillet, barnyard millet, jowar, redgram, ground nut, blackgram, cowpea, Pulses and Oilseeds are cultivated under this scheme. Marketing of the value added finished products are done through the outlets of KAICO and other eco shops throughout the State. As part of marketing, a quality branded organic product is given for sales in the name of ‘Attapady Organic’. In Kattekkadu tribal settlement in Attappadi, ‘Beehive fencing’ was initiated for protecting the cultivation from wild animals and also for bee cultivation.

In 2019-20, 1,256 farmers benefited by harvesting in 400 hectares. Ultimate objective of this project is to attain food and nutrition security for the tribes living in Attappady besides employment generation and creation of livelihood.

Source: Scheduled Tribes Development Department

Box 8.2.8 'Namuth Vellame'- Nutrition –Sufficiency in Food through Agroecology

Attappady, the largest tribal settlement in Kerala most often catches attention for reasons such as infant mortality and morbidity. It is in this context that the Scheduled Tribes Development Department and Kerala Development and Innovation and Strategic Council (K-DISC) in association with the NGO, Thanal have initiated a Pilot Project in Attappady during 2019-20: Nutrition-Sufficiency in food through Agroecology, in local language named *Namuth Vellame* for the revival of tribal agriculture of Attappady. Through this project, they revived the *Panjakrishi*, one of the traditional farming methods practised by the various tribal communities of Attappady. The farming practice follows mixed farming, also known as intercropping method, in which multiple varieties of millets, maize, sesame, redgram, rice, vegetables and keera are cultivated. The family farmers resorted to their indigenous farming methods which is capable of delivering increased food production at remarkably low external input costs, enhanced food security and nutrition of the community and is extremely resilient and sustainable.

The project responds to the needs of family farmers through financial assistance, Participatory Guarantee System (PGS-India), MGNREGS support, value addition programmes. It is managed and driven exclusively by the tribal communities, especially by young tribal field co-ordinator *Oorukoottams* and tribal field coordinators are the building blocks of the project. In the first phase of the project, it was implemented in 19 hamlets in Attappady and around 897 acre of land owned by 617 farmers were brought back to cultivation. Nearly 71 per cent (638 acre) of fallow land was made fit for agriculture after 20 to 25 years. By the end of the cropping year, the farmers managed to harvest 17,234 kg of millets, grains, vegetables and other food crops that have rich nutritional value. Over 300 families could use the harvest for more than 10 months. The project was widely accepted by the tribes as it reintroduced many rare millets and crop varieties that played a prominent role in the indigenous diet, culture and rituals. During the second phase of the project in it is being extended to 16 more hamlets of Attappady. Altogether, the project will benefit 1,211 farmers covering 1,671 acre of land.

Source: Scheduled Tribes Development Department

Social Development programmes

Important social security programmes implemented for welfare of STs include, Assistance for the Marriage of ST Girls, Specific package programmes for the development of Adiyas, Paniyas and the Primitive Tribal Groups, Gothravatsalyanidi and Ambedkar Settlement Development scheme. Major physical achievements under these schemes are given below.

- 275 ST Girls received marriage assistance at the rate of ₹1.00 lakh.
- Under Special package for Adiya, Paniya, PVTGs 2.75 acre of land were purchased for resettlement of 10 Paniya colonies in 'Odamgode' tribal settlement in Kozhikode District.
- Under Gothravatsalyanidhi, Tribal Girl Child

Endowment Scheme, 500 ST girls were provided insurance coverage as part of social security.

Legal Protective Measures

Protection of Civil Rights and Enforcement of Prevention of Atrocities Act.

In order to provide constitutional and legal protection to safeguard the interest and protest against exploitation of the marginalised sections of society, the Protection of Civil Rights Act and Scheduled Caste and Scheduled Tribe (Prevention of Atrocities) Act, 1989 Act, was enacted. The provisions of the Act, prevent offences against the SCs and STs. In 2018-19, 125 cases were reported against STs. In 2019-20 number of cases reported

against STs declined to 84. In 2019-20, inter-caste marriage assistance was given to 47 couples. In 2020-21, inter-caste marriage assistance was given to 50 beneficiaries (as on September 30, 2020).

Corpus Fund for TSP (Critical Gap Filling)

ST Development Department earmarks a portion of outlay as Corpus fund in the Budget annually for filling critical gaps identified in the Tribal Sub Plan schemes. In 2019-20, ₹58.00 crore was earmarked for the scheme and ₹31.58 crore was expended. Outlay and expenditure under the scheme from 2016-17 to 2020-21 (as on September 30, 2020) is given in **Appendix 8.2.27**.

Special Central Assistance to Tribal sub Plan (SCA to TSP)

The Special Central Assistance to Tribal sub Plan is released by Government of India in addition to State Plan funds and is meant for undertaking programmes of education, health, and employment cum income generation activities beneficial to Scheduled Tribes families. The outlay and expenditure under SCA to TSP from 2016-17 to 2020-21 (as on September 30, 2020) is given in **Appendix 8.2.28**.

Kerala Institute for Research Training and Development Studies for Scheduled Castes and Scheduled Tribes (KIRTADS)

Kerala Institute for Research, Training and Development Studies of Scheduled Castes and Scheduled Tribes (KIRTADS) was started as a 'Tribal Research and Training Centre' (TR and TC) in 1970. The institute conducts research and study on Scheduled Castes and Scheduled Tribes population of the State. Anthropological research helps to promote development among the Scheduled Communities in Kerala. It attempts to identify the needs and problems confronting the marginalised section of the population and

suggest recommendations to the Government in finding a panacea for their holistic development. The Institute has three major wings namely Research, Training and Development Studies. The Research Wing conducts ethnographic as well as socio-cultural studies of various communities, especially on the Scheduled Communities of the State, by incorporating theoretical perspectives from the domain of Anthropology and Sociology as part of its research and classification of community studies. The Development Studies Wing conducts various evaluation studies of the programmes implemented for the development of the Scheduled Communities of the State.

The Training Wing co-ordinates and conducts a large number of programmes with special emphasis to empower the SC/ST communities of the State. This wing also conducts orientation programmes, capacity building programmes, empowerment programmes and educational programmes. The institute also undertakes Adikalagramam programme which includes traditional dance music of the Scheduled Caste and Scheduled Tribe Communities of the State. The scheme-wise outlay and expenditure of KIRTADS is given in **Appendix 8.2.29**. Number of anthropological investigation cases against Scheduled Castes and Scheduled Tribes in Kerala from 2016-17 to 2020-21 conducted by KIRTADS (as on September 30, 2020) is given in **Appendix 8.2.30**.

Kerala State Development Corporation for SCs and STs

The Kerala State Development Corporation for SCs and STs Limited implements various income generating and other welfare programmes designed to suit the needs and aspirations of entrepreneurs from SC/ST communities. Schemes being implemented by the Corporation can be broadly grouped as (i) Sole Lending Scheme (ii) Schemes implemented in association with the National Scheduled Caste Finance and Development Corporation (NSFDC) and (iii) Schemes implemented by National Scheduled Tribes Finance and Development Corporation

Box 8.2.9 The measures taken by the Scheduled Tribe Development Department in the wake of Covid-19

The Scheduled Tribe Development Department has taken serious efforts to prevent the spread of Covid-19 in colonies by utilising the services of Field Level officers and Tribal Promoters. The efforts taken by the Department are enumerated below.

Awareness

(i) All Project Officers(PO)/Tribal Development Officers(TDO), Tribal Extension Officers (TEO) and Tribal Promoters were instructed to conduct various awareness creation activities in all tribal colonies in association with Health Department officials and National Health Mission District programme managers.

(ii) Detailed instructions and publicity posters created by Health Department were circulated to all field staff through their smart phones and tablets.

(iii) Special whatsapp groups were created including all TEOs and Tribal Promoters through which instant communication of messages is being done.

(iv) Awareness videos translated in Paniya, Mannan, Katunaikan, Adiya, Oorali, Koraga, Irula, Muduga, Kurumba, Muthuvan and Mannan tribal dialects were created and circulated among those communities.

(v) Awareness programmes were conducted by the 14 Tribal Mobile Medical units run by the Department through Kerala Medical Services Corporation Limited.

(vi) Tribal Promoters were instructed to visit all houses under their jurisdiction and report regarding persons having symptoms, persons who have been tested/infected, people under quarantine or isolation, and hospital treatment.

(vii) Tribal Extension Officers were instructed to ensure the availability of other essential medicines to patients who are under treatment of other diseases.

(viii) Special awareness programmes and health checkups were conducted and sanitation facilities were provided to Adiya, Paniya and Particularly Vulnerable Tribal Groups.

Source: Scheduled Tribes Development Department

(NSTFDC). Income generating activities of the Corporation includes multipurpose unit loan, transport scheme, loan to start up entrepreneurs, loan to rehabilitation of return emigrants, foreign employment loan, micro credit finance loan, laghuvyavasaya loan, women empowerment programme, Mahilasamridhi Yojana and loan for animal husbandry. In 2019-20, the Corporation disbursed an amount of ₹8,992.66 lakh and benefited 4,869 SC and 425 ST beneficiaries for income generating schemes. In 2020-21, assistance has been given to 904 SC and 71 ST beneficiaries (as on September 30, 2020). New initiatives of the Corporation undertaken for SCs in 2019-20 are given below.

a) Loan for Start-up entrepreneurs

Assistance is given up to a maximum of ₹ 50 lakh at 6 per cent interest rate for SC youths within

the age group 18-55 years having annual income limit of ₹3.50 lakh for undertaking start-up ventures. Priority is given for newly passed out professional courses students. In 2019-20, one SC entrepreneur and in 2020-21, 2 entrepreneurs received assistance under this scheme.

b) Loan for Rehabilitation of return emigrants

The Kerala State Development Corporation earmarks ₹20 lakh to provide assistance to the beneficiaries identified by NORKA for starting income generating ventures and NORKA releases 15 per cent of the project as capital subsidy. In 2019-20, Corporation assisted 6 beneficiaries with loan amount of ₹20.25 lakh.

c) Women Empowerment programme
Corporation initiated the Women Empowerment

programme with Kudumbashree. Under this scheme, Corporation gives loan to a group of women entrepreneurs. The loan amount is ₹3.00 lakh, of this, ₹1.00 lakh is subsidy. 448 beneficiaries were assisted under this programme.

Scheme-wise details of physical and financial achievements of the Corporation during 2019-20 and 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.31**.

Welfare of Other Backward Classes

As per the recommendation of Article 340 of the Constitution of India and the 'Mandal Commission Report', the State Government initiated a special Department in November 2011 for promoting the welfare of socially and educationally backward classes of the society. Most backward communities among OBCs are classified as Other Eligible Communities (OECs). A total amount of ₹114.20 crore was allocated by the State Government to the Backward Classes Development Department in 2019-20. The expenditure incurred was ₹99.68 crore (87.29 per cent). Scheme-wise outlay, expenditure, and the physical achievements of the Department in 2019-20 and 2020-21(as on September 30, 2020) are given in **Appendix 8.2.32** and **8.2.33**.

The OBC Development Department undertakes various educational schemes such as (1) provision of scholarships to pre-matric and post-matric students (ii)employment generation schemes (iii)skill training (iv) assistance to the traditional occupation such as barber shops, pottery workers and traditional craftsman.

Educational Schemes

Pre-matric and post-matric scholarships are given for OBC as well as OEC students. The OEC students are eligible for all kind of educational assistances given to SCs and STs without any income limit. Major educational assistances provided to OBC and OEC students in 2019-20 are given below.

- 91,696 OEC students availed pre-matric assistance and 1,43,557 OEC students availed post-matric assistance.
- 2,30,834 OBC students availed pre-matric scholarship and 3,59,020 OBC students benefited post-matric scholarship.
- Overseas scholarship benefited 35 students.

Employment generation schemes

For providing income generating activities to the backward classes, employment generation schemes such as 'Employability enhancement programme' and 'Career in Automobile industry through public private participation' are implemented. Financial assistance was given to students for coaching in civil service examination, UGC/NET/JRF/GATE/MAT and other competitive examinations in reputed institutions and also for starting self-employment ventures under the scheme 'Employability enhancement programme'. In 2019-20, a total of 2,573 beneficiaries availed assistance under the scheme. Placement oriented training is imparted in areas such as automobiles, logistics, hotel management and polymer technology through the scheme 'Career in automobile industry public private participation'. 197 skilled labourers and technicians were benefited under the scheme in 2019-20.

In order to promote traditional occupation among the OBCs, financial assistance was given to pottery workers, barber shops and craftsmen. In 2019-20, 134 pottery workers were assisted at the rate of ₹50,000. Assistance was also given for the renovation of the Barber shops at the rate of ₹25,000 with an annual income ceiling of ₹1.00 lakh. 421 traditional barbers were assisted in 2019-20. 2,009 persons received skill development training and assistance for purchasing toolkits under the scheme, 'Skill development training and Toolkit grant for traditional craftsmen'.

Kerala State Backward Classes Development Corporation (KSBCDC)

Kerala State Backward Classes Development Corporation (KSBCDC) acts as the major State-level channelising agency of national financial agencies. The Corporation provides financial assistance at lower rate of interest to the members of Backward Communities living below poverty line. KSBCDC also utilises the State Government assistance and its own fund reserves to implement various welfare schemes and provides assistance such as marriage assistance, vidhyasree loan, foreign employment loan, and suvarnasree loan. The Corporation has disbursed loan worth ₹504.11 crore in 2019-20 benefiting 44,653 persons, of which 35,619 are women (79.77 per cent). In 2020-21, (as on September 30, 2020), an amount of ₹221.38 crore was distributed among 28,043 persons. The source-wise expenditure and the physical achievements of the Corporation in 2019-20 and 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.34**.

Kerala State Development Corporation for Christian Converts from Scheduled Caste and the Recommended Communities

Kerala State Development Corporation for Christian converts from Scheduled Castes and the Recommended Communities was incorporated in 1980 under the Indian Companies Act 1956. The main objective of the Corporation is to promote the social, educational, cultural, and economic upliftment of the Christians converts from Scheduled Castes and the Recommended Communities in a comprehensive manner for ameliorating their living conditions. The source of finance for the Corporation is the share capital, assistance and grants sanctioned by the Government of Kerala on an annual basis, and the loan assistance from NBCFDC. Major schemes implemented by the Corporation include agricultural land purchase, self-employment, housing, cash incentive to students, marriage loan, agriculture and allied sector assistance, and small business and educational loan. Details

of year-wise disbursement of State Government-assisted loan schemes from 2016-17 to 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.35**. The scheme-wise details of physical and financial achievements of the Corporation are given in **Appendix 8.2.36**.

Welfare of Minorities

According to the Census 2011, the Minority population in Kerala is 44.99 per cent. According to the National Minority Commission Act 1992, Muslims, Christians, Buddhist, Sikh, Parsi were included in the list of religious minorities, and the Jain community was also included in 2014. Major schemes implemented by the Minorities Welfare Department are educational assistance, drinking water scheme, housing scheme for divorcees, widows, and abandoned women from the minority communities, pre-marital counselling centres and Minority Research Institute for the welfare of the minorities.

A total amount of ₹48.75 crore was allocated by the State Government for the welfare of Minorities in 2019-20 of which ₹20.64 crore (42.35 per cent) was expended. Scheme-wise outlay and expenditure and the physical achievements of the Department in 2019-20 and 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.37** and **8.2.38**.

Kerala State Minorities Development Finance Corporation Limited

The Kerala State Minorities Development Finance Corporation is a fully owned Government company incorporated on March 22, 2013, with an intention of looking after the welfare of Minority communities, Jains and Sikhs. The main schemes implemented by the Corporation are self-employment loan, business development loan, education loan, visa loan, Pravasi loan, employees multi-purpose loan and housing loan for Madrassa teachers and others. An amount of ₹15.00 crore has been provided as share capital contribution to the Corporation in 2019-20. The financial and physical achievements of the Corporation are given in **Appendix 8.2.39**.

Welfare of Forward Communities (Samunnathi)

The Government of Kerala constituted the Kerala State Welfare Corporation for Forward Communities Limited on November 8, 2012, to serve the income poor sections among the Forward communities. As per Census 2011, Forward communities include 168 communities, of which 19 communities are Christians.

The major activities supported by the Corporation are scholarships, coaching assistance, term loan assistance, skills and entrepreneurship development, and renovation of dilapidated Agrahara and houses and Mangalyasamunnathi. An amount of ₹42.00 crore was allocated to the Corporation in the year 2019-20 for various programmes. Of this, ₹31.80 crore was expended. The scheme-wise outlay and expenditure and the physical achievements of the Corporation in 2019-20 and 2020-21 (as on September 30, 2020) are given in **Appendix 8.2.40**.

8.3 SOCIAL SECURITY MEASURES

The basic idea of social security is to use social means to prevent deprivation and vulnerability to deprivation. It is the responsibility of the State to ensure a minimum standard of material welfare to all its citizen on a basis wide enough to cover all contingencies of life from womb to the tomb. The policies for social security are vital elements of national development strategies to reduce poverty and vulnerability across the life cycle and support inclusive and sustainable growth by raising household incomes, fostering productivity and human development, boosting domestic demand, facilitating structural transformation of the economy and promoting decent work. According to the World Social Protection Report, 2017-19 of International Labour Organisation, nations should provide for a social protection floor to all its citizens, from birth to old age, if necessary, complemented by contributory social insurance schemes that provide increased levels of protection.

Social security measures aim to support and empower its target groups through programmes of educational, economic and social development, and rehabilitation wherever necessary. Touching the lives of all for ensuring their wellbeing is the basic rule of good governance and development. Targeted interventions are required for the upliftment of people in any disadvantaged position. With growing evidence of increasing income/asset inequalities across the world, the need for public provisioning of basic goods and services assumes critical significance. It is

important to ensure comprehensive coverage, identify the need for new interventions if there are critical gaps in coverage, avoid duplications and overlapping in Government schemes to achieve the targets of Sustainable Development Goals (SDGs).

Kerala has been acclaimed for its several achievements in providing social security measures for vulnerable groups like persons with disabilities, aged people or senior citizens, transgenders, women and children in difficult circumstances. In Kerala, the Departments of Social Justice, and Women and Child and its allied agencies are involved in providing social security. The departments and agencies envision a caring and equitable society and their major activities are enumerated in **Appendix 8.3.1**.

Categorisation of Social Security Programmes in Kerala

The social security programmes in Kerala can be categorised into two: A. Institutional Care and B. Social Assistance Programmes.

A. Institutional Care

In the State, Government, as well as NGOs and other voluntary organisations, provide institutional care to the disadvantaged sections of the population. The Social Justice Department (SJD) is the nodal department for the implementation of social security schemes in

the State. In 2017-18, in order to give meaningful thrust to the activities aimed at welfare and empowerment of women and children, a separate department of Women and Child Development (WCD) was formed by bifurcating the SJD. This department acts as a nodal agency for matters pertaining to women and children and implements State and Central schemes related to women and children. SJD addresses the needs of people with disabilities, senior citizens and transgenders. There are 29 welfare institutions and 2 vocational training centres under the aegis of SJD for the care, protection and rehabilitation of disabled and senior citizens; of which, 16 are for senior citizens and 15 for disabled. There are 44 welfare institutions functioning under the WCD for the care, protection and rehabilitation of children and women; of these, 28 institutions are for children and 16 for women.

Through institutional care and support, SJD and WCD have provided rehabilitation services to more than 2,000 persons in different categories and more than 55,000 persons are benefited every year through the registered institutional support. However, the number of occupants is less compared to the sanctioned strength of inmates for certain categories of institutions. As against the total sanctioned strength of 91,042 inmates in the registered welfare institutions, the occupants were 53,111 in 2019-20. This is about 58 per cent of the total sanctioned strength of inmates.

Among the welfare institutions under the departments where the number of inmates is higher than sanctioned strength are Asha Bhavan, Pratheeksha Bhavan, Vocational Training Centre and Home for physically handicapped, and Nirbhaya shelter homes (renamed as Women and Children Homes). However, the number of inmates are less in foundling homes (homes for abandoned children). Indeed, it is a major concern that the State does not have adequate care institutions/assisted living homes for children with intellectual disabilities (Autism, Cerebral Palsy, Multiple Disabilities and Mental Retardation) except one in Kozhikode. All these necessitate an integrated policy framework and

careful planning for establishing new institutions to address issues of serious concern. The District-wise coverage of beneficiaries in major welfare institutions run by SJD and WCD is given in **Appendix 8.3.2** and that of registered welfare institutions in **Appendix 8.3.3**.

B. Social Assistance Programmes

Social assistance programmes aim to reduce poverty and vulnerability among the people having little or no regular means of subsistence. Various social assistance programmes are listed below. Details on welfare of senior citizens are given in Chapter 6 of this Review.

Social Security Pension Schemes through Local Governments

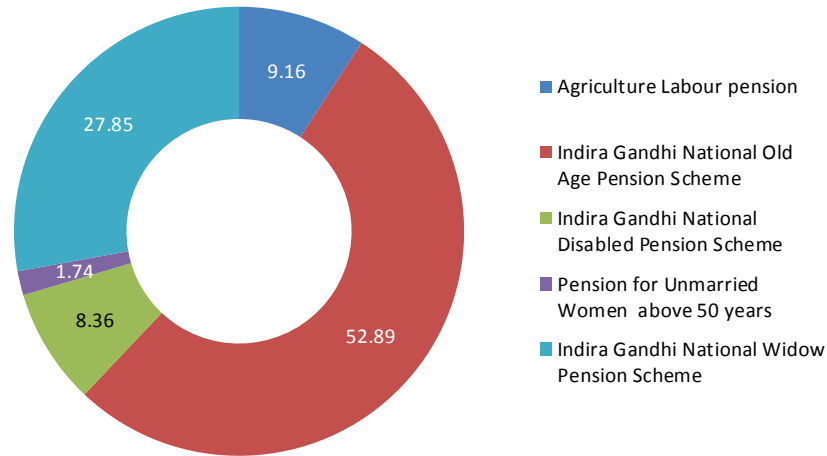
The major pension schemes implemented by the State Government are pension for the aged, pension for persons with disabilities, pension for the widowed, pension for unmarried women above 50 years and pension for agriculture workers. The beneficiaries of old-age pension, disability pension and widow pension receive an amount as Central assistance; however the larger share is from State assistance. From April 2015, the disbursement of pensions is being done at the State level through the newly introduced Direct Benefit Transfer (DBT) system. As on October 2020, there are 49.14 lakh pensioners in the State. The highest number of pensioners are recipients of old-age pension (52.89 per cent) followed by those with widow pension (27.85 per cent) (**Figure 8.3.1**).

Among the Districts, Thiruvananthapuram has the highest number of beneficiaries and Wayanad has the least number of beneficiaries. The District-wise coverage is given in **Appendix 8.3.4**.

Welfare of Persons with Disabilities (PwDs)

Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction

Figure 8.3.1 Number of pensioners in the State, in per cent



Source: Information Kerala Mission, Sevana Pension

with various barriers may hinder their full and effective participation in society on an equal basis with others. Disability is not just a health problem. It is a complex phenomenon, understood to arise from the interaction between a person's health condition or impairment and the multitude of influencing factors in their environment. Barriers to full social and economic inclusion of persons with disabilities include inaccessible physical environments and transportation, the unavailability of assistive devices and technologies, gaps in service delivery, and discriminatory prejudices and stigma in society. Persons with disabilities are more likely to experience adverse socioeconomic outcomes such as less education, poorer health outcomes, lower levels of employment, and higher poverty rates. Overcoming the difficulties faced by people with disabilities requires interventions to remove environmental and social barriers. The highest attainable standard of health and well-being is a precondition for a full and productive life for persons with disabilities because one's health and well-being affects one's ability to participate fully in work, in education and in the community. Majority of the persons with disabilities can lead a better quality of life, if they have equal opportunities and effective access to rehabilitation measures.

As being discussed globally, overcoming disability should no more be viewed merely from the welfare prism but recognised as a human rights and development issue. From being passive beneficiaries of doles, the disabled have to be considered as citizens who can be equal stakeholders in development. The State has accepted a rights-based comprehensive life cycle approach to the services for persons with disabilities (along the lines of the Rights of Persons with Disabilities Act 2016) which has been given due importance in the 13th Five-Year Plan. As part of this approach, the State implements a scheme named ANUYATHRA which includes prevention initiatives, early screening, early intervention through District Early Intervention Centres (DEICs) and other health and social sector institutions, education support through special anganwadis, Buds Schools, Model Child Rehabilitation Centres, Special Schools, inclusive education and vocational training, Community based rehabilitation and assisted living projects among others. While schools admit students with disabilities, appropriate mechanisms have to be put in place to make them inclusive. Teachers, in general, need to be sensitised to the needs of such students. Special education training needs to be more practice-based like nursing training attached to hospitals. Special attention should be given to cognitive disability. Diversity in cognitive disability should

be emphasised. Individual Care Plan formulation and follow up should be another major initiative. This requires convergence of services, resources and institutions.

In Kerala, a Statewide Census of PwDs was undertaken by the Kerala Social Security Mission in 2015, the first of its kind in India, covering 22 types of disabilities. As per the survey, 7.94 lakh people equivalent to 2.32 per cent of the total population of the State are disabled, of whom, females constitute 44.57 per cent, Transgender persons 0.15 per cent, Scheduled Castes 10.93 per cent and Scheduled Tribes 2.15 per cent. The highest number of disabled persons are in Malappuram District (12.15 per cent) followed by Kozhikode (9.89 per cent) and the lowest in Wayanad District (2.91 per cent). Regarding type of disabilities, locomotor disability stands at the top with 32.89 per cent and multiple disabilities is second (17.31 per cent). Of the total disabled population, 63,229 persons were completely bed ridden. Around 1.69 lakh disabled persons are engaged in Government/Private firms, temporary and daily wage jobs and 2.59 lakh disabled are having education upto 10th and higher levels. 3.46 lakh disabled persons dropped out of education before reaching the 10th level because of lack of transportation facilities, severe disability, financial backwardness, inability, low interest of parents and other reasons.

State Policy for Persons with Disabilities

GoK enacted a policy for PwDs in the year 2015 recognising the necessity and inevitability of including disability dimensions in the development agenda, programmes and action Plans of the State. Participation of PwDs in the developmental process, viewing disability as a human rights issue, protection from abuse and creating a positive environment and attitude for inclusive development and empowerment of PwDs are the key strategic focal dimensions of the policy. From being passive beneficiaries, the disabled have to be considered as equal stakeholders and contributors to development.

Institutions for Empowering Persons with Disabilities

National Institute of Speech and Hearing (NISH)

NISH is a premier institute in the area of disability for Disability Studies and Rehabilitation Sciences and provides an excellent environment for pursuit of higher studies for people with disabilities. The programmes of the NISH include early intervention programme and extension services, hearing and speech-language disorders programme, medical psychology and allied services, academic programmes, training and industry placement and volunteering and internship opportunity. From April 2019 to March 2020, NISH has attended to 173 students under early intervention programmes, 11,614 cases seen/sessions given under hearing and speech-language disorders programme and 3,833 cases under medical psychology and allied services. The academic programmes conducted by NISH benefited 274 students. The training and industry placement benefited 10 persons and the volunteering and internship opportunity benefited 54 persons. NISH also has facilitators trained to cater to the needs of the hearing impaired whose services are provided for meetings/conferences/functions as required.

Kerala State Handicapped Persons Welfare Corporation

The Corporation provides economic empowerment and rehabilitation to persons with disabilities. In 2019-20, the Corporation supplied equipment like motorised vehicle, wheelchair, and hearing aid to 1,213 persons with disabilities. Also, the Corporation distributed loans to 141 disabled persons for self-employment from the funding provided by National Handicapped Finance and Development Corporation. In addition, the Corporation itself distributed bank loan subsidy to 26 differently-abled persons across the State for self-employment. The Corporation also assisted 23 children through the fixed deposit scheme

of ₹20,000 for severely disabled children. Proficiency award given to 300 differently abled children having higher marks in the exams, assistance was given to 20 self-help groups for undertaking appropriate micro projects, 273 differently abled persons were given assistance for starting lottery ticket sales and smart phones were distributed to 1,000 blind persons.

State Commissionerate for Persons with Disabilities

The State Commissionerate was set up as per the Persons with Disabilities Act (PwD Act) enacted by the GoI in 1995. Co-ordinating the programmes implemented by different departments and monitoring the utilisation of funds for the benefit of the disabled in the State are the functions of the Commissionerate. The other functions of the Commissionerate are conducting awareness camps, redressal of the complaints of disabled persons, and inspection of institutions for disabled. Awareness seminars were conducted for District officers, LSGI secretaries, Special school teachers and Advocates of Alappuzha, Ernakulam, Kasaragod and Thiruvananthapuram Districts. Also it produced a short film, "Iruliloruthirinalam" for advertisement through TV channels.

National Institute of Physical Medicine and Rehabilitation (NIPMR)

NIPMR is an institute dedicated to the assessment and therapy of children and adults with multiple disabilities especially cerebral palsy and other associated disorders. The persons affected with stroke or accidents are also to be treated with available facilities in NIPMR. A programme Plan has been made for home-based training and demonstrations are given to parents for carrying out the skill training or therapy programme for home management. This centre initiates awareness programmes, research and studies on Autism Spectrum Disorders (ASD) and organises training programme for professionals. Institute for Cognitive and Communicative Disorders and Neuro Sciences (ICCONS) and Child Development

Centre are the other major institutions working in this area. The particulars of these institutions are given in the section on Health of this Review.

Programmes for Persons with Disabilities

The schemes for the welfare of persons with disabilities are being implemented through Social Justice, Health and Education Departments. The schemes implemented through SJD and KSSM are listed below.

Issuing Disability Certificate to Differently Abled

According to the 2015 Disability Survey, total number of disabled in Kerala is 7.9 lakh. According to the Persons with Disability Act, 1995 it is mandatory to provide disability certificate to all the disabled. From 2009 to March 2018, Kerala Social Security Mission distributed 3,66,109 identity cards through 1992 disability certification camps across the State. In 2019-20, Mission distributed 325 identity cards. The benefit of such camps is that it reduces the difficulties faced by PwDs to travel to distant places for getting medical certificates.

Aswasakiranam Scheme

The scheme is implemented to provide monthly assistance to caregivers of the following categories of patients like 100 per cent blind, bedridden patients suffering from cancer, cerebral palsy, autism, mental illness, mental retardation and bedridden due to old age, who need a full-time caregiver. The number of beneficiaries in 2019-20 was 1,13,717.

State Initiative on Disabilities (SID)

This is a special initiative of the Government for prevention, detection, early intervention, education, employment and rehabilitation of the persons with disabilities through Kerala Social Security Mission. Since 2017-18 all the activities under SID and other related interventions have

been given a new approach, called ANUYATRA, to be implemented as a Rights Based Life Cycle Approach in disability management. The objective is to transform the State into a disabled-friendly one and empower the children with disabilities by inducting them into the main stream of society and bring them to the forefront of social activity in line with the Rights of Persons with Disabilities Act 2016. The major achievements are:

- **MMR Vaccination:** MMR vaccination was started to prevent disabilities caused by Mumps, Measles and Rubella and given free of cost to new-born babies through Government hospitals up to PHC. In 2019-20, 81,701 doses of vaccines were supplied.
- **Kathoram:** A life cycle approach in Hearing Disability Management with interventional approach at different months as detailed below.
 - a. Universal Hearing Screening:** Hearing screening of newborn babies has been established in 63 Government delivery points. 97 per cent of the babies born in these hospitals are screened for hearing impairments. About 1,35,842 neonates were screened in 2019-20.
 - b. Confirmation of hearing disability by 3 months:** For the advanced test for identifying hearing problem, Brain stem-Evoked Response Audiometry (BERA) equipment in each District is installed in National Programme for Prevention and Control of Deafness (NPPCD) centres at District/General hospitals, except Palakkad. 786 babies were tested in 2019-20.
 - c. Support with Hearing Aids and Auditory Verbal Therapy at 6 months:** Auditory Verbal Therapy will be done through all Government Medical Colleges, major hospitals and institutions like NISH, NIPMR and hearing aids will be made available through existing national programmes for prevention and control of deafness or through KSHPPWC and other agencies.

- d. Cochlear implant at 18 months:** It is done in convergence with the existing Shruthitharangam scheme. Around 1,070 cochlear implant surgeries were conducted at free of cost.
- e. Post implant habilitation therapy up to 42 months:** This will be provided through all Government Medical Colleges, major hospitals and institutions like NISH, NIPMR.
- f. Follow up at Anganwadies and schools:** Mainstream education will be promoted and will be monitored through DEICs.

- **Early Intervention Centres:** Steps have been taken for establishing full-fledged permanent DEICs with all modern facilities in all Districts for ensuring early screening of disabilities and for providing appropriate services. The construction of DEIC is progressing in 9 Districts and expected to finish in 5 Districts by 2020. It will act as a Disability hub in the District. 25 Mobile intervention Centres are functioning from August 2017 onwards. An average of 3,000-4,000 children are benefitted per month. Regional Early Intervention Centres are at medical college level and have been established in 5 medical colleges (Thiruvananthapuram, Alappuzha, Kottayam, Trissur and Kozhikkode). About 10,012 children with developmental delay and disabilities have been supported through the REICs. Special Early Intervention cum Disability Management Unit started at Agaly for tribal community. 100 children are supported per month.
- **Establishing of Special Anganwadis for Pre-school Children with Disabilities:** For providing appropriate training and remedial therapy to pre-school children with disabilities, one anganwadi in every ICDS project is designated as special anganwadi. At present, the project is implemented in Kozhikkode District. 1110 children are being supported and 374 children with disabilities enrolled in regular school in 2019-20.

- **M Power Incubator:** A permanent magic training and performance centre has been established for intellectually disabled children at Magic Planet. Five children from M Power team perform magic at this centre and are earning an income. As a follow up to the magic training to ID children and employment of 5 of them in the Magic Planet to perform magic, the latter in association with KSSM has set up a Different Arts Centre (DAC) in the campus, a proud initiative of the Government. The centre is functioning as a platform to engage and empower 100 children with autistic disorders by showcasing their talents in music, dance, painting and skills in various musical instruments; art therapy which would play a significant role in bringing positive changes among such children.
- As part of the project for empowering intellectually disabled children through Horticulture Therapy and Social Farming, 14 children with disabilities were provided therapy and training in 2019-20 in the Agricultural College, Vellayani, Department of Community Science with support from KSSM.

State Initiative on Dementia

The Department of Social Justice has started a daycare centre in Thrissur Corporation and a full-time centre at Edavanakkad old age home for the rehabilitation of dementia patients in the State.

Transgenders (TGs)

Kerala is the first State to establish a policy for transgenders in the country. A State-wide survey on all aspects of their social and personal life was conducted by the Social Justice Directorate, prior to the framing of the policy. Based on snowballing techniques, the survey estimates the presence of more than 25,000 TGs in the State. This figure needs to be reviewed. The Disability census 2015-16 estimates that 1,187 TGs are disabled. Many of them are reluctant to reveal their identity and hence this number seems to be an underestimate. Transgenders face several

issues in their day-to-day life activities. This group needs more attention for acceptance into society. Various schemes, under the umbrella programme, Mazhavillu, were implemented in 2019-20 for the welfare of transgenders. Skill development training has been given to 30 transgenders, 7 transgenders have been provided self-employment assistance, beautician training has been given to 100 transgenders, educational scholarship given to 20 Transgender students, 20 have been given financial assistance for hostel facilities, Financial assistance given to 41 transgenders for sex reassignment surgery (SRS), 33 transgenders given financial assistance for aftercare SRS, financial assistance provided to one student for aviation course, 13 sewing machines given for livelihood and 5 transgenders were given training for driving. Department was able to conduct sensitisation programme in Schools/Colleges and offices and also held an art festival, named 'Varnnapakittu'.

One of the primary objectives of the Government is the welfare and empowerment of women. Empowerment and protection of women and ensuring their holistic development is crucial for sustainable and equitable development of the State. Women empowerment is widely recognised as the precondition for achieving the several targets of the SDGs like poverty eradication, inequality, good health, decent work and economic growth. The empowerment of women has to be understood as *a process of change to improve women's position in society*, in terms of their economic, social, cultural and political status.

The Department for Women and Children was carved out of the Social Justice Department for the welfare of women and children in 2017-18. This department implements all the activities related to the welfare and empowerment of women and children in the State. In the State, Government, as well as NGOs and voluntary organisations, provide institutional care to women and children. The programmes seek to empower women and enable them to contribute as equal partners in development

in an environment free from violence and discrimination, mainstream gender concerns, create awareness about their rights and facilitate institutional and legislative support for enabling them to realise their rights and develop to their full potential.

Women constitute 52 per cent of State population and the overall sex ratio of Kerala is 1,084 females per 1,000 males. Female literacy rate is 92 per cent which is highest in India. Maternal mortality rate was much lower in Kerala when compared to the situation in India. The present status of women in Kerala is given in the section on Gender and Development of this Review. The activities of the institutions for women empowerment and major schemes promoting social and economic rehabilitation of women are as follows.

Institutions for Welfare and Empowerment of Women

Kerala Women's Commission

The Commission was established in 1996 to improve the status of women in Kerala and enquire into unfair practices against women and recommend remedial measures. The Commission implements gender awareness programmes and undertakes legal workshops/seminars, adalaths, and provides for conducting DNA test. In 2019-20, the Commission conducted 148 seminars/legal workshops, 32 training programmes for Panchayat Jagratha Samithis on various laws related to women and other legal procedures and 119 adalaths. Under gender awareness programme, the Commission undertook 28 pre-marital counseling sessions across the State with the participation of women NGOs and conducted Kalalaya Jyothi in 254 educational institutions. In 2019-20, the Commission received 5408 complaints; the nature of complaints shows that harassment of women, domestic violence and family problems dominate. The category-wise and District-wise details of complaints received as on March 2020 are given in **Appendix 8.3.5**.

Kerala State Women's Development Corporation

Self-employment schemes for women, flagship programme on gender awareness and Finishing School are the major programmes of the Corporation. Corporation became the channelising agency of National Scheduled Tribe Development Corporation Ltd. (NSTFDC) for the first time and disbursed loan to 11 tribal women, distributed ₹107 crore from National Corporations to 4,493 women under self-employment loan scheme and ₹7.42 crore to 286 women in general category through Plan fund. The Corporation received the special award for Women Empowerment in implementation of National Backward Classes Finance and Development Corporation (NBCFDC) schemes in Kerala and Annual Performance Excellence Award from National Scheduled Castes Finance and Development Corporation (NSFDC).

Under the flagship programme on finishing schools, the Resource Enhancement Academy for Career Heights (REACH) at Thiruvananthapuram and Kannur imparted skill training to 979 students. As part of gender awareness programme, KSWDC women cells are functioning in 62 women colleges with over 5,000 members. The main objective of the women cell is to make the youth aware of the issues in the society and to equip them with adequate management skills to handle day to day affairs. The Corporation started women cells in mixed colleges too, to promote the idea of gender equality and create gender-friendly campuses in the State. In 2019-20, educational scholarship was given to one women cell member from the 62 colleges where women cells have been formed. The help line service as envisaged by the Ministry of Women and Child Development, GoI is an emergency response system for women in distress. Mithra Helpline (181) was launched in Kerala on March 27, 2017, and is presently functioning successfully as a 24/7 accessible and emergency response service for women in need. Help line has provided effective intervention in over 78,436 cases so far. The corporation with the objective of reaching

out to Scheduled Tribe (ST) women, has set up an integrated skill development centre for ST women, on a pilot basis in Chakkitappara tribal settlement in Kozhikode for developing sustainable livelihood options in the tribal hamlet. In 2019-20, 52 tribal women have been identified from the 4 colonies for providing training in cattle rearing, fodder and veterinary support to the tribal women dairy farmers. As part of Menstrual Hygiene Management (MHM) Programme, awareness programmes were completed in 550 schools in 2019-20. Corporation distributed around 22 lakh packets of sanitary napkins, 1,201 incinerators and 1,346 almirahs in 1,524 schools of 359 LSGIs in Kerala. The corporation has also implemented She PAD project in 1,524 Government/Aided Schools for benefit of 2.77 lakh girl students. The project ensures supply of high-quality sanitary napkins and incinerators for safe disposal of napkins to Government schools free of cost.

Gender Park

Gender Park, at Kozhikode, was conceptualised by the Department of Social Justice in 2013 (though its genesis goes back to 2011) as a platform for learning and research on gender equality and empowerment of women. It provides a space for all gender identities to overcome the socio-economic and political boundaries imposed on them by society and contribute to the economic, cultural, and social aspects of the State and society. The main activities envisaged are 'action research' for policy-making; Skill Development Centre, and a production centre which can be an outlet of the SDC or can be independent in nature; Library and documentation centre; Heritage Museum to maintain a historical legacy of women; a cultural space for women to express their creativity in drawing, painting, dance and music, martial art and other areas of culture. It also has an amphitheatre and a Convention centre, equipped to host 500+ individuals. Women in Sustainable Entrepreneurship (WiSE), a fellowship programme to achieve SDGs, and She Taxi, one of the initiative to encourage women to break

into the driving sector are some other activities. The International Women's Trade Centre is a visionary project of Gender Park towards creating a safe and sustainable environment for the growth of industry, business, trade and a destination cultural centre for women. Building on previous collaborative efforts (strengthened during the International Conference on Gender Equality-1 in 2015), the UN Women has agreed to be equal partners with GP to develop it as a South Asian Gender Hub for all gender related activities covering countries such as Bhutan, Maldives, Sri Lanka and India.

Programmes for the Welfare and Empowerment of Women run by WCD and KSSM

The schemes for the welfare and empowerment of women are being implemented through the Women and Child Department (WCD). The schemes implemented through WCD and Kerala Social Security Mission (KSSM) are listed below.

Pradhan Manthri Mathru Vandana Yojana/Indira Gandhi Matritva Sahyog Yojana

This Centrally Sponsored Scheme (CSS) provides financial assistance to pregnant women and lactating mothers for the first living child. The financial assistance of ₹5,000 is given in three installments. The total number of beneficiaries of the scheme in 2019-20 were 1,80,290.

Snehasparsham

This scheme implemented by KSSM aims to address the problem of unwed mothers. Monthly assistance of ₹2,000 is given to all such mothers. The scheme benefited 2,074 women in 2019-20. Women Development Programme.

This is a major programme of WCD focusing on the implementation of dowry prohibition, protection of women from domestic violence and sexual abuse, rehabilitation of victims including health care and compensation, economic support

to women-headed families and women belonging to BPL families and assistance to low salaried women for self-improvement through capacity building. A major programme being run by the Department is a comprehensive programme on Gender Awareness, reaching out to different population sections to create a gender-conscious society.

Nirbhaya Programme

Nirbhaya programme of Women and Child Department envisages setting up of 'Nirbhaya Homes' (now called Women and Children homes) for sexually abused women. There are 14 shelter homes in the State (except in Pathanamthitta and Kottayam) for protection of victims of sexual abuse. It ensures the protection of sex crime survivors as they are the prime witnesses in prosecution cases and their safety and co-operation are indispensable to ensure the maximum punishment to perpetrators.

One Stop Centre

One Stop Centres (OSCs) are intended to support women affected by violence, in private and public spaces, within the family, community and at the workplace through convergence of services. The OSC scheme will be implemented by States through the Nirbhaya Fund. In 2018-19, 5 one stop centres were functional. In 2019-20, it has been extended to other 9 Districts and Kerala became one of the first States in India to have One Stop centres in all the Districts.

Gender Awareness Programme

Gender awareness aims to promote and encourage a general understanding of gender-related challenges. It also aims to show how values and norms influence our reality, reinforce stereotypes and support the structures that produce inequalities. It plays an important role in informing women and men about gender equality, the benefits of a more gender-equal society and the consequences of gender inequality. Gender awareness intends to

change attitudes, behaviours and beliefs that reinforce inequalities between women and men by providing evidence and arguments on various topics relating to gender equality to increase awareness and knowledge, to foster communication and information exchange, to mobilise communities and society as a whole so as to improve mutual understanding and learning about gender equality. Sadhairyam Munnottu programme is a major component of Gender Awareness programme. The series of night walks was a major milestone in creating awareness towards a society free of gender bias and discrimination. In September 2019, the Women's Development Corporation has launched a scheme called "Bodhyam" for gender sensitisation of civil police officers in all the police stations numbering 523 across the State. Training was conducted in batches of 30 civil police officers each at Police Training College, Thiruvananthapuram and Kerala Police Academy, Thrissur. In 2019-20, the KSWDC completed training of 484 police personnel. This programme is to improve effectiveness of emergency response services for women as well as to create a gender-friendly environment in the State.

Empowerment and Social Welfare of Children

The true measure of a nation's standing is how well it attends to its children – their health and safety, their material security, their education and socialisation and their sense of being loved, valued, and included in the families and societies into which they were born (UNICEF, 2007). Children's well-being is based on healthy individual development, positive relationships and contexts where all children are valued and experience protection, social justice and participation in civil society. Well-being of children is essential for country's development as they constitute the future human resource of the country.

As per Census 2011, the children in the age group 0-18 constitute less than 30 per cent of the State's total population and children in the age group 0-6

is 10.4 per cent of State's population. According to the Sample Registration System (SRS) Report 2019, the under-five mortality in the State is 10 deaths per 1,000 live births. As per the NFHS-4 Report, under-five mortality in Kerala is 7 deaths per 1,000 live births. Kerala has achieved marked improvement in promoting survival, protection, development and participation rights of children in a holistic manner.

Major Programmes on Child Protection, Care and Development

The programmes and schemes related to protection, care and development of children are being implemented by the Department of Women and Child Development and KSSM. The major Acts, policies and programmes in addressing the rights of children are detailed below.

Children's Right to Protection

Child protection means to create a safe and caring environment for all children, free from neglect, violence, abuse and exploitation. Kerala performs much better than other States in protecting children from all kinds of ill-treatment and violence. However, crimes against children continue to show an upward trend, with rising figures for rape and other crimes. Child abuse cases especially incidence of sexual abuse of girl children are on the increase. The growing tendency, especially in adolescence, towards substance abuse, use of alcohol and cyber abuse is another key area of concern. As per the State Crime Records Bureau, 1,137 rape cases were reported in Kerala in 2018; in 2019 it is 1113. The total crimes reported against children in Kerala is 4,253 in 2018 and 4,350 in 2019 an increase of 2% from 2018.

Child Marriage

Child marriage is a violation of child rights. As per the 'Report on India child marriage and teenage pregnancy based on NFHS-4' of the National Commission for Protection of Child Rights (NCPCR), a comparative analysis of child

marriage for 15-19 year old girls as reported in NFHS-3 and NFHS-4 reveals that it has fallen from 6.2 per cent in NFHS-3 to 2.4 per cent in NFHS-4 in Kerala against the national average of 11.9 per cent

Children's Right to Development

Early childhood is the most significant phase of development of a person. Holistic development of children up to 18 years includes all areas of growth-physical, mental, emotional and social development. Kerala has always been at the forefront for promoting the above four domains of child development. However, some lacunae in early childhood care remain. As per the NFHS-4 report, the State shows a high level of immunization coverage, though short of 100 per cent (full immunisation coverage for 12-23 months is 82.1 per cent). Exclusive breastfeeding (first six months of infancy) rates in Kerala show decrease (exclusive breastfeeding among 0-6 months is 56.2 per cent and 53.3 per cent in NFHS-3 and NFHS-4 respectively). Unhealthy feeding practices such as pre-lacteal feeding practice, late initiation of breast milk and bottle feeding practices are noted in several research studies in Kerala. However, in the case of children of age 6-59 months, anaemic rates show an improvement in health status (the rate is 35.7 in NFHS-4 and 44.5 in NFHS-3). A disturbing set of information revealed by the latest NFHS for 2019 - 20 reverses some of these indicators: percentage immunised for instance has declined by 4 percent and anaemia across all age groups has increased in Kerala (The Hindu December 13, 2020)

Children's Right to Survival

Infant mortality and prevalence of low birth weight babies are the two major determinants of child survival. The State's Sustainable Development Goals target for IMR is to reduce it from 12 per 1,000 live births to 8 per 1,000 live births, MMR from 66 to 30 per 1 lakh live births and U5MR from 14 to 9 per 1,000 live births by 2020. Although the State has done well in above

parameters, the prevalence of malnutrition (NFHS-4, around 16.1 per cent children below 5 years are underweight and 19.7 per cent are stunted), anaemia (NFHS-4, 35.7 per cent have anaemia), shortfall in full immunisation (17.9 per cent of children in the State do not get all 5 vaccines in the age 12-23 months) are high in certain Districts of the State, particularly in the tribal population. All of these present a challenge, even more so now with respect to immunisation and anaemia, due to the latest date from NFHS for the Government to achieve the target of SDG.

Children's Right to Participation

Right to participation provides children with an environment to participate in decision-making processes and gives them an opportunity to express their views freely. Kerala's model of Bala Sabha and Bala Panchayat as a neighbourhood network of children under the Kudumbashree for holistic development of children's health has been widely acknowledged.

Protection of Children from Sexual Offences (POCSO) Act, 2012

The Act deals with child abuse and provides protection to children from the offences of sexual assault, sexual harassment and pornography. Steps have been taken in the State for the effective implementation of the Act. 14 'Women and Children Homes' (erstwhile Nirbhaya Homes) have been set up to provide care and protection to children covered by this Act in all Districts. Special Juvenile Police Units are being set up in all Districts. To expedite the trial of cases registered under the Act, Special Courts have already been notified in the courts of Thiruvananthapuram, Ernakulam and Kozhikode for the trial of cases regarding sexual harassment and abuse against women and children. The number of cases registered under POCSO has increased in the State. In 2017, the number of cases registered was 2,697. It increased to 3,175 in 2018 and 3,609 in 2019. 28 POCSO courts have been sanctioned in Kerala by the Central Government Scheme, out of which 17 courts have started functioning.

Kerala State Commission for Protection of Child Rights

The Commission, functioning as a statutory body has the mandate to examine and review the existing laws for the protection of child rights, inquire into cases of violation of child rights, look into factors inhibiting the enjoyment of those rights and suggest remedial measures. In 2019-20, 1,933 complaints were received by the Commission and 1,244 cases were disposed. Of the complaints received, 73 cases are related to the Protection of Children from Sexual Offences (POCSO) Act, 77 cases are related to Right to Education (RTE) Act, 9 cases related to Juvenile Justice (JJ) Act, and the remaining 1,774 were child rights violation.

Adoption Services

There are 17 specialised adoption agencies, functioning in Kerala for helping the State Adoption Resource Agency. During 2013-14 to 2019-20, 994 in-country and 93 inter-country adoptions took place. In 2019-20, 117 children were adopted in Kerala, out of which 62 were females (111 in-country adoptions and 6 inter-country adoptions). Details of adopted children are given in **Appendix 8.3.6**.

Child Line Services

The service focuses on the needs of children living alone on the streets, child labourers, domestic workers, run away children, children of sex workers and sexually abused children. Child line system is a 24-hour toll free telephone service (1,098) for children in distress. The service is now available in 430 cities in India and 14 in Kerala. Childline service would be strengthened further in consultation with NGOs and other voluntary organisations.

Integrated Child Development Services (ICDS)

ICDS, one of the flagship programmes of GoI, aims at early childhood development by

providing an integrated package of services such as Supplementary Nutrition, Immunisation, Health Check-up, Referral Service, Health and Nutrition Education and Pre School education to children less than 6 years along with pregnant and lactating mothers. In 2019-20, 33,115 Anganwadi centres were operational across the State, covering 12.91 lakh beneficiaries under Supplementary Nutrition Programme and 4.11 lakh children in the age group 3-6 years under pre-school education. Of the beneficiaries of SNP, 3.55 lakh were pregnant and lactating women. District-wise coverage is given in **Appendix 8.3.7**.

With State Government support, the LSGIs have initiated various innovative practices under ICDS. To improve nutritional status of children in the tribal areas, Kudumbasree has established production units in Wayanad for micronutrient fortification of Amrutham Nutrimix. To combat severe malnourishment, a community based nutrition rehabilitation programme has been introduced in the Attappady tribal project area with UNICEF support. GIS based Jatak and Janani for monitoring of under 5 year children on real-time basis, through mobile telephony comprising voice file, picture and location is functioning in Attappady, Mananthawady, Devikulam and Iritty. Social Audit was also done in all 33,115 AWCs in the State. Anganwadi Welfare Fund Board is constituted in Kerala for the welfare of Anganwadi Workers and Helpers. The Early Childhood Care and Education (ECCE) Scheme provides early childhood care and education for children of pre-school age through anganwadis.

Integrated Child Protection Scheme

This Centrally Sponsored Scheme provides preventive, statutory care and rehabilitation services to children who are in need of care and protection and children in conflict with law. Child Protection Units, Child Welfare Committees, Special Juvenile Police Units, State Child Protection Society and District Child Protection Units and Juvenile Justice (JJ) Boards have already been established in the State to speed up implementation of the provisions contained

in the JJ Act. The programmes related to various social legislations like Child Marriage Restraint Act, Kerala Beggary Prevention Act, programmes on Child Rights Convention, and adoption related laws are also being implemented under the scheme. Special courts have been started in the State to expedite the trial cases registered under POCSO Act. In implementation of the Shafeeq Committee report, the GoK has issued a 'model' protocol on Balasuraksha detailing with (1) implementation of measures to prevent violence against children (2) identification of cases and intervening early (3) provide care and protection to the victim and (4) preventing reoccurrence of abuse.

Poshan Abhiyan (80 per cent CSS)

This scheme aims to reduce malnourishment from the country in a phased manner through life cycle concepts, adopting a synergised and result-oriented approach using real time monitoring and coordination of various schemes by several departments related to nutrition. A mobile exhibition on nutrition, Float on the importance of first 1,000 days during Onam pageantry and Poshanvani whatsapp based daily information dissemination system are some of the activities undertaken under this scheme. WCD has opened Nutrition Clinics for women and children across the state to improve nutritional levels as part of the Sampushta Keralam project. The clinics will function in ICDS offices in all 152 blocks and six corporations in the state. That this is imperative and very timely is suggested by the not so rosy picture on anemia revealed by the latest NFHS 2019-20 for Kerala. Wasting, stunting and underweight in children under 5 and anemia across all age groups and pregnant women has increased since 2015-16.

Health related Schemes for Children

Cancer Suraksha and Thalolam Schemes for Child Patients

These schemes of KSSM give free treatment through Government approved hospitals to children below 18 years who are suffering from

cancer and life threatening diseases. The Cancer Suraksha Scheme is being implemented through 12 Government hospitals and Thalolam Scheme is being implemented through 18 Government hospitals in the State. In 2019-20, the Cancer Suraksha scheme benefited 7,092 children and the Thalolam scheme benefited 16,507 children.

Cochlear Implantation in Children

The project of KSSM provides cochlear implant to children in the age group of 0-5 years selected by regional and State level technical committees and provides financial support for Auditory Verbal Habilitation (AVH) to operated children through empanelled hospitals. In 2017-18, a new project named 'Dhwani' to provide free speech processor upgradation to the children with implants was launched. While 55 beneficiaries were benefited under Dhwani, the cochlear implantation project assisted a total of 108 children in 2019-20.

Social Support Scheme for Children Affected with Juvenile Diabetes (Mittayi)

The scheme is to provide comprehensive care to the children/adolescents with type-1 diabetes. This endocrine disorder mainly affects children of age group 5-18 years. Awareness about this illness is very little among the public and also among caregivers. Insulin is the only treatment option and frequent monitoring is the only way for good glycemic control. Mittayi clinics have been established in 5 Government Medical Colleges in the State. Project supported 750 children in 2019-20.

First 1,000 Days Programme for Infants in Attappadi

This is a special programme of the WCD for infants in Attappadi focusing on early initiation of breast feeding, timely introduction of complementary foods at six months, hygienic complementary feeding practices and full immunisation and Vitamin A supplementation with de-worming.

Snehapoorvam

Kerala Social Security Mission provides financial support to children who lost both parents or either of them and the other parent is not in a position to look after the child because of financial constraints. The scheme aims to give educational assistance to children up to degree level. HIV/AIDS affected students are also included under this scheme. This programme benefited 31,933 children in 2019-20.

Snehasanthwanam

The scheme, acts as a relief measure to endosulfan victims in the State. The financial assistance under this scheme is being provided to endosulfan victims. It also provides educational assistance to children studying in class I to XII. The number of beneficiaries under the scheme in 2019-20 is 6,619.

Our Responsibility to Children Kerala (ORC)

Our Responsibility to Children (ORC) is an integral project of Integrated Child Protection Scheme (ICPS), under Department of Women and Child Development Department, Kerala. ORC is a school based partnership effort of different Government/Non-Government agencies responsible for protection and development of children such as Departments of Education, Health, Home, LSGD and Civil Society. It aims at better protection and development of children through enhancing life skills, nurturing strengths, addressing vulnerabilities, and promoting mentoring and good parenting. As part of the scheme, Kutty Desk – awareness programme for prevention of Covid-19, Kaliyarangu – creativity of children during vacation period, vegetable kit to financially backward children during lock down period, Chiri – a telecounseling programme, life skill training programme for nodal teachers, 3 series awareness video released to help the parents in engaging of children with disabilities were implemented during April 2020 to August 2020.

Kaval

It is an innovative programme implemented by Women and Child department with technical support from Department of Psychiatric Social Work, NIMHANS, Bengaluru to support children in conflict with law. The psychosocial services provided to children reduces the chance of a child being drawn into anti-social gangs and causing potential harm to society. In 2019-20, 333 children reinitiated their studies, 257 joined vocational training, 78 children were placed in varied jobs after the training, 154 children were educated and sent for de-addiction treatment. 96 children successfully completed de-addiction and 508 children out of the education system were placed in jobs. The project is implemented with the help of collaborating NGOs in the State.

Psycho Social Services for Adolescent Girls

This Scheme of WCD provides counseling and guidance support to adolescent girls. The Psycho Social Counseling Centres were started in 163 selected schools in 2009-10 and now extended to 1,012 schools with the support of Education Department. Full time school counselors were posted in each school for giving counseling and guidance support to children.

GIS Based Mother and Child Health Tracking System in Mananthawadi Block

This is a programme run by WCD for tracking the health status of pregnant women and children in Mananthawady block of Wayanad District with the support of the JATAK and JANANI software applications.

Saranabalyam

Saranabalyam is a project to ensure that State is free from child labour, child begging, trafficking and children on streets with no place to go. It provides emergency services for such children at risk. Rescue officers have been appointed under this project in all the 14 Districts. 203 children were benefited in 2019-20.

VigjanaDeepthi

The scheme provides ₹2,000 per child per month for supporting education. It helps to prevent institutionalisation and restore children in their own homes. 828 children are supported under this programme in 2019-20. As part of deinstitutionalisation about 200 children in various Govt. run children homes are provided education in residential schools. The expenses are met by the department.

Registration of Child Care Institutions in Kerala

In Kerala, 1,154 institutions were functioning under the control of Orphanage Control Board, registered as per the Orphanage Control Act, 1961 and financially assisted through Orphanage Control Board. As per the Government order to register under section 41 of JJ Act, 2015, nearly 817 including Government institutions have been registered under this Act.

Mangalya

This scheme provides financial assistance of ₹25,000 to widows for their re-marriage. In 2019-20, assistance was given to 235 beneficiaries. Abhayakiranam, Sahayahastham, One Day Home Abhayakiranam is for providing a safe and better living environment to destitute and homeless widows. Close relatives who provide protection and shelter to the above will be given monthly assistance of ₹1,000. 779 beneficiaries were given financial assistance in 2019-20. Sahayahastham provides financial assistance to widows for self-employment. 131 widows were benefited in 2019-20. One Day Home provides accommodation and food at a reasonable rate for women who come to the city alone for various purposes. The One Day Home is at the 8th floor of KSRTC building in Thiruvananthapuram city and this project is a joint venture of Thiruvananthapuram corporation and Women and Child Development Department.

Aswasanidhi

This scheme provides financial support to victims of sex crimes and heinous gender based violence, domestic violence and acid attacks, as an interim relief. Aswasanidhi victim compensation fund was released to 84 beneficiaries in 2019-20.

Social security and Welfare – Covid-19 activities

The senior citizens, persons with disabilities, transgenders, women, and children are the sections of population which need to be provided with special care and attention during the period of Covid19 pandemic and associated lockdown. Social Justice Department (SJD) and Women and Child Development Department (WCD) have 73 welfare institutions and 2 vocational training centres functioning under it. These institutions include Old age homes, Asha Bhavan, Pratheeksha Bhavan, Prathyasa Bhavan, Vocational Training Centre and After Care Home for Adolescents, Nirbhaya shelter homes (renamed as Women and Children Homes) foundling homes (homes for abandoned children), and assisted living homes for children with intellectual disabilities.

At the outbreak of the Covid-19 pandemic in the State, the Departments took precautionary measures based on the guidelines issued by the Government. Restrictions were put in place with respect to the visitor in all welfare institutions. The welfare institutions usually receive support from the society and relatives. The pandemic has however affected the inflow of assistance to these institutions; however, the Department undertook measures to assist all the sections of population under its mandate.

Support to Elderly: Senior citizens are the most vulnerable group of population and hence they need special care and attention during the pandemic. Senior citizens who have been quarantined in their houses are prone to physical, mental stress as well as emotional problems. Psychosocial counselling is being given to such elderly persons to cope up with such problems.

Vayomithram, a scheme implemented by KSSM for elderly in corporations, municipalities and certain block panchayat, provided medicines, and necessary services to its beneficiaries through its mobile unit consisting of a doctor, staff nurses, Junior Public Health Nurse (JPHN), and coordinator.

Food and shelter: Department of Social Justice in association with Food and Civil Supplies Department supplied free ration to all welfare institutions. Fresh garden vegetables were also supplied through Horticulture Corporation. The Department provided food kits to 1,000 Transgender persons and arranged shelter for transgender persons who are in crisis and those who lost their residence due to lockdown.

Support to disabled, destitute, and others: Guidelines were issued to the parents of children with disabilities and students with disabilities to be within their homes. In view of the Covid-19 outbreak, interactive sessions, therapies, and activities are being provided online through Community Disability Management and Rehabilitation Project of National Institute of Speech and Hearing(NISH), State Nodal Agency Centre(SNAC), and Local level Committee(LLC), Essential medicines were supplied to 90 families as part of Pariraksha scheme, 22 families were given direct counselling and 242 families were provided online counselling sessions. District Social Justice Officers rehabilitated 2,326 destitute persons and street dwellers in the temporary shelter homes in association with LSGs. NISH started 24x7 helpline for persons with hearing impairments. Therapies as well as counselling sessions were provided.

ICDS supplementary foods delivered to homes: Due to the outbreak of Covid-19, as a preventive measure, the anganwadis are closed. During the period from March 11, 2020 to September 30, 2020, 517841 children under 3 years and 444175 children in the age group of 3-6 years are given food by Take Home Ration scheme as part of Supplementary Nutrition Programme. Accordingly, food items ensured

for a total of 962016 children in the above two categories. Anganwadi workers delivered THR at the doorsteps of all beneficiaries. Amrutham Nutrimix is given to children of 0 to 3 years and Rice, Green gram, Broken wheat are given to children of 3-6 years.

Anganwadi workers conducted follow up of quarantined persons and ensured support in association with health department and LSGD. They also conducted a survey of around 44 lakh elderly via phone and the data was shared with various departments for follow ups and intervention. Anganwadi workers interacted with each and every beneficiary of their survey area through telephones and conducted regular follow up interactions. Initiative was taken to supply 150 ml flavoured, sweetened, Vitamin A and D fortified milk to pregnant women, lactating mothers, and children who are the beneficiaries of Anganwadies in all the districts of Kerala.

Women Protection: A 24 hour Whatsapp/SMS helpline number '9400080292' was initiated by the department with the support of National Service Scheme technical cell to enable people to report cases related to domestic violence, safety of women and children during lockdown period. Residential facility in KSWDC's Working women's hostels was extended to 41 female health care workers engaged in care giving for Covid-19 affected persons.

Psychosocial support: 1050 counsellors (School counsellors/ICPS counsellors/Family counsellors) were assigned to work with health department

Support to children: To keep the children engaged in constructive activities by promoting their creative skills and to deal with the pressure of lock down, ICPS conducted a contest, titled "login to sargalayam" among CCIs in the State from April 15 to May 15. Online counselling training was held for all the counsellors in DCPUs and in the government. CCIs in the State are supporting children by focusing on online safety and child sex abuse, providing messages related to Covid-19 prevention, stress management, and

counselling techniques- dos and don'ts with the help of UNICEF.

Break the Chain Campaign: A pioneering initiative of KSSM for creating awareness regarding the Covid protocol and enabling supplies of preventive equipment (sanitisers, masks and PPE): Kerala Social Security Mission (KSSM) distributed 12,000 litres of sanitisers across the State as per the request from district collectors and also considering the need in hot spots and other red zones. 1 lakh reusable face masks made of cloth were manufactured in bulk with the help of Department of Prisons and distributed across the State through coordinators of KSSM. KSWDC facilitated CSR funds worth Rs. 10 lakhs from NBCFDC and NSFDC for procurement and supply of 800 PPE kits (consisting of gown, goggles, gloves, N95 mask, and shoe cover) to doctors, nurses and health workers treating Covid-19 affected persons.

Financial Assistance: Pension for caregivers of bedridden people and those intellectually disabled provided under Ashwasakiranam scheme was provided to 1,14,188 beneficiaries by KSSM. Three months pending assistance was released by KSSM to 8172 beneficiaries under Samashwasam scheme.

KSSM released five months pending salary to care providers for inmates of welfare institutions under Social Justice Department and six months pending salary for those working under WCD. Assistance was also released to 4917 beneficiaries of the comprehensive scheme for endosulphan victims and 813 caregivers of endosulphan victims.

Welfare of Ex-Servicemen and War Widows

The Department of Sainik Welfare is looking after the welfare and rehabilitation of ex-servicemen and their dependents. The department intends to train the ex-servicemen and widows for competitive examinations for re-employment and self-employment. Rehabilitation training on vocational/professional/technical courses

for equipping the ex-service men/war widows and their dependents is a major programme. In 2019-20, Kerala State Ex-Servicemen Development and Rehabilitation Corporation (KEXCON) has started two Uniforms and Garments manufacturing unit in Thiruvananthapuram and one in Thalassery. A total of 15 women and 3 men have been given employment in these units. 1,500 face masks were supplied free of cost to ASHA workers engaged in Covid duties. Solar Energy Project has also been started.

Hunger Free City Scheme

The scheme is to provide free food at least once in a day to those who reach cities and are in need of food. Kozhikode is the first city to introduce this scheme. The scheme is implemented in Kozhikode Medical College Hospital, District Homoeo hospital, Malappuram, Medical College and SAT hospital, Thiruvananthapuram, District and taluk hospitals, Kollam and Government General Hospital. The number of beneficiaries under this scheme in 2019-20 were 6,07,403.

Outlook

In any society no individual is so capable of and versatile as to satisfy all his / her needs. Every one is dependent upon others for the fulfilment of some or other needs, and many on social provisioning. Social security is beyond a social insurance programme providing social protection, or protection against socially recognised conditions, including poverty, old age, disability, unemployment and others. Effective and efficient social security systems are the key factors to long term social and economic development. Strong and well governed organisations are vital for social security's credibility and sustainability. The Government aims to strengthen the social protection systems in the State and expand its coverage to ensure that those who are in need of assistance are not excluded. More efforts are necessary to ensure that the right to social security becomes a reality for all.

CHAPTER

09

ART, CULTURE
AND SPORTS

ART, CULTURE AND SPORTS

9.1 ART AND CULTURE

Kerala is known as a land of arts and festivals. It has a great tradition of a variety of art forms. Historically, the Tamil-Dravidian culture and the Aryan-Indian culture were important influences on the culture of Kerala. The influences are clearly felt in the multiple realms of its culture including its art forms, crafts, languages history, festivals, martial arts, dress, and other things. The long contact with foreign cultures via trade and other connections has also remained an important factor in shaping its culture. The people of different religion, races, and communities influence the growth of a diversified culture. The cultural variety of Kerala was also developed by its unique geographical features as it lies between the Arabian Sea and the Western Ghats effecting a mix of tribal and coastal cultures.

Kerala has a number of unique performing arts. They are Koodiyattam, Kathakali, Kummattikali, Kannyarkali, Mohiniyattam, Thullal, Thirayattam, Padayani, Koothu, Keralanatanam, and so on. The folk arts of Thiruvathirakali, Parichamuttukali, Kalaripayattu, Oppana, Kolkali, and Margamkali are famous. Besides these, the folk and ritual arts like Kalamezhuthu, Sarpamthullal, Theyyam, and Velakali, and the art forms of tribals also provide the art lovers both oral and visual delight. Kathakali is a three-hundred-year-old dance form that combines major aspects of

opera, ballet, masque, and pantomime art forms. The popularity of its art forms – for example, Kathakali and Mohiniyattam – has long brought scholars and visitors to the State.

Government of Kerala has provided support for the upliftment of many institutions in the State to promote and propagate its cultural heritage. They include academic institutions for the performing arts and the institutions for the promotion of art and culture. Financial assistance to this sector is mainly provided through the Directorate of Culture.

The major implementing departments in this field are

- The Directorate of Culture
- Department of Cultural Affairs
- Department of Archaeology
- Department of Archives
- Department of Museum and Zoos
- Kerala State Film Development Corporation

Important institutions coming under the Department of Cultural Affairs include

- The Kerala State Chalachitra Academy
- Kerala Folklore Academy
- Kerala Sahitya Academy
- Kerala Sangeetha Nataka Academy

- Kerala Lalitha Kala Academy
- Margi
- Bharath Bhavan
- Kumaranasan National Institute of Culture
- Vasthuvidya Gurukulam
- Kerala Kalamandalam
- Vyloppilli Samskrithi Bhavan
- Guru Gopinath NatanaGramam
- Jawahar Balabhavan
- State Institute of Languages
- Kerala Book Marketing Society

Department of Archaeology

There are 12 archaeological museums and 180 protected monuments under the Archaeology Department. One of the major achievements of the Department is the establishment of District Heritage Museums. The work of the District Heritage Museum at Thrissur has been completed and the museum has been opened to the public. Major works done by the Department are the following:

- Construction of Paalppuramalika and cloak room in Padmanabhapuram Palace
- Protection activities of Chandragirikotta
- Protection and developmental activities of Krishnapuram Palace
- Protection activities of Kunjali Marakkar
- Protection activities of EttuKettu and Kalappura in Ernakulam Hill Palace Museum
- The arrangement and renovation works of Heritage Museum- Ernakulam
- Activities to protect Sree Paadam Kottaram
- Developmental activities of Idukki Museum
- Protection development and documentation of Numismatic wing
- Activities (protection of records by using chemicals) of regional conservation lab and mobile conservation unit

The main activities of the Department are exploration and excavation and related academic programmes and to make the public aware about archaeological activities and its importance. Preparation of digital geo mapping is being done by INVIS.

Department of Archives

Archives Department is the custodian of all non-current records of permanent value belonging to the State Government and its various departments, institutions, and individuals. As the custodian of records of historical value, such as Government records, palm leaf and manuscripts, the Department conserves such documents and protects them scientifically so that they are preserved for reference purposes.

In 2020-21, the major achievements and performance of the department are:

- Digitisation of Palm Leaf Records and paper records: Department has digitised 56 palm leaf records and 3,35,500 paper records through C-DIT.
- Digitisation of Cabinet Records: 25 per cent work has been completed.
- Publication of Archival Records: Department had constituted Editorial Committee for the selection of records and published a book titled 'Bharanabhasha Adisthana Rekhakal'
- Setting up of International Archives and Heritage Centre: For the setting up of International Archives and Heritage Centre at Karyavattom University Campus, Thiruvananthapuram, Memorandum of Understanding has been signed with University of Kerala. This project will be executed through Kerala Museum.
- Setting up of Palm Leaf Museum: Memorandum of Understanding has been signed with the Kerala Museum for the setting up of Palm Leaf Museum. Preliminary works connected with the setting up of the Museum have also been started.
- Setting up of Idukki District Heritage Centre and Archival Gallery: For the acquisition and conservation of the archival documents from Idukki District, the Department has a District Heritage Centre at Idukki and steps have been taken to set up an Archival Gallery there.
- Publication of Records: Department aims to publish the following three books in 2020-21.
 - i. Mathilakom Rekhakalude Sabdakosam (Glossary of Mathilakom Records)

- ii. Selected speeches of Freedom Fighters (Volume IV)
- iii. Evolution of healthcare system in Travancore.

Directorate of Culture

The Directorate was formed for effectively co-ordinating and regulating the activities of all the art, literary and cultural institutions, which were functioning under various departments. The Directorate is also entrusted with the task of distribution of financial assistance and award amount to persons of art and letters, pension to indigent artists, widows of renowned artists and writers and employees of various cultural institutions and academies. Achievements of various schemes of the Directorate in 2020-21 are given below.

i. Renaissance Cultural Complexes

Construction of elaborate cultural complexes in all the 14 districts is one of the major projects undertaken by the Department. The project is being implemented with the financial assistance of the Kerala Infrastructure Investment Fund Board (KIIFB). The mega cultural complexes would be built on vast extent of land ranging

from 3.5 to 5 acre, and would have facilities such as large performing spaces like an auditorium, black box theatres, video halls, open air theatres, seminar halls, work spaces for sculptors, artisans, galleries, exhibition halls and libraries. Each cultural complex would be built at a cost of ₹50 crore. These complexes would be named after prominent renaissance leaders of Kerala (**Table 9.1.1**).

The construction of the cultural complexes is under way in Kollam, Palakkad and Kasaragod districts. Suitable land for the projects was identified in Malappuram, Kozhikode, Thrissur, Kannur, Kottayam, and Alappuzha districts and the land transfer process in these districts are progressing.

ii. Diamond Jubilee Fellowship for Young Artists

This scheme has twin objectives of encouraging young artists on the one hand and promoting local cultural development on the other. Under this scheme, Diamond Jubilee Fellowships are issued to 1,000 young artists graduating from recognised institutions in the State. The State Government will ensure a monthly fellowship of ₹10,000 to the awardees. The fellowship

Table 9.1.1 Renaissance Museums

Sl. No	Name of District	Name of prominent renaissance leaders
1	Thiruvananthapuram	Sri. Ayyankali
2	Kollam	Sri. Sree Narayana Guru
3	Pathanamthitta	Sri. Chattambi Swami
4	Alappuzha	Sri. P. Krishna Pillai
5	Kottayam	Smt. Lalithambika Antharjanam
6	Ernakulam	Sri. Sahodaran Ayyappan
7	Idukki	Smt. Akkamma Cheriyan
8	Thrissur	Sri. Vallathol Narayana Menon
9	Palakkad	Sri. V.T. Bhattathirippad
10	Malappuram	Sri. Abdul Rahman Sahib
11	Kozhikode	Sri. Vaikom Muhammed Basheer
12	Wayanad	Sri. Sri Idachena Kunkan
13	Kannur	Sri. Vagbhatanandan
14	Kasaragod	Sri. Subrahmanian Thirumunpu

Source: Directorate of Culture

will be operational when a local host who undertakes to provide local hospitality to the fellowship holder is identified. This programme is implemented through the cooperation of local bodies. There are 1,000 young artists included in this programme with different art forms. For co-ordinating and monitoring the activities of fellowship artists in each District, co-ordinators have been appointed in all 14 Districts.

In addition to the fellowship amount of ₹10,000 being given to the artists by the Culture Department, the LSGIs are paying ₹5,000 to the artists as their share of the fellowship. This has also proved to be a successful attempt at the promotion and preservation of the unique art and culture of the State.

The social commitment of the Diamond Jubilee Fellowship artists was on a spectacular display during the current Covid pandemic days. The artists have been at the forefront spreading messages of safety and social distancing. They have restlessly worked through the medium of art and performing theatre and spread the message of how to ward off the Coronavirus. The artists in all the clusters launched online art tutorials keeping in line with the Covid protocol.

iii. Diffusion of Culture

The scheme envisages promotion of awareness on the rich cultural heritage of Kerala and strengthens the cultural forms of Kerala. The outlay provided is for the updation of already created website touching upon the various aspects of Kerala Culture, development of a cultural map for the tangible and intangible heritage of Kerala, spreading awareness on Kerala culture, creating conservation awareness programmes among the public, conducting national and international cultural exchange programmes, workshops and seminars, paithurkolsavam, and augmented videos.

Diffusion of culture programmes were conducted in Telangana, New Delhi and Chennai and at Riyadh in Saudi Arabia. Directorate of Culture has published the art, sculptors and painting through

website in four languages. Above 2000 pictures were uploaded in the website. Besides that, Directorate of Culture has uploaded the video details of arts, crafts and heritage villages of the 14 districts in Kerala.

iv. Rural Art Hubs

The Directorate of Culture has formulated a scheme 'Rural Art Hub' or the Craftsmen's Livelihood scheme for ensuring sustained livelihood for the traditional artists and craftsmen or women of the State. The scheme was implemented in the selected 20 heritage villages in Kerala. The details of the heritage villages are given in **Table 9.1.2**.

v. Nattarangu

The scheme is envisaged to set up small performing space in the rural and small-town areas where there is no public space suitable for art and culture activities. Under the scheme an open stage with a green room, garden benches and solar lights would be set up along public pathways without obstructing traffic. The public place available elsewhere also would be considered for construction of Nattarangu. The estimated cost of one Nattarangu is ₹20 lakh. The Nattarangu spaces at Vadakkamchery, in Palakkad District and Chengannur in Alappuzha District have been opened to the public.

vi. Covid Assistance Scheme

The Directorate of Culture has formulated a scheme envisaged to help the artists who have lost their livelihood because of the restrictions imposed under the Covid pandemic. An amount of ₹1000 per month has been distributed for a period of two months to 32,000 artists. Applications for the Covid financial assistance have been received through the Kerala Sangeetha Nataka Academy, Lalithakala Academy, Sahithya Academy, Chalachithra Academy, and Folklore Academy. An amount of ₹640 lakh has been expended towards distribution of the financial assistance.

Table 9.1.2 The Heritage Villages under Rural Art Hub and their products

Sl.No	Heritage villages and District	Product
1	Balaramapuram, Thiruvananthapuram	Handloom/Weaving
2	Muttathara and Vellar, Thiruvananthapuram	Wood craft
3	Aryanad, Thiruvananthapuram	Wood craft
4	Thazhava, Kollam	Screw-pine mat
5	Aranmula, Pathanamthitta	Metal mirror
6	Mannar, Alappuzha	Bell metal
7	Cherthala, Alappuzha	Coir mat
8	Vadayar, Kottayam	Pottery
9	Chendamangalam, Ernakulam	Handloom
10	Thekadi-Kumuli, Idukki	Bamboo and Cane craft
11	Cherpu, Thrissur	Wood craft
12	Kuthampully, Thrissur	Handloom
13	Elavally, Thrissur	Pooram craft
14	Peruvemba, Palakkad	Percussion Musicals and Handloom
15	Vellinezhi, Palakkad	Kathakali headgear
16	Aruvakode, Malappuram	Pottery
17	Beyypore, Kozhikode	Uru making
18	Thrikkaipetta, Wayanad	Bamboo and cane craft
19	Payyannur, Kannur	Theyyam craft
20	Thalamkara, Kasaragod	Hand woven prayer caps

Source: Directorate of Culture

Directorate of Museums and Zoos

The Directorate has its Head Office, Museums and Galleries, Zoological Park in Thiruvananthapuram City, Art Gallery and Krishna Menon Museum in Kozhikode, State museum and Zoo in Thrissur and Heritage museum in Kukichira (Wayanad). These institutions are functioning as major centres of tourist attraction. Major achievements of the Department include the following.

- Construction of Butterfly Park in Thiruvananthapuram Zoo
- Construction of Aquarium in State Museum and Zoo, Thrissur
- Paving granite slabs in Zoo Store, Thiruvananthapuram
- Repair works in Tiger enclosure in State Museum and Zoo, Thrissur
- Installation of Public Address system in Art Gallery and Krishna Menon Museum, Kozhikode

- Conservation of painting displayed in the KCS Paniker Gallery

Kerala Kalamandalam

Poet laureate Vallathol Narayana Menon founded Kerala Kalamandalam in 1930 for the preservation and promotion of Kerala's traditional performing arts such as Kathakali, Mohiniyattam, Koodiyattam and Thullal and their music-vocal and instrumental versions. Kerala Kalamandalam, which is a centre for promoting the traditional art forms of Kerala attained the status of a Deemed University in 2007 which necessitates higher level of artistic and academic activities.

Kerala State Chalachitra Academy

The Kerala State Chalachitra Academy was established in 1998 with the aim of promoting good cinema in Malayalam. The Academy helps

the Government in formulating policies regarding Cinema and Television. Three film festivals namely, International Film Festival of Kerala, National Film Festival of Kerala, International Documentary and Short Film Festival of Kerala are the main festival organised by Kerala State Chalachitra Academy.

Kerala Chalachitra Academy has organised an online film festival Docuscape IDSFFK from August 21 to 28 during the days of Covid-19. Judgement of short film screen play completion has been done and the magazine of the academy "Sameeksha" is being published. A series of webinars were also conducted during this lockdown period.

Malayalam Mission

Malayalam Mission was started in 2009, with the aim to acquaint the children of Non Resident Keralites with Kerala culture and Malayalam language. One of the main objectives of Malayalam Mission is to institute, supervise and co-ordinate Malayalam study centres in various parts of India and abroad with the co-operation of non-resident Malayalees across the world. 'Wherever there are Malayalees, there is Malayalam' is the slogan of the Mission.

Major Programmes/Achievements under Malayalam Mission

- **Expansion:** Malayalam Mission has centres in 24 States and 42 foreign countries. 44,000 students are studying in these centres and 4,000 teachers handle the Malayalam mission class.
- **Library:** Malayalam mission has provided the facility of 300 libraries at two stages.
- **Bhasha Prathibha Puraskaram:** It is a tribute for the technical and language friendly contributions to Malayalam language. A prize money of ₹ 50,000 along with certificate and momentum is given to such personalities.
- **Radio Malayalam:** About 5 lakh people listen to the programme. The Chief Minister of Kerala, Sri. Pinarayi Vijayan, inaugurated the programme on February 21, 2020.
- **Neelakurunji** – Tenth Level equivalent certificate: Government of Kerala has approved the scheme Neelakurunji as equalent to the Tenth standard.
- **Pookalam web magazine:** Started in 2017, the programme is to support the students in their academic endeavours.
- **Souvenir shop:** Established for the propagation of Malayalam language and literature through printed items like cups, T-shirts, bags and masks.
- **Malayalam open online course:** This programme was started on January 7, 2019, with the intention to provide education to all at home.
- **Massive open and study festivals:** The programme is conducted on the first of June of every year.
- **Malayanma 2020:** World Mother Tongue day is observed on February 21 every year. On this occasion Malayalam Mission distributes the prizes of the Malayala Bhasha Prathibha Puraskaram and World-Kerala literature and recognises selected 120 teachers.
- **Textbook modification:** Text books of Neelakurunji and Ambal have been modified and preparation of text books for the course 'Kanikonna' is in progress.
- **Signature Film:** A film was made on the basis of the slogan 'Where ever there are Malayalees, there is Malayalam'. It was exhibited on January 2, 2020, at Sankaranarayanan Thambi Hall, Legislative Assembly, Thiruvananthapuram.
- **Youtube channel:** A Youtube channel was started for taking the programmes of Malayalam Mission to an estimated audience of 10 crore people.
- **Cultural transmission feast:** Malayalam mission study centres of Chennai, Saudi Arabia, Delhi and Telangana chapters conducted cultural transmission fest.
- **Study materials kit distribution:** Study materials were distributed to the selected 200 study centres where the students informed their willingness to study mother tongue Malayalam.

- **Changathikkudukka:** Malayalam mission students collected an amount of ₹ 28.5 lakh and contributed to the Chief Minister's Disaster Management Fund for the flood affected people.
- **Covid-19 activities:** Started helpdesks for helping the Non Resident Malayalees for their travel by providing medical assistance and food kits.

Margi

Margi, an institution for teaching Kathakali, started functioning in the year 1970 and is a cultural centre for promoting Kathakali, Koodiyattam and Nangiarkoothu. The institution functions as a 'Kaliyogam' (training cum performing group). Margi gives free training in Kathakalivesham, Sangeetham, Chenda, and maddalam to school students on Saturdays and Sundays. Koodiyattom section functions in collaboration with central Sangeetha Nataka Academy. Seminars and classes are conducted for the promotion of Koodiyattom. The Kerala Kalamandalam Deemed University of Art and Culture has recognised Margi as a 'resource centre' for research scholars in Koodiyattam. Margi has been empanelled by the Indian Council for Cultural Relations, GoI as an institution for training foreign students.

Kerala Lalithakala Academy

The Kerala Lalithakala Academy conducts programmes for promoting the talent of artists especially painters and sculptors. It gives assistance to artists for organising exhibitions and provides scholarships to students of fine arts.

During the period of Covid-19 lockdown, Kerala Lalithakala Academy conducted online painting competition for children belonging to LP, UP, High School and Higher Secondary level. A four-member judging panel selected the best works. An online art gallery has been put in place and inaugurated on August 20, 2020 for exhibiting the paintings of the academy and the works of contemporary artists.

Kumaranasan National Institute of Culture

Kumaranasan National Institute of Culture was founded in 1958 to establish an appropriate memorial for this great poet and social reformer, who was in the forefront of Kerala renaissance movement. The main aim of this institute is to propagate the ideas and literary works of Kumaranasan across the world, protect the cultural heritage of India, organise university level academic programmes and promote research on diversity of Indian culture. Asia's largest museum of mural art is situated here. The museum showcases paintings based on poems of Asan, such as Veenapoovu, Leela, Chinthavishtayaya Seetha, Chandalabhikshuki, Duravastha and Karuna.

Kerala State Jawahar Balabhavan

Jawahar Balabhavans are institutions functioning at the State and national levels to develop and encourage the creative talents of children in the areas of art, literature, culture and science. The Kerala State Jawahar Balabhavan is located near Kanakakunnu Palace at Thiruvananthapuram. There are also District Balabhavans at Kollam, Alappuzha, Kottayam and Thrissur. In 2019, Balabhavan nursery wing was modernised with enhanced amenities.

Bharath Bhavan

Live telecast of cultural programmes commenced on April 29 in the Facebook pages. An online programme named 'Chirasmarana' was also organised by Bharath Bhavan on August 6 in commemoration of the artist Bharath Murali. In collaboration with Culture Department and South Zone Culture Centre, Bharath Bhavan organised new media visual Cultural fest 'Maveli Malayalam' during the Onam season from August 22 to August 31, 2020.

Guru Gopinath Natana Gramam, Vattiyoorkkavu

Guru Gopinath Natana Gramam was established as a centre for learning, training and research in various Indian dance forms. The institution conducts dance and musical instrument classes for children. Seminars on dance forms of Kerala are also conducted regularly.

State Central Library

The State Central Library is one of the oldest libraries in India. It is the first one of its kind in the nation which is fully computerised and has latest Radio Frequency Identification System and digital wing. There is also a facility to renew books online by the members. At present the State Central Library, Thiruvananthapuram has more than 96,500 members and a collection of around 5 lakh books on various subjects. A separate block has been opened for children to cultivate reading habits. The block is in a new heritage model building. A well-furnished reference and information centre is functioning in the library. Rare and precious old books, back volumes of journals and dailies are also kept in the closed reference section for reference. Library has a digital collection in searchable format of nearly 1,200 books, including English and Malayalam books. The digital library of Kerala Government Gazettes from 1903 onwards is also available on the website.

The most important activity of the State Central Library is the Summer School. This is a one month summer vacation camp. It caters to more than 600 school children in summer vacation time every year. The summer school is conducted as a day camp inside Central Library Campus. The children are exposed to all fields of life. There will be literary fest, music, dance programmes and sports. Children get opportunity to interact with dignitaries from various fields like Film, Sports, Literature and Politics.

Kerala State Library Council

The Kerala State Library takes up activities mentioned in the Kerala Public Libraries Act, 1989 and other activities of social importance. Universalisation of library service, facilitation of modern amenities for acquisition of knowledge, improving educational standard of low achieving students, special library service for women, children, aged and prisoners are the main activities of the Library Council. These activities make them mentally strong. Kerala State Library Council provides its services through the following institutions. They are:

- **Model village libraries:** Libraries are functioning as an exchange place of socio-cultural centre of an area. In Kerala all the 14 districts have Model Village Libraries.
- **Academic Study Centre:** It was formed on the idea that public libraries are the universities of a rural area. It will be useful to all people in that area especially students, teachers and research scholars. The Academic study centres are functioning in all 14 districts in Kerala.
- **Jail Library Service:** The main objective of the jail library service is for the enjoyment and mental well being of the inmates. It was started also with the expectation that the reading habit may transform the victim to some extent.
- **Children Home Library Service:** 5 Juvenile Home libraries are functioning in the State for the welfare of the inmates of the juvenile homes.
- **Hospital Library Service:** Library Services were established in 7 hospitals mainly for the long-term treatment patients and the employees of the hospital for their relaxation.
- **Orphanage Library Service:** 4 orphanage Library Services are functioning in Kerala to enrich the reading capacity of the students.
- **Hermitage Library:** It is functioning for the welfare of the inmates of the government owned old age homes.
- **Computerisation of Libraries:** The scheme intends to computerise and provide internet

- connectivity in 1,000 rural libraries in Kerala.
- **Setting up of Film Club:** The scheme intends to propagate religious and communal harmony in the society.
 - **Braille-hearing Library:** Three Braille-hearing Libraries were set up in Kerala at Thiruvananthapuram, Malappuram and Kasaragod Districts.
 - **Digital Library:** Kozhikode District is selected for setting up of the Digital Library.

The preparations of Sarvavijnanakosam Volume 18, Malayala Sahithya Vijnanakosam, and Niyamavijnanakosam are in progress.

State Institute of Encyclopaedic Publication

The State institute of Encyclopaedic Publication is an institution established for publishing Encyclopaedias and other similar reference books in Malayalam language keeping a high standard comparable to that of renowned Encyclopaedias like 'Encyclopaedia Britannica' and 'Americana'. The first effort for preparing an Encyclopaedia in Malayalam at Government level began in the year 1961 when a new department by name 'Malayalam Encyclopaedia Department' was formed under the Higher Education Department. The scheme was to prepare and publish an encyclopaedia in ten volumes. Subsequently the scope and overall framework of the scheme was widened, incorporating about thirty thousand titles in 20 volumes on the mode of Encyclopaedia Britannica. In 1976, the Malayalam Encyclopaedia Department was reconstituted into an autonomous institution named 'The State Institute of Encyclopaedic Publication'.

The Institute has so far published Seventeen volumes of the General Encyclopaedia, Ten volumes of the Encyclopaedia on World Literature, one volume of Encyclopaedia on Environment and Evolution of Astronomy each. Three volumes of the General Encyclopaedia still remain to be published. Ten volumes of the revised General Encyclopaedia have also been published. A web repository project namely, Knowledge Web Repository Pilot Project (KWRP) with the financial assistance of Department of Electronics and Information Technology (DeITY), New Delhi, was launched in July 2016.

9.2 SPORTS AND YOUTH AFFAIRS

“Sport is increasingly recognised as an important tool in helping the United Nations achieve its objectives, in particular the Millennium Development Goals. By including sport in development and peace programmes in a more systematic way, the United Nations can make full use of this cost-efficient tool to help us create a better world.” (Ban Ki-moon, United Nations Former Secretary-General)

India, the second most populous country in the world has a good potential to use its human resource in the field of sports. As per Census 2011, youth (age group 15 – 29 years) constitute about 34.3 per cent of the total population of India. A nation’s ability and potential for growth is determined by the size of the youth population. Youth show a strong passion, motivation and will power which also make them the most valuable human resource for enhancing the economic, cultural, and political development of the nation. Though Government of India spends a huge amount for encouraging sports, the country has won only 28 medals in Olympics so far. India’s performance in the international events points out to the need for more focused and scientific efforts in this field.

Kerala has been the frontrunner in many aspects related to sports such as first State to enact a law in sports, to integrate sports into educational curriculum, to appoint sports commission, to grant permission to Local Self Governments to utilise plan fund for establishing sports

infrastructure, and to have democratically elected sports council; it is no wonder why Kerala is already on the world map in the arena of sports. Today, talented youngsters from Kerala are proving their mettle at both national and international levels in a wide spectrum of different sports ranging from athletics and volleyball to cricket.

In terms of sports infrastructure, Kerala stands ahead. The Government of Kerala has recently taken several initiatives for the development of sports infrastructure in the State. The Directorate of Sports and Youth Affairs has taken up various works to create and upgrade facilities by optimising the usage of land and by making the facilities more adaptable to multiple sports disciplines. Development of sports and games in the State depends on the development of proper and quality infrastructure for sports.

Sports Institutions in Kerala under Government

Government of Kerala has provided financial assistance to the sports related institutions which will help a large number of sports personalities and youths in our State to perform better. Major institutions coming under the sector are:

1. Directorate of Sports and Youth Affairs
2. Kerala State Sports Council
3. Kerala State Youth Welfare Board
4. Kerala State Youth Commission

1. Directorate of Sports and Youth Affairs

Directorate of Sports and Youth Affairs (DSYA), established in 1986, has played a leading role in the development and promotion of sports and games in Kerala. Its activities cover promotion and development of sports and games in the State by providing appropriate and good quality infrastructure, imparting awareness among public on the importance of sports, providing facilities for training and grooming of sports persons to achieve international standards. Besides this, DSYA takes up activities to bring in latest technologies and innovations in sports to provide and augment the competitive skills of sports persons from Kerala.

Rajiv Gandhi Sports Medicine Centre

The Rajiv Gandhi Sports Medicine Centre (RGSMC) was established in 1992 by the Directorate of Sports and Youth Affairs. It is currently the only Sports Medicine Centre serving the medical needs of athletes in the State. The Centre provides outpatient care on all Government working days from 9.00 a.m. to 1.00 p.m. free of cost to patients. RGSMC conducted awareness workshops, seminars, and symposiums on anti-doping, sports nutrition, sports psychology, sports counselling and other related topics in sports medicine. In 2019-20, an amount of ₹5,92,450 has been utilised for the distribution of medicines.

Special Projects of Directorate

Kick-off: Football is one of the popular disciplines in Kerala. This programme is intended to sharpen the football playing ability of children. The Kick-off scheme is a grassroots training programme which aims to bring up talented children from suburban, rural, tribal and other vulnerable areas by catching them young. In 2018-19, the scheme was implemented in 19 centres across the State; 18 centres are for boys and one centre is for girls. In addition to continuing the programme in the 19 centres

in 2018-19, the programme is expanded to 14 more centres exclusively for girls. Now, of the total 33 centres across the State, 15 centres are exclusively for training girls.

Splash: This programme is intended to improve the ability of swimming of the children between the age group 8-18. The scheme has been implemented in five districts (Kasaragod, Wayanad, Palakkad, Thrissur, and Idukki) since 2019.

Hoops: Grass Root Basketball Programme: This programme is intended to propagate and promote the concept of 'Play for Health'. The objective of the programme is to build a healthy, vibrant, and responsible society, and to create a vibrant and prosperous future for the country. This scheme has been launched in 10 schools in 5 districts in the financial year 2019-20. The aim is to extend the programme to all the schools in the State. The target group will be young students in Kerala.

Sprint: Grass Root Training Programme for Athletics: Athletics is one of the prioritised sports disciplines in Kerala based on the performance at national and international level. For performance enhancement, training at grass root level across the State, with inter school and inter district tournaments has to be promoted. Hence, athletics has to be selected as a top priority sports discipline and continuous training has to be provided to school going children between the age group of 5 - 12 years. This scheme aims to encourage talented children from suburban, rural, tribal and other less tapped areas by catching them young. Presently, the project is being implemented in 6 centres, one each in 6 districts, Kannur, Kasaragod, Idukki, Pathanamthitta, Alappuzha, and Kollam.

Jimmy George Sports Hub

The Jimmy George Sports Hub that offers sports facilities at par with international standards has taken the sports scenario in Kerala to an all new level.

The Directorate of Sports and Youth Affairs (DSYA) has transformed this iconic stadium by revamping it with State of the art facilities. Named after the legendary Volleyball player Jimmy George, this stadium holds a special place in the hearts of sports enthusiasts across the nation. The ideal platform for sportspersons to hone their skills, the Jimmy George Sports Hub is housed at the Jimmy George Indoor Stadium, Thiruvananthapuram. It was conceived to inspire both sports persons and the general public to ensure that sports and fitness become a part of their daily lives.

Indoor stadium

Constructed in the capital city of Thiruvananthapuram in 1987 in connection with the National Games, the Jimmy George Indoor Stadium has hosted numerous sporting events and has been a venue for regular practice sessions for sportspersons and enthusiasts. Promising Badminton players practice here under a coach from the Sports Authority of India. Training in Gymnastics and Taekwondo is provided here and facilities are available for playing Table Tennis, Volleyball, Basketball and Handball.

The stadium has recently been renovated and upgraded to a world-class arena capable of staging international events. It is fully air-conditioned and arena lighting is provided as per specific needs. The renovated hall is also provided with a State-of-the-art acoustic and public address system.

Swimming Pool

The swimming pool which is now part of the Sports Hub was inaugurated in 1962 and has been a landmark in the capital city. The pool was revamped to meet international standards and the technical specifications of FINA (International Swimming Federation) in 2015.

As part of renovation, the size of the pool has been increased to 50mx25m from 50mx18m.

A new filter plant, new toilet blocks and administrative blocks have been constructed. Scoreboard and time-measuring devices such as touchpads and clocks are available at the pool. The pool is filtered with ozone and the diving platforms have been reconstructed as per the norms of FINA. High-mast lighting facilities are also provided to conduct competitions at night.

Altitude Stimulating Training (ASTRA)

Altitude Stimulating Training (ASTRA), by the Directorate of Sports and Youth Affairs (DSYA), is a first-of-its-kind facility in South India. This State-of-the-art facility houses the Low Oxygen Simulator. This facility has been developed for excellence in endurance sports. The High Altitude Sports Training Centre is located at Munnar in Idukki District, the second such training centre in the country, (the first one being in Himachal Pradesh), is all set to get a facelift, including developing the sports centre into a venue for international sports events. The work of this scheme was started in 1995. Entry to this facility is mostly reserved for top-notch athletes/players. The facility also has 3 to 6 aerobic instruments and bunk beds.

Stadiums

An amicable ecosystem is a primary requisite for budding sport prodigies, laying emphasis on high performance and helping in building and improving confidence level of children/youth. Among various facilities for sports, stadiums are very essential for making the youth physically fit and mentally comfortable. There are 26 stadiums in the State. The list of major 10 stadiums in Kerala with their use and capacity is given in **Table 9.2.1** and remaining list is given in **Appendix 9.2.1**.

2. Kerala State Sports Council

The Council which was established under Charitable Societies Registration Act was reconstituted in 1974 with an aim to promote sports in Kerala. Later, the Kerala Sports Council

Box 9.2.1 Sports Life Fitness Centres (SLPC)

Sports and fitness play a vital role in the overall development of each citizen and inculcates team spirit and develops strategic and analytical thinking, leadership skills, goal setting and risk taking ability. International standard air-conditioned Sports Life Fitness Centres have already become operational at nine locations in the State. They are:

- SLPC at Konni in Pathanamthitta
- SLPC at Pala in Kottayam
- SLPC at Mavelikkara in Alappuzha
- SLPC at Devikulam in Idukki
- SLPC at Chittur in Palakkad
- SLPC at Kottappady in Malappuram
- SLPC at Mananthavady in Wayanad
- SLPC at Kanhangad in Kasaragod
- SLPC at Mattannur in Kannur

With these being operational, each district in the State will have at least one Sports Life Fitness Centre. With State-of-the-art facilities, the proposed Sports Life Fitness Centers are expected to promote a sporting culture among the people of the region and encourage healthy living. With people actively pursuing fitness, it is expected that the beneficiaries will enjoy a healthy life style and there will be substantial reduction in people being affected by life-style diseases and related complications. It is planned to establish at least one such centre in all the districts.

Source: Directorate of Sports and Youth Affairs

Table 9.2.1 Major 10 Stadiums in Kerala, by use and seating capacity

Sl No.	Name of Stadium	Use	Seating Capacity (Approx. Nos)
1	Corporation Stadium, Kozhikode	Outdoor Stadium (Football)	80,000
2	Karyavattom Stadium	Greenfield Stadium (Cricket Volleyball/ Football)	50,000
3	LBS Stadium, Kollam	Outdoor Stadium	30,000
4	CSN Stadium, Thiruvananthapuram	Outdoor stadium (Football/Athletics)	25,000
5	Medical College Stadium, Kozhikode	Outdoor stadium (Football/Athletics)	15,000
6	Corporation stadium, Thrissur	Outdoor stadium (Football)	15,000
7	Rajiv Gandhi stadium, Kochi	Indoor stadium (Multi-sports)	10,000
8	Hockey stadium, Kollam	Outdoor stadium (Hockey)	5,000
9	Indoor stadium, Kannur	Indoor stadium (Multi-sports)	5,000
10	Swimming Pool, Pirappancode, Thiruvananthapuram	Swimming pool	5,000

Source: Directorate of Sports and Youth Affairs Department

was dissolved and Kerala State Sports Council was formed and is functioning as per Kerala Sports Act 2000 and Kerala Sports Rules 2008. The Council has several centres functioning under it such as Centralised Sports Hostels,

College Sports Hostels, Sports Training Centres, Rural Coaching Centres, School Sports Hostels and Day Boarding Centres. It has also started 'Elite Training Centres' for volleyball, athletics and swimming.

- **Sports Academies**

Kerala State Sports Council is currently running 31 District Sports Academies, 54 College, and 25 School Sports Academies. District Sports Academies are directly maintained by Kerala State Sports Council whereas college and school sports hostels are maintained by respective managements. Boarding and lodging, training under expert coaches, medical treatment, TA and DA, washing allowances, study facilities, and conditioning facilities are provided to inmates of hostels under this scheme.

Promising sports players are selected on merit after selection trials. There are approximately 3000 students residing in the hostels at present. Sports hostel students are given ₹200 per day as boarding and lodging charges and ₹200 per month as washing allowance.

- **Centre of Excellence (Elite Training Centre - Athletics, Volleyball, Basketball)**

Kerala State Sports Council has implemented Elite Scheme in various disciplines like Athletics, Volleyball, and Basketball in order to nourish the sports skills in young talented sports persons and to make them capable of securing medals in Asian/Commonwealth/Olympic Games.

- Promising sports players are selected on merit after selection trials and they are provided with monthly boarding/lodging expenses, training under expert coaches, medical treatment, study facilities and conditioning facilities.

- Currently there are 4 centres functioning under Elite Scheme (**Table 9.2.2**).

Operation Olympia 2020-2024

Operation Olympia envisages to improve the top and elite potential sports persons from five sports disciplines across the State and train them with State of art infrastructures and training facilities including services of foreign coaches and exposure in international events.

- **Dr. A.P.J. Abdul Kalam Scholarship Scheme**

Kerala State Sports Council implements Dr. A.P.J. Abdul Kalam Scholarship Scheme for encouraging eminent sports players in our State. Under this scheme 11 sports persons (physically challenged) from the age group of 14 to 20 years are granted scholarship. In the academic year 2019-20, 6 sports persons were selected for scholarship under this scheme.

- **Yoga for All**

Yoga has the unique distinction of addressing the physical and mental health of human body. Yoga has gained immense popularity the world over because of its holistic benefits for the human body, wherein it addresses the overall health of the physical body and the mind. Considering the gaining popularity of Yoga and its holistic benefit for all human beings, the school children in Kerala are given rudimentary knowledge about Yoga through the “Yoga for all” programme.

Table 9.2.2 Centres of Excellence functioning under Elite Scheme

Centre	No of Students	No. of Coaches
Lakshmi Bai National College of Physical Education Karyavattom (athletics)	10	2
Thriprayar volleyball academy, Thrissur	23	1
Basketball academy, Kannur	9	1
Football Academy, Ernakulam	6	1

Source: Kerala State Sports Council

Box 9.2.2 Operation Olympia 2020-2024

The prestigious project of Department of Sports, Government of Kerala “Operation Olympia 2020–2024” has been launched on May 28, 2017.

Kerala State Sports Council is preparing the athletes and sports persons from Kerala to win medals in next Olympics. An expert committee has been formed for the said purpose and a series of Stakeholder’s discussions for formulating the project namely ‘Operation Olympia’ was initiated. The Operation Olympia focuses on five selected disciplines namely Athletics, Boxing, Badminton (shuttle), Fencing and Rowing.

The identified talents are currently being trained by experienced coaches in the following Centres, Attingal (Athletics and Boxing), Ernakulam (Badminton), Kannur (Fencing), and Alappuzha (Rowing).

Source: Kerala State Sports Council

• **Kayika Kshamatha Mission – Phase 2**

In Phase 2, the Kayika Kshamatha Mission envisages the improvement of physical fitness level of the students as well as the general public. For the programme the entire population of the State will be categorised into four groups for the ease of implementation and monitoring. The categories are:

- Nursery to 4th standard students
- 5th standard to plus two and university students
- Youth and working professionals
- Senior citizens

The project will be implemented with the

collaboration of various departments of the Government of Kerala namely, the Kerala Sports Council, Department of Education and Department of Local Self Government

Kerala’s Performance in National and International Events

The performance of the players in the State in terms of winning medals in national and international games is noteworthy. They have won 702 medals in 2019-20 by participating in national and international games. 2,572 sports and games players have enrolled their names under various institutions in Kerala. 979 persons participated in various sports and games meets in India and abroad. Details are given in **Table 9.2.3**.

Box 9.2.3 G.V. Raja Senior Secondary Sports School Selected as Khelo India State Centre of Excellence

G.V. Raja Senior Secondary Sports School in Thiruvananthapuram has been selected by the Ministry of Youth Affairs and Sports, Government of India for upgradation to Khelo India State Centre of Excellence (KISCE) under the Khelo India Scheme. The KISCE is being established to strengthen India’s pursuit for excellence in Olympics. In order to upgrade the centre to the KISCE, the Central Government will extend a viability gap funding in sports science and technology support for sports disciplines practised at the centre. Under this support will also be extended to bridge the gaps in requirement of sports equipment, expert coaches and high performance managers. The Sports Authority of India will extend expertise, resources and a monitoring system to ensure that the level of performance of athletes will improve to international standards.

Source: Press Information Bureau, GoI

Table 9.2.3 Details of number of participants and medals won in different competitions in 2019-20

	Participants	Gold	Silver	Bronze	Total Medals
International	3	2	0	1	3
National	304	46	37	52	135
All India Inter-University	170	12	12	8	32
South Zone Inter-University	63	0	0	0	0
South Zone National	16	1	1	1	3
State Meet	387	125	138	133	396
Inter-Collegiate	36	70	41	22	133
Total	979	256	229	217	702

Source: Kerala State Youth Sports Council

In the year 2019-20 only 3 international medals were received out of 702 medals won at different levels. The total number of medals received from national competition was 304. It is to be noted, though the number of participants in international sports events is very less, all have won medals. Concentrated and focussed efforts in training sports persons will lead to better outcomes.

3. Kerala State Youth Welfare Board

Kerala State Youth Welfare Board was constituted in 1985 to function as an apex agency for co-ordination and implementation of all youth empowerment activities in the State. The Board provides assistance to youth clubs and organisations for organising training programmes and self-employment initiatives to the jobless youth.

Major Activities

Keralolsavam: Kerala State Youth Welfare Board organises Keralolsavam with the aim to provide an opportunity for the youth to express their talents in the field of culture, arts and sports.

- Primary and District-Level programmes were conducted in all 14 districts. In this programme 1 lakh youth and 6,000 clubs participated.
- State Level meet was conducted from December 26-29, 2019 at 12 stages. During the event, 59 arts programmes and 43

sports items were performed by nearly 6,500 participants.

- National level programme was held from January 12-16, 2020 at Lucknow, Uttar Pradesh. 64 Participants attended the 23rd National Youth Festival.

Yuvasakthi: Major activities of the scheme are to promote social development programmes and voluntary programmes through youth clubs, to enhance the participation of youth in *Keralolsavam* and in gram sabha, to organise Labour Banks and other employment guarantee programmes and to disseminate Youth Welfare Board's activities to the lowest level in the society. *Yuvasakthi* programme is co-ordinated by the district co-ordinators in the State.

Youth Kerala Express: Youth Kerala Express is a project aimed at presenting the beneficial activities of youth clubs to the public. The scheme, introduced in 2018-19, has benefited more than 100 youth clubs. The activities which are implemented through Youth Kerala Express are useful to the public. The project has also brought the activities of Youth Clubs to the core of the society.

National Folk Fest of Kerala

The National Folk Fest of Kerala aims to promote the indigenous folk art of the different States of the country. The delegation of National Folk Fest comprises delegates from outside the State,

who present their unique folk arts and cultural programmes, interact with young talent in the community and learn about the work of others. People from neighbouring States get opportunity to get acquainted with the families of Kerala and to experience the family life, culture and lifestyle of the people.

Kerala Voluntary Youth Action Force

In 2018, our State witnessed an unprecedented flood in its history. In 2019, also the State suffered a similar flood. The youth of Kerala, volunteers, cultural workers, youth clubs, students, bureaucrats, people's representatives, NGOs, workers, especially fisher folk played a valuable role in saving many lives. The power of youth in times of adversity was visible to all. This gave the idea of Kerala Volunteer Youth Action Force (KVYAF) in the State.

KVYAF is a volunteer force formed with the aim of preparing youth volunteers to deal with

natural disasters. It has already trained 2,000 youth and has set up a volunteer force in 14 districts. The Kerala State Youth Welfare Board has been able to set up collection centres in 14 districts under the aegis of the Kerala Voluntary Youth Action Force and to provide essential items to disaster affected persons.

The activities of KVYAF will be further expanded in the coming years. As part of this, it is aimed to extend the force at the Local Government level. The aim is to set up a Youth Action Force at the Panchayat/Municipality/Corporation level and provide them with expert training and prepare for various volunteer activities.

The following other activities were undertaken by Youth Welfare Board in 2019-20:

1. Financial assistance to Youth clubs in 14 Districts in Kerala.
2. Conducted training for PSC Exam and KAS main exams

Box 9.2.4 Activities of Kerala Voluntary Youth Action Force during Covid-19 and other Crises

- **Preventive measures against Covid-19 pandemic: Break the chain:** The Kerala Voluntary Youth Action Force is engaged in the preventive activities of Covid-19 pandemic from March 14, 2020 onwards. Various Government schools, railway stations, bus stands, court compounds and other public places were cleaned by using sanitiser and water kiosks installed at District Headquarters and other public places for hand washing.
- **Lockdown Help Desk:** They set up help desks at district level to distribute medicine and necessary goods for the people at the time of lockdown. They played a dual role in the Community Kitchen programme, as a volunteer and as a co-ordinator.
- 2000 volunteers participated in the blood donation activities.
- **Pettimudi land slide-Munnar:** They have assisted in the rescue operations during the land slide in Pettimudi in Munnar with the help of different Government departments and other agencies.
- **Chellanam Grama Panchayat, Ernakulam District:** At the time of lockdown, a sea wave attack occurred in Chellanam Grama Panchayat in Ernakulam District. 80 per cent of the people were affected by this event and several houses were damaged partially or fully. Kerala Voluntary Youth Action Force co-operated with police force and health department in the rescue operations at Chellanam Grama Panchayat and they distributed medicines, food and other basic things essential for living.
- In connection with the Covid-19 lockdown, foreseeing the future food scarcity, the volunteers started agriculture activities in collaboration with Youth Welfare Board co-ordinators, clubs, district youth clubs and local bodies.

Source:Kerala State Youth Welfare Board

3. Maninadam: State Level folklore song competition was conducted on the death anniversary of Sri Kala Bhavan Mani at Chalakudy in Thrissur district.
4. Sevens Football: State-level programme was conducted at Kozhikode
5. Conducted a receiving ceremony to Sri Chitharesh Natesan, the first Indian to be crowned Mr Universe 2019 at the 11th World Body building and Physique Sports Championship (WBPF) 2019 that was held in South Korea.
6. Short film documentary festival (Art and culture): Kerala State Youth Welfare Board has conducted online short film festival (Vision 2019). In this programme 100 films were screened and 24 short films were played, 9 films were selected for award.
7. Gender Programme: (1) Training for Kalaripayattu, (2) Strengthening of Transgender People in the name of 'Mazhavillu'.
8. Mime Fest
9. Young Talent Fest

Kerala State Youth Commission (KSYC)

Kerala State Youth Commission is a quasi-judicial body constituted to empower the youth in Kerala and to protect their rights. It is functioning as a grant-in-aid institution under Government of Kerala. The main activities of KSYC are awareness programmes under Project Co-ordinator in colleges/venues for youth, among youth in SC/ST colonies, adalaths/hearings/local sittings, district seminars/symposiums/workshops, national seminar, Youth Icon Awards, empowering the marginalised youth/Health Protection, Youth Legal Support Centre, EMS Memorial Inter University Elocution Competition and National Youth Day Programme, Cultural Exchange Programme for outstanding Youth and Youth Commission Facilitation Programmes.

Activities of Kerala State Youth Commission (KSYC) during Covid-19

KSYC has formed 'Youth Defence Force' which works 24 hours for the following essential services.

- The Youth Defence Force has provided their voluntary service to distribute essential items for living/medicines during the Covid-19 lockdown period.
- With the help of the Fire Force Department they distributed medicines to the cancer patients of RCC, Thiruvananthapuram.
- They distributed reading books to those who were affected by Covid-19 and stayed in the isolation ward.
- Books were distributed to the households from the local library
- Participated in the blood donation activities
- Engaged to distribute medicine to the mental patients from the Mental Hospital Medical Centre, Thiruvananthapuram.
- Government decisions and information have been communicated through electronic social media and printed media.
- Participated in the cleaning activities in the isolation wards and other public places.

CHAPTER

10

KERALA DIASPORA

KERALA DIASPORA

International Migration

The estimated number of international migrants has increased over the past five decades. The total estimated number of people living in a country other than their countries of birth in 2019 is 272 million people, which is 119 million more than in 1990 (when it was 153 million), and over three times the estimated number in 1970 (84 million). Details are provided in **Table 10.1.1**.

The international migrant population globally has increased in size but remained relatively stable as a proportion of the world's population. In 2019, most international migrants (around 74 per cent) were of working age (20 to 64 years of age), with a slight decrease in migrants younger than 20

years old from 2000 to 2019 (from 16.4 per cent to 14 per cent), and a constant share (around 12 per cent) of international migrants 65 years of age and older since 2000.

Remittances

There is an overall increase in remittance from USD 126 billion in 2000 to USD 689 billion in 2018. There was a 9 per cent increase in remittances in 2018, up from USD 633 billion in 2017. In 2018, India, China, Mexico, the Philippines and Egypt were (in descending order) the top five remittance recipient countries. India and China were well above the rest, with total inward remittances being USD 78.61 billion and USD 67.41 billion respectively, much higher

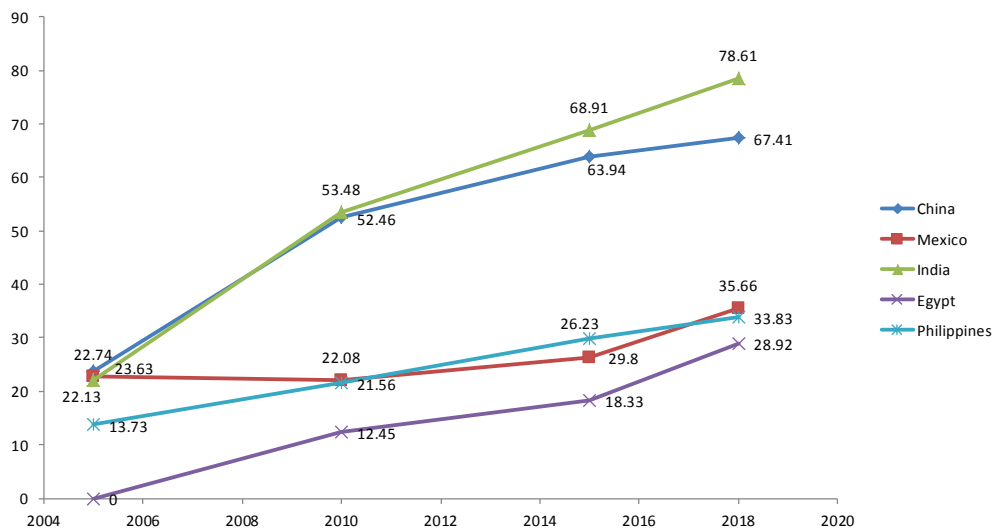
Table 10.1.1 International Migrants, 1970–2019, in numbers

Year	Number of Migrants	Migrants as per cent of world population
1970	8,44,60,125	2.3
1975	9,03,68,010	2.2
1980	10,19,83,149	2.3
1985	11,32,06,691	2.3
1990	15,30,11,473	2.9
1995	16,13,16,895	2.8
2000	17,35,88,441	2.8
2005	19,16,15,574	2.9
2010	22,07,81,909	3.2
2015	24,88,61,296	3.4
2019	27,16,42,105	3.5

Source: UN DESA, 2008, 2019a, 2019b.

Note: The number of entities (such as States, territories and administrative regions) for which data were made available in the 2019 UN DESA Revision of International Migrant Stock was 232. In 1970, the number of entities was 135.

Figure 10.1.1 Top countries receiving remittances (2005–2018) (current USD billions)



Source: World Migration Report 2020, United Nations

Box 10.1.1 Covid-19 Crisis and Migration

- Global remittances are projected to decline sharply by about 20 per cent in 2020 due to the economic crisis caused by the Covid-19 pandemic and shutdown.
- Even with the reduction, remittance flows are expected to become even more important as a source of external financing for LMICs as the fall in foreign direct investment is expected to be higher (more than 35 per cent).
- Remittance flows are expected to drop across all World Bank Group regions, most remarkably in Europe and Central Asia (27.5 per cent), followed by Sub-Saharan Africa (23.1 per cent), South Asia (22.1 per cent), the Middle East and North Africa (19.6 per cent), Latin America and the Caribbean (19.3 per cent), and East Asia and the Pacific (13 per cent).
- America and the Caribbean (19.3 per cent), and East Asia and the Pacific (13 per cent).

The Covid-19 pandemic is crippling the economies of rich and poor countries alike. Yet for many low-income and fragile States, the economic shock will be magnified by the loss of remittances—money sent home by migrant and guest workers employed in foreign countries. A fall in remittance flows is likely to heighten economic, fiscal, and social pressures on Governments of these countries already fighting to manage even in normal times. (IMF-FINANCE and DEVELOPMENT June 2020)¹.

than USD 35.66 billion remittances received by Mexico, the third highest recipient country (Figure 10.1.1 and Appendix 10.1.1).

The top five countries sending remittances include USA, UAE, Saudi Arabia, Germany, and Switzerland. Table 10.1.2 shows the top countries sending remittances from 2005 onwards.

Migration in Kerala Context

The influence of expatriates on the World economy is invaluable. We can understand this by looking at the number of expatriates since the 1970s. The number of international migrants has increased over the past five decades.

¹ Antoinette Sayeh and Ralph Chami- Lifelines in Danger: The Covid-19 pandemic threatens to dry up a vital source of income for poor and fragile countries.

Table 10.1.2 Top countries sending remittances (2005–2017) (current USD billions)

Country	2005	2010	2015	2017
United States	47.25	50.78	61.86	67.96
U A E	NA	10.57	40.33	44.37
Saudi Arabia	14.3	27.07	38.79	36.12
Germany	12.71	14.68	18.03	22.09
Switzerland	10.52	17.76	25.4	26.6
France	9.48	12.03	12.79	13.5

Source: World Migration Report 2020, United Nations

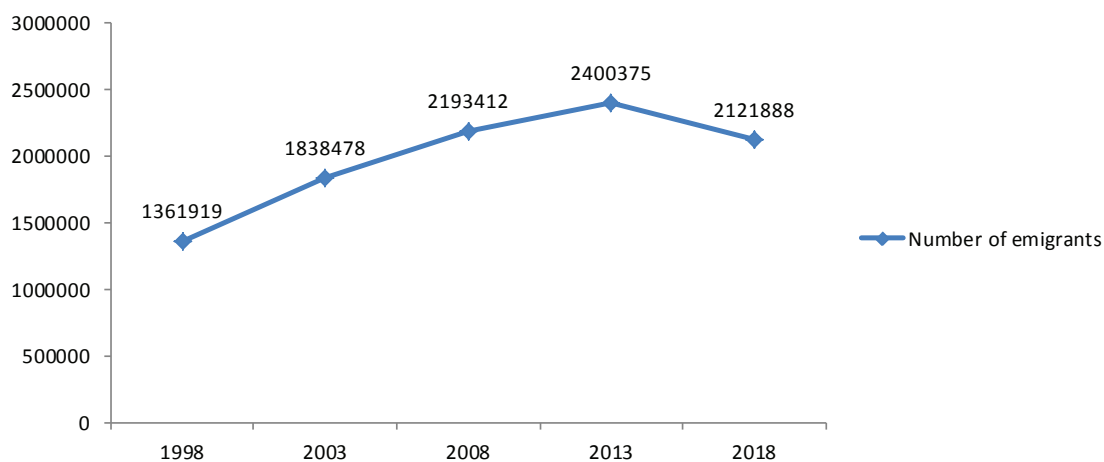
India continued to be the largest country of origin of international migrants. India had the largest number of migrants living abroad (17.5 million), followed by Mexico and China (11.8 million and 10.7 million respectively)².

Although workers from all parts of India migrate for employment, migrants from Kerala have certain comparative advantages. Coming as they do from a State with a strong educational tradition, they have special skills. They are adaptable to technically sophisticated and changing work environment, and have shown themselves capable of mastering new technologies. In countries of the Gulf and elsewhere the contributions of migrant workers is distinct and identifiable.

As predicted in 2013, the Kerala Migration Survey (KMS) shows a decline in emigration. The total number of emigrants in 2013 was 24 lakh and it reduced to 21 lakh in 2018. This recorded a decrease of around 12 per cent from 2013 to 2018. The number of return emigrants estimated by KMS 2018 is 12.95 lakh, which is about 60 per cent of the total number of emigrants from Kerala. KMS 2018 has confirmed the trend that was observed in the last round – that emigration from Kerala is falling and return migration is on the rise.

Figure 10.1.2 shows the number of emigrants from 1998 to 2018 in five year intervals. During 2015-2018, the number of NRKs decreased by 2.78 lakh.

Figure 10.1.2 Number of emigrants from Kerala, 1998 to 2018, in numbers



Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

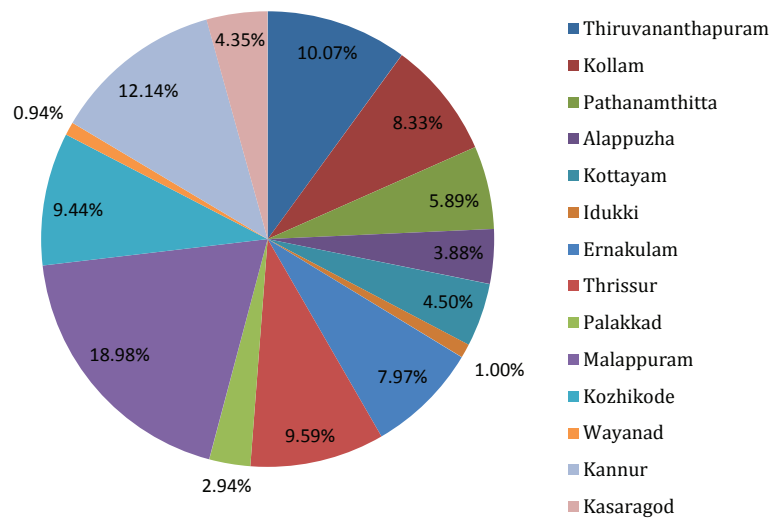
² World Migration Report 2020

Table 10.1.3 District-wise NRKs in Kerala 2018

Districts	2018
Thiruvananthapuram	1,37,007
Kollam	2,40,527
Pathanamthitta	1,09,836
Alappuzha	1,36,857
Kottayam	1,66,625
Idukki	32,893
Ernakulam	53,418
Thrissur	2,41,150
Palakkad	89,065
Malappuram	4,06,054
Kozhikode	1,60,691
Wayanad	30,650
Kannur	2,49,834
Kasaragod	67,281
Total	21,21,888

Source: Kerala Migration Survey 2018, CDS, Thiruvananthapuram

Figure 10.1.3 District-wise Proportion of Emigrants in Kerala 2013



Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

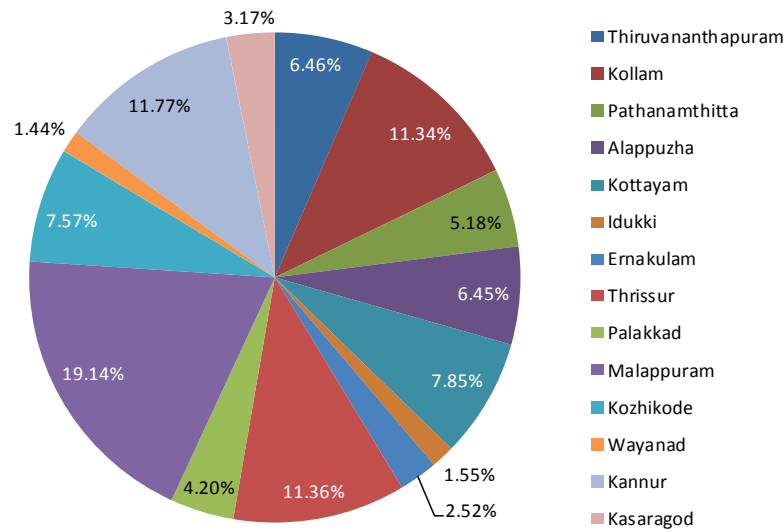
Emigrants by Districts

Table 10.1.3 shows the District-wise emigrant population from Kerala for the year 2018. Malappuram District had the highest number emigrants (4.06 lakh) followed by Kannur (2.49 lakh), Thrissur (2.41 lakh) and Kollam (2.40 lakh) respectively.

District-Wise Proportion of Emigrants in Kerala, 2013 and 2018

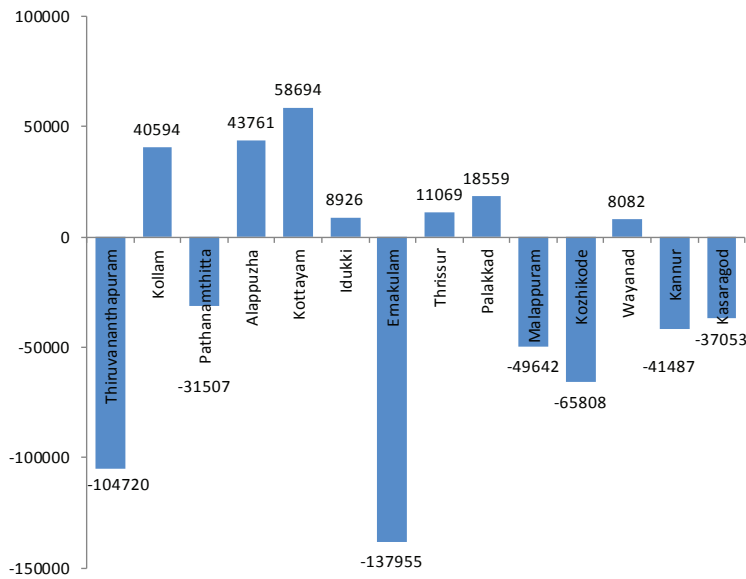
District-wise proportion of emigrants from Kerala in 2013 and 2018 are given in **Figure 10.1.3** and **10.1.4** respectively. In 2018, Malappuram District with 19.14 per cent ranks top followed by Kannur with 11.77 per cent and Thrissur with 11.36 per

Figure 10.1.4 District-wise Proportion of Emigrants in Kerala 2018



Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

Figure 10.1.5 Net increase in District-wise NRKs in Kerala 2013-2018



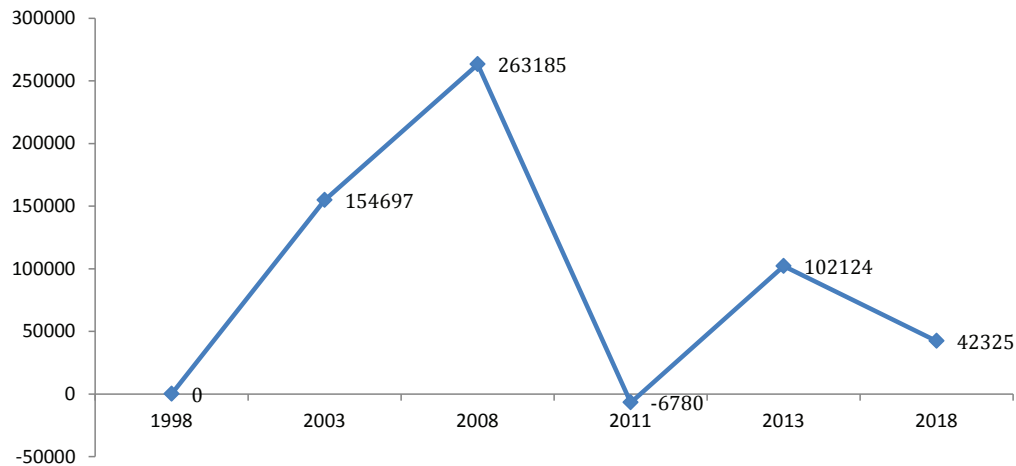
Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

cent. In 2013 also, the number of emigrants was highest from Malappuram (18.98 per cent) and followed by Kannur District (12.14 per cent).

Though the total number of migrants in the State reduced in the period 2013-2018, there is an increase in some districts, that is, Malappuram, Palakkad, Thrissur, Kottayam,

Alappuzha, Pathanamthitta and Kollam. The highest decrease was in Ernakulam followed by Thiruvananthapuram and Kozhikode. District-wise increase and decrease of NRKs in the State is given in **Figure 10.1.5**. Details of NRKs over the period across the State are given in **Appendix 10.1.2**.

Figure 10.1.6 Return Emigrants and Inter-Survey Change (1998-2018)



Source: Kerala Migration Survey, 2018, CDS, Thiruvananthapuram

Return Emigration

Return emigrants are defined as persons who have lived outside Kerala for at least six months either for work or study or any other purposes (including accompanying spouses and parents) and now live in a household in Kerala. According to Kerala Migration Surveys, about 90 per cent of Kerala migrants leave for the Gulf for temporary contract employment. As the Gulf countries do not provide citizenship, all of them have to return to Kerala once their contract expires (*Emigration and Remittances: New Evidences from The Kerala Migration Survey, 2018: S. Irudaya Rajan, K.C. Zachariah, January 2019*).

Trends of Return Emigration in Kerala

The number of return emigrants estimated by KMS 2018 is 12.95 lakh, about 60 per cent of the number of emigrants. **Figure 10.1.6** shows an increase since 2013, but the per cent of increase has declined from 8.1 in 2013 to 3.3 per cent in 2018 (**Appendix 10.1.3** and **Appendix 10.1.4**).

As per KMS 2018, the highest return emigration can be seen in Kollam Taluk (8,29,45) followed by Tirur (7,56,64) and Kozhikode (7,51,02). In 2013, highest return emigration was in Chirayinkeezhu Taluk (8,5,507) followed by Kozhikode (7,05,81) and Tirur (6,59,15). Among the districts, the per cent of return emigrants varies from 23.9 per

Table 10.1.4 Details of the returnees in post Covid situation

Sl No	Country	Number of Returnees
1	United Arab Emirates	1,89,295
2	Kingdom of Saudi Arabia	59,608
3	Oman	33,998
4	Bahrain	14,611
5	Kuwait	21,222
6	Qatar	36,224
7	Others	22,120
Total		3,77,078

Table 10.1.5 Details of the returnees from various States

Name of State	No. of Returnees
Karnataka	1,83,820
Tamil Nadu	1,68,093
Maharashtra	72,176
Delhi	38,656
West Bengal	24,730
Telangana	18,503
Uttar Pradesh	18,397
Rajasthan	11,780
Bihar	11,126
Gujarat	10,547
Andhra Pradesh	10,086
Assam	8,214
Madhya Pradesh	7,531
Odisha	5,868
Haryana	5,762
Other States	33,867
Total	6,29,156

Source: NORKA ROOTS

Box 10.1.2 Covid-19 and loss in remittances

The State Planning Board has assessed the losses in remittances because of Covid-19 pandemic and subsequent lockdown. In this analysis, only the direct flow of remittances through private transfers and NRI deposits has been taken into account for assessment.

As per the Reserve Bank of India's "Survey on India's Inward Remittances (2018)", Kerala receives 19 per cent of the country's total remittances. The direct means by which remittances flow to the State are through NRI deposits in commercial banks and money transferred through authorised foreign exchange dealers. In addition, some scholars have also considered, when estimating remittances, the value of commodities received in kind by households in the State from emigrants. In addition, there are also illegal routes by which transfers are made. In this crisis period, illegal transfers might have dwindled.

The estimated amount of remittances transferred to Kerala in 2018-19 through authorised foreign exchange dealers was ₹95,623 crore and transferred through NRI deposits in banks was ₹1,46,912 crore. Thus the simple monthly average of NRI deposits in banks in Kerala was ₹12,243 crore and private transfers were ₹7,969 crore. (The data pertaining to total private receipts to India and total amount of NRI deposits in India are from RBI. The relative share of Kerala is based on RBI study and the reports of the Kerala Migration Survey (KMS)).

On the basis of past trends, we have estimated the total volume of remittances of Kerala, including private transfer and NRI deposits, to be ₹2.7 lakh crore in 2020-21. The details of remittances to the State from 2015-16 to 2020-21 are in **Table 10.1.6**.

Table 10.1.6 Details of remittances to the State from 2015-16 to 2020-21

Year	Remittance to India*	Share of remittance of Kerala [#]	Share to Kerala (in per cent) [#]	Monthly average remittance to Kerala	NRI Deposits of India*	Share of NRI Deposits of Kerala [#]	Total Remittances of Kerala (3+7)
1	2	3	4	5	6	7	8
2015-16	429072	69081	16	5757	720997	116081	185161
2016-17	411120	78113	19	6509	841956	159972	238084
2017-18	445567	78420	18	6535	757751	133364	211784
2018-19	534207	95623	18	7969	820737	146912	242535
2019-20**	528966	96272	18	8023	902152	164192	260463
2020-21**	555999	105069	19	8756	911046	173100	278169

It is estimated that the average monthly remittances through private receipts to the State in 2020-21 will be ₹8756 crore. Some of the emigrants rely on private money exchange dealers for transferring of cash. As many of them have lost their jobs and returned to Kerala, there has been a drastic reduction in transfers through exchange dealers. As per the information gathered from authorised foreign exchange dealers, there has been a reduction of 65 per cent in private transfer from January 2020 to May 2020, almost to the extent of ₹5691 crore in absolute terms.

However, in case of NRI deposits, there is an increase in the amount deposited by emigrants. The details received from SLBC shows that the total deposits in NRI accounts in the commercial banks of Kerala was 1.99 lakh crore in December 2019. It increased to 2.11 lakh crore by the month of June 2020. The deposits have increased by 0.12 lakh crore from January to June 2020.

Source: Reserve Bank of India, Handbook of Statistics on Indian Economy, 2019 and Kerala Migration Survey

Note: # The percentage share of Kerala from 2015-16 to 2017-18 is based on the RBI Survey and the report of the Kerala Migration Survey 2018.

The shares of Kerala in 2018-19, 2019-20 and 2020-21 have been estimated based on past trends.

* The estimates in column 2 and 6 for 2019-20 and 2020-21 are based on past trends

cent in Malappuram to 0.5 per cent in Idukki. Around 50 per cent emigrants returned to three districts of Kerala namely Malappuram, Kollam, and Kozhikode. Details of return migrants are given in **Appendix 10.1.5**.

Post Covid Return migration

In the wake of Covid-19 crisis and subsequent lockdown, a number of expatriate Malayalis came back to Kerala by air and sea through Vande Bharath mission, operation Samudra Setu and chartered flights. The available details of the returnees as per Covid-19 Jagratha portal are shown in **Table 10.1.4**.

Details of the returnees from various States are given in **Table 10.1.5**. The highest number of returnees are from the neighbouring States of Karnataka and Tamil Nadu.

NORKA ROOTS

NORKA ROOTS, earlier known as Non Resident Keralites Welfare Agency (NORKWA), is a field agency, working under NORKA department since 2002. The key objective of agency is to ensure NRK welfare and to serve as a single kiosk for all information pertaining to them.

Major Schemes of NORKA ROOTS

Santhwana

The scheme has been launched for NRKs whose annual income is below ₹1,00,000 and similarly placed dependence of deceased NRKs to meet financial requirements on account of death, marriage, medical treatment and mobility equipments for differently abled.

In 2019-20 an amount of ₹24.25 crore has been disbursed under the scheme for 4102 beneficiaries. Death due to Covid-19 has also been included under the purview of Santhwana scheme. During the last four years an amount of ₹77 crore has been disbursed to more than 13000 beneficiaries.

Norka Department Project for Return Emigrants (NDPREM)

It is a rehabilitation package that aims to help the returnee migrants who have worked abroad for at least two years to continue living a dignified life. Under this scheme, subsidy is extended for entrepreneurs having a seed capital of ₹30 lakh and upon prompt repayment, 15 per cent subsidy on capital and 3 per cent rebate on interest of loan are offered for the first 4 years.

An amount of ₹53.43 crore was distributed among 1043 beneficiaries in 2019-20 and the number of partner banks has increased from 10 to 16. The lock in period to get capital subsidy has been reduced from 4 to 3 years. The scheme NDPREM was included in Chief Minister's Entrepreneurship Development Programme. In the last four years an amount of ₹45.21 crore has been disbursed to 2895 beneficiaries.

NORKA Global Contact Centre

As a measure towards educating emigrants, particularly the vulnerable category about emigration procedures, the risks involved in irregular migration and the precautions to be taken while seeking overseas employment, a 24

hour helpline for information dissemination and grievance redressal of the NRKs has been set up. Non Resident Malayalees can contact this centre 24*7 via live chat, email, and SMS. More than 3 lakh NRKs around 30 countries have used this service.

Emergency Ambulance Service

Many NRKs fall ill or meet with accidents while working abroad and after that they need to come back to Kerala and continue the treatment here. In order to assist such NRKs who are financially poor and also for transportation of mortal remains of NRKs, Ambulance support is planned to be provided at the airports. Norka Roots may work in association with Indian Medical Association (IMA) in this regards. Around 650 services were made possible through this service.

Pravasi Legal Aid cell

It has been noticed for a long time that a number of Malayalees are languishing in the prisons of foreign countries especially in GCCs for minor or petty offences or offences without their knowledge. Ignorance of Law of the Land and language problems are the major reasons for them ending up in prisons. According to the scheme, 11 legal consultants were appointed in 6 GCC countries. 110 applications were received in different cases and around 100 cases were transferred to legal consultants to take necessary action.

Pravasi Legal Aid Cell is a scheme initiated to address such issues and help to save the poor from the jails. Legal Consultants in six GCCs are deployed so far and cases have been forwarded to them for consideration under the scheme.

Emergency Repatriation Fund

On account of civil unrest and natural calamities, Non-Resident Keralites have to be evacuated from their places of work or residence, in collaboration with MEA, Government of India. The activities coming under this programme are financing

economy class travel, accommodation in Kerala House, and immediate expenses.

Pravasi Dividend Scheme

Government has introduced Pravasi Dividend Scheme through NRK Welfare Board, in order to invite investment into the development of the State from the non-resident Keralites. Pravasi Dividend Scheme aims for ensuring the welfare of the NRKs and the returnees as well as garnering the much needed resources for the infrastructure development of the State.

It is a long-term scheme where investors can invest between ₹3 lakh to ₹51 lakh, they are guaranteed a 10 per cent dividend including Government share. 10 per cent dividend on the first three years is added to the deposit and monthly dividend is made available to the investors from the fourth year. Dividends will be paid to the partner after the investor's term. Thereafter the nominee will be reimbursed for the investment along with the dividend for the first three years.

Loka Kerala Sabha

The Government of Kerala constituted the Loka Kerala Sabha (LKS) as a common platform for Keralites living across the globe; it is envisaged as a platform for the cultural, socio-political and economic integration of NRKs with their home State. Members of the LKS and NRK associations in different countries played a very important role in organising and helping the NRK community.

Special Assistance in the Context of Covid-19

Government of Kerala has announced following financial assistance to the NRKs:

- ₹10,000 is given as financial assistance to the members of the Pravasi Welfare Board who are infected with Corona Virus. For non-members, the same amount will be

released from Norka Roots under the scheme - Santhwana. An amount of Rupees one crore has been released to Norka Roots in this regard. As on date September 18, 2020, 20 applications have been received and are under process.

- ₹5000 is given to those who returned to Kerala from 1st January 2020 and could not return to resume their work, due to lock down imposed by Government of India. In this regard, an amount of ₹57.5 crore is sanctioned and more than 1.75 lakh applications are under process. 78,000 applications were approved and an amount of 39 crore has been released to eligible persons so far.

The potential challenges before the State Government in the context of the return emigrants may be classified under three categories, rehabilitation, re-integration and re-emigration. Existing programmes for the NRKs have to be revamped and reprioritised. An in-depth study is essential for employment in the international market, to understand country-wise possibilities for emigration for work and for re-integration and rehabilitation of return migrants.

CHAPTER

11

INFRASTRUCTURE

INFRASTRUCTURE

A robust and resilient infrastructure is fundamental to the growth of the economy and its sector. Investment in infrastructure sector has a multiplier effect on overall economic growth as it catalyses industrial growth and manufacturing.

Kerala Government is striving towards achieving an integrated development of every stratum of society and sustainable growth of the economy. Special emphasis is given to industrial and infrastructure development to accelerate sustainable growth in the economy. Government has already mandated Kerala Infrastructure Investment Fund Board (KIIFB) to act as the nodal agency to scrutinise, approve and fund major infrastructure projects with its target of ₹50,000

crore, to provide investment for projects in sectors such as transport, water, sanitation, energy, social and commercial infrastructure, IT and electronic industry.

Infrastructure development in the State, of late, has been receiving a much needed thrust. The changing infrastructure landscape in the State has generated significant interest from external investors. Several major projects will become operational in the coming years. Through KIIFB, the State is aiming to address the constraints of resource availability in financing infrastructure projects. This has been one of many innovative and decisive steps taken by the State.

11.1 TRANSPORT

Transport infrastructure involves core basic facilities and services that are essential for the smooth economic activities. Major transport infrastructure development activities focus on roads, railways, waterways, airways, telecommunications and allied sectors.

Road transport is considered to be one of the most cost effective and preferred modes of transport, both for freight and passengers as it provides last mile connectivity and penetration in populated areas. A good road network is vital to the economic development and social integration of the country. It provides connectivity to

remote areas, accessibility to markets, schools, and hospitals; and opens up backward regions to trade and investment. Roads also play an important role in inter-modal transport development, establishing links with airports, railway stations, and ports.

India has the second largest road network in the world after USA. India's road network stands at over 58, 97,671 km. This comprises National Highways, Expressways, State Highways, Major District Road, other District Roads and Village Roads. The details are given in **Table 11.1.1**.

Table 11.1.1 Road network of India in 2019-20

Particulars	Road Network (in km)
National Highways/Expressway	1,32,500
State Highways	1,56,694
Other Roads	56,08,477
Total	58,97,671

Source: MoRTH, Annual Report for 2019-20

According to World Bank, India's road network carries 65 per cent of freight traffic and 85 per cent of passenger traffic. National Highways, which carries about 40 per cent of the road traffic, has grown at a rate of only 2.2 per cent over the last sixty years. Similarly, State Highways form only 3 per cent of the total road network and carry about 40 per cent of total road traffic. About 90,000 km of State Highways are only single lane (3.5m wide) roads. The vehicle population is growing at a Compound Annual Growth Rate (CAGR) of 10.8 per cent and the passenger traffic is 12,000 Billion Passenger-kilometre (BPKM). The current freight traffic is growing at an annual rate of 9.7 per cent and is expected to be 13,000 BTKM by 2032.

National Highways form the economic backbone of the country and have often facilitated development along their routes with many new towns developing alongside the major highways. It also contributes to generate long-term employment through a large number of small restaurants (known as dhabas), inns (small hotels) and other amenities along their length. The National Highways facilitate medium and long-distance inter-city passenger and freight traffic across the country. The State Highways are intended to carry the traffic along major centres within the State. Other District Roads and Village Roads provide accessibility to the towns and villages to meet their social needs as also the means to transport agriculture produce from villages to nearby markets. Major District Roads provide the secondary function of linkage between main roads and rural roads.

The Indian Railway system is the second largest network in the world under a single

management. It provides one of the cheapest means of transport in India. The Indian Railways route length network is spread over 1,15,000 km, with 12,617 passenger trains and 7,421 freight trains each day from 7,349 stations plying 23 million travellers and 3 million tonnes (MT) of freight daily. It is the fourth largest network in the world after USA, Russia and China.

Civil aviation is gradually gaining importance in passenger movement with an increase in private participation in airlines operations and gradual improvements in airport infrastructure. In 2019-20 (April to September), all Indian airports taken together handled 1271.40 thousand aircraft movements (excluding General Aviation Movements), 170.02 million passengers and 1707.98 thousand tonnes of freight. The passenger traffic has increased by 0.3 per cent while aircraft movements and freight traffic have decreased by 1.2 per cent and 4.9 per cent respectively.

Other transport modes like inland waterways and coastal shipping are significantly used for freight transport. With an extensive coastline of 7,517 km, India has 12 major ports and 205 minor ports, of which, only 30 ports handle cargo traffic. The total traffic carried by both major and non-major ports in recent years was estimated to be 53 million tonnes. However, in terms of domestic freight movement, coastal shipping and inland water transport meet only about one per cent of the total freight traffic demand.

Major transport infrastructure of the State consists of 2.73 lakh km of road, 1,588 km of railways, 1,687 km of inland waterways and 18 ports with 580 km coastal route and

4 airports. Roads play a prominent role in public transportation vis-a-vis other modes of transportation owing to the geographic peculiarities of Kerala with a comparatively lesser rural urban divide and limited geographical area of 38,863 Sq. km. Kerala has 49,342 Stage Carriers, 77,431 contract buses/ carriages and omni buses and 5,493 KSRTC buses. The State has a rail network of 1,257 km route length with a total track length of 1,588 km, operating under the control of Palakkad and Thiruvananthapuram Railway Divisions. In Kerala, there are many water bodies like rivers, lakes, estuaries and backwaters providing adequate scope for Inland Water Transport (IWT) system having a length of 1,895 km to connect the rivers from one to another. Transportation by IWT is considered as the most efficient economic and environment friendly means of transportation. Transportation by coastal shipping is the mode for most bulk commodities and long hauling traffic. Kerala has the advantage of a 585 km coast line through which bulk cargos can be transported using multi-modal transshipment points along the coastline.

Kerala has one major port at Kochi, 17 minor ports and an upcoming international shipping terminal at Vizhinjam. Out of the 17 minor ports in Kerala, four are considered intermediate ports namely, Vizhinjam, Beypore, Azhikkal and Kollam based on berthing, cargo handling and storage facilities available in them. Kerala has four international airports namely, Thiruvananthapuram, Kochi, Kozhikode and Kannur. All civilian airports functioning in the State are international airports, a feature unique to Kerala. Kerala joined Tamil Nadu as the State with the maximum number of international airports on completion of Kannur international airport. Realising the advantages of mass transport system in meeting the intra city commuter needs of major cities, GoK has embarked on Metro Rail Project for Kochi. With the commissioning of Mass Rapid Transit System (MRTS), major urban corridors are expected to be decongested in these cities.

Performance of Transport Sector in Kerala

Roads

- Total road length in Kerala in 2019-20 is 3,31,904.11 km. This includes classified and non-classified roads.
- Road density in Kerala is 390 km/100 square km.
- The length of road per lakh population is 993.54 km.
- In 2019, 4,440 deaths and 46,055 injuries were reported in Kerala from 41,111 road accidents.
- NATPAC has identified 340 black spots in the State.
- Phase 1 reach 1, 5 km stretch Karamana to Pravachambalam road works completed.
- Kollam bypass work completed and inaugurated on January 15, 2019. The Alappuzha bypass work is expected to be completed by the end of November, 2020.
- Construction of 15 km coastal highway from Padinjarekkara to Unniyal in Malappuram District is in progress and currently 52 per cent of the work has been completed.
- 184.68 km BM and BC, 38.47 km normal resurfacing, 563.154 km drains has been completed under State Highway (Development and Improvement)
- 2,716 bridges are maintained by PWD Bridges Wing and the construction works of 312 bridges are ongoing.
- KIIFB sanctioned ₹1726.397 crore worth projects covering 21 reaches of Hill Highway.
- KHRI has been upgraded as Centre of Excellence vide G.O. (Ms) No.53/2020/PWD dated June 11, 2020 with thematic areas like Innovation in design/construction practices Road asset management, Road safety management, Quality assurance and contract management and Promoting indigenous research and development.

Road Transport

- As on March 31, 2020, motor vehicles with

valid registrations number is 1.41 crore with newly registered vehicles in 2019-20 being 8,49,200.

- KSRTC commenced 'Relay' Point to Point service on June 26, 2020 to facilitate long distance travel during Covid-19 phase and Bus-on-Demand ("BonD") service on July 2, 2020.
- Largest number of vehicles in Kerala is in Ernakulam District with 20, 55,842 vehicles with a 14.5 per cent growth compared to 2018-19.
- Traffic crashes involving two wheelers has decreased from 34,473 (94 per day) in 2018 to 16,970 (46 per day) in 2019.
- Kerala will become the first State in the country to deploy electric vehicles (EVs) for enforcement activities. The Motor Vehicles Department (MVD) has placed orders for 'plug-in electric vehicles' for 65 Enforcement Squads of the Safe Kerala project for enforcing motor vehicles rules and to ensure road discipline. The 65 EVs are being dry-leased from the Energy Efficiency Services Ltd (EESL), a Central Government institution under the Ministry of Power, through the Agency for Non-Conventional Energy and Rural Technology (ANERT).

State Water Transport

- "Vega 2" High speed AC passenger (120 Pac) passenger cum boat launched on March 10, 2020 between Alappuzha-Kumarakom-Kottayam.

Other Transport

- Kochi Metro-Aluva to Petta (part of Phase-I) stretch 25.2 km with 22 stations started operation.
- Water Metro to be commissioned in June 2022 with 25 boats and terminals.
- Government of India vide their Order No. 2019/JV Cell/KRDCL/SHSRC dated. 17.12.2019 has accorded in-Principle Approval (IPA) for Silver Line project (Semi High speed rail project).

- KRTL approved revised projects of Thiruvananthapuram and Kozhikode Light Metros.

Roads Transport Sector

Roads are being maintained by various agencies in Kerala, like Local Governments, Public Works Department (PWD) (Roads and Bridges) and National Highways, Municipalities, Corporations, Irrigation, Forests and Railways. Other agencies involved in the roads transport sector are National Transportation Planning and Research Centre (NATPAC), Motor Vehicles Department, KSRTC, Roads and Bridges Development Corporation of Kerala (RBDCK), Kerala State Transport Project (KSTP), Kerala Road Fund Board (KRFB) and Road Infrastructure Company Kerala (RICK) Ltd.

Total road length in Kerala in 2019-20 is 3,31,904.11 km. This includes classified and non-classified roads as stipulated by Indian Road Congress. The road traffic is growing at an average rate of 12 to 14 per cent every year, creating pressure on PWD road network. Road density in Kerala is 390 km per 100 sq. km, which is roughly three times the national average. The length of road per lakh population is 993.54 km and almost 90 per cent of the road network is single lane. The National Highways, considered to be the primary network, carries 40 per cent of the total traffic, and the State Highways and Major District Roads (MDRs) – the secondary road network – carries another 40 per cent of the road traffic. Thus less than 10 per cent of the road network handles almost 80 per cent of the total traffic.

Roads maintained by different agencies of the State are given in **Table 11.1.2**.

The roads maintained by different Local Governments in 2019-20 is 2,65,421.12 km, of which 1,31,597.6 km (49.58 per cent) are black topped, 31,395.10 km (11.83 per cent) are cement concrete, 72,762.70 km are earthen roads (27.41 per cent), 18,669.70 km metalled roads

Table 11.1.2 Agency-wise distribution of State roads in Kerala in 2018-19 and 2019-20

Sl.No	Name of Department	Length (km) 2018-19	Percentage	Length (km) 2019-20	%
1	Panchayats (LSGDs)	206620.23	75.65	265421.12	79.97
2	PWD (R&B)	31812.106	11.65	31812.06	9.58
3	Municipalities	18411.870	6.74	18411.87	5.55
4	Corporations	6644.000	2.43	6644.00	2.00
5	Forests	4903.642	1.80	4893.59	1.47
6	Irrigation	2611.900	0.96	2611.90	0.79
7	PWD (NH)	1781.570	0.65	1781.57	0.54
8	Others (Railways, KSEB)	328.000	0.12	328.00	0.10
	Total	273113.30	100.00	331904.11	100.00

Source: Various Departments

(7.03 per cent) and others 10,996.02 km (4.14 per cent) with varying standards.

According to State Crime Records Bureau of Kerala, 4,440 deaths and 46,055 injuries were reported in Kerala in 2019 from 41,111 road accidents. NATPAC has identified 340 black spots in the State. Road traffic accidents are basically related to driver, road condition, vehicle and environment. Road Safety being a complex issue it requires consistent, prolonged and concerted efforts from various stakeholders to achieve the goals.

The major development indicators of transport and communication sector in the State since 2011 are given in **Appendix 11.1.1**.

The outlay and expenditure in the transport sector in the Annual Plan 2019-20 and 2020-21 (expenditure upto September 2020) are given in **Table 11.1.3**.

Financial Performance in 2019-20 and 2020-21 (upto September 2020)

An amount of ₹1,36,713 lakh was provided as outlay in 2019-20 for roads and bridges sector and the expenditure reported during that period was ₹1,98,698.96 (145.34 per cent). An amount of ₹10,243 lakh was provided as outlay in 2019-20 for road transport sector and the expenditure reported during that period was ₹1,04,709.32 lakh (1022.25 per cent). In 2020-21, the outlay earmarked for Roads and Bridges

Table 11.1.3 Outlay and expenditure in the transport sector in 2019-20 and 2020-21 (expenditure upto September 2020), in ₹ lakh

Sl. No	Sub Sectors	Annual Plan 2019-20		Annual Plan 2020-21	
		Budgeted Outlay	Expenditure (%)	Budgeted Outlay	Expenditure upto September 2020 (%)
1	Port Department	11006.00	4,158.98 (37.79)	12083	911.12 (7.54)
2	Roads and Bridges	136713.00	1,98,698.96 (145.34)	110210	73607.45 (66.79)
3	Road Transport	10243.00	1,04,709.32 (1022.25)	14768	655.01 (4.44)
4	Inland Waterways	13145.00	2853.43 (21.71)	11110	1337.7 (12.04)

Source: State Budget 2019-20 and 2020-21, and Planspace, State Planning Board

Table 11.1.4 Department-wise outlay and expenditure of the roads sector in 2019-20 and 2020-21, in ₹ lakh

Sl. No	Departments	Annual Plan 2019-20		Annual Plan 2020-21	
		Outlay	Expenditure (%)	Outlay	Expenditure upto September 2020 (%)
1	PWD (Roads and Bridges)	125789	74727.18 (59.4)	100616	58737.59 (58.37)
2	PWD (NH)	10924	20728.91 (189.76)	9594	14869.85 (154.9)
	Total	136713	95456.09 (69.82)	110210	73607.45 (66.79)

Source: State Budget 2019-20, 2020-21, and Planspace, State Planning Board.

Sector and Road Transport was ₹1,10,210 lakh and ₹14,768 lakh. The corresponding expenditure reported as on September 30, 2019 was ₹73,607.45 lakh and ₹655.01 lakh respectively.

Roads

The major road network of Kerala, though well connected, faces severe constraints because of the urban sprawl and the haphazard ribbon development all along the routes. The existing traffic levels at most stretches are excessive and beyond the road capacity. The traffic on roads is steadily increasing at a rate of 12 to 14 per cent a year. Capacity augmentation of existing roads is beset with problems relating to limited right of way and land acquisition.

The Department-wise outlay and expenditure of the Roads sector in the Annual Plan 2019-20 and 2020-21 are given in the **Table 11.1.4**.

Black Spots

According to Ministry of Road Transport and Highways (MoRTH), Government of India, road

accident black spot on National Highways is a road stretch of about 500m in length where five accidents involving serious injuries/fatalities or ten fatalities took place during the past 3 calendar years.

According to National Highway Authority of India (NHAI), hazardous locations are evaluated based on Accidents Severity index (ASI). Hazardous spots with Accidents Severity Index (ASI) more than Threshold value (Average Severity + 1.5*Standard Deviation) will be treated as Black spots. For estimation of ASI, the weightage to fatal accident will be assigned as 7 and to grievous injury accident as 3, was considered based on NHAI's criteria.

NATPAC had finalised the list of 340 priority black-spots all over Kerala based on crash data provided by Police Department for the years 2016-2018 and submitted report to Kerala Road Safety Authority (KRSA) in December, 2019. A total of 340 road stretches were prioritised as 'Priority crash black-spots' in 2019 by conducting a series of geospatial and statistical analysis, which were further classified into high-risk black-spots (232 locations) and moderate-risk

Table 11.1.5 Summary of Black spots in Kerala based on road type

Sl. No.	Type of road	Number of black spots		Total Black spots
		High Risk	Moderate Risk	
1	National Highway	157	64	221
2	State Highway	49	31	80
3	Other Roads	26	13	39
	Total			340

Source: NATPAC

black-spots (108 locations). Summary of Black spots in Kerala based on road type is given in **Table 11.1.5**.

A total of 221 black spots are identified on the National Highways in Kerala, of which 157 locations are High-Risk and 64 locations are Moderate-Risk. Of the 80 black spots identified on the State Highways, 49 road sections belong to High-Risk Category and the remaining 31 road sections belong to Moderate-Risk Category. Out of 39 crash black-spots identified on the Other Roads, 26 locations are of High-Risk and 13 locations are of Moderate-Risk.

Out of 21 black spots for which AS has been issued from Plan fund 2018-19, 11 black spots has been rectified and the rectification works of other black spots are in progress.

PWD Roads Wing

Roads and Bridges wing of PWD is mandated to look after State Highways, MDRs and other District roads in the State. PWD roads constitute 18 per cent of the total road network in the State carrying nearly 80 per cent of the road traffic within the State. The total length of roads maintained by PWD (Roads and Bridges) is 31,812.106 km in 2019-20, of which 4,341.651

km (13.65 per cent) is State Highways and 27,470.455 km (86.35 per cent) is Major District Roads (MDRs).

The road density in Kerala is 390 km per 100 square km, which is roughly three times the national average. No additional length of roads is added to SHs and MDRs. The imperative was to take up works involving road improvements, repair and maintenance of existing roads, relaying and upgradation with a view to address geometrical improvement, junction improvement and other technical corrections.

Out of the State highways of 4,341.651 km, 41.26 km is four lanes, 4,256.15 km is two lanes and remaining 44.24 km is single lane roads. Out of the 27,470.455 km of MDRs, 57.93 km is four lanes, 17,183.24 km is two lanes and remaining 10,229.17 km is single lane roads.

In 2019-20, development and improvement of roads for a total length of 3,676.852 km have been carried out including 1,445.496 km of BM and BC under various Plan schemes. This includes 786.304 km State Highways (184.68 km BM/BC) and 2,890.548 km Major District Roads (1,260.816 km BM/BC).

Box 11.1.1 Major Highlights of PWD Roads in 2019-20

- 184.68 km BM and BC, 38.47 km Normal resurfacing, 563.154 km Drains has been completed under State Highway (Development and Improvement).
- 106 Nos. culverts have been completed under State Highway (Bridges and culverts).
- Road safety signages and road furniture in State Highway and Major District Roads in 37.16 km has been completed.
- Hill Highways 51.95 km completed.
- Major District Roads (Development and Improvement)-1,260.816 km BM and BC, 652.684 km normal resurfacing and 977.048 km drains completed.
- 79.55 km road stretches, BM and BC works completed under NABARD assistance.
- In Major District Roads (Bridges and culverts), 806 No's culverts completed.
- 75 Culverts and one bridge completed under NABARD (Bridges and culverts)
- 194.74 km Sabarimala Road works completed.
- KHRI transformed into a Centre of Excellence (CoE).

Source: PWD (Roads and Bridges), GoK

Out of the total roads maintained by PWD (31,812.106 km), Kottayam District has the major share with a length of 3,456.214 km (10.86 per cent). Wayanad District has the lowest share with a length of 1,029.314 km (3.24 per cent). Details of District-wise and category-wise length of roads maintained by PWD (Roads and Bridges) as on September 30, 2020 is given in **Appendix 11.1.2**. Major highlights of PWD Road sector in 2019-20 is given in **Box No. 11.1.1**.

PWD Bridges Wing

Bridge is the most significant component of road transportation system that imparts infrastructure facilities to roads and highway network in our country. In 2018, a new wing for maintenance of the existing bridges and construction of new bridges was started. A total number of 2,716 bridges are maintained by PWD Bridges Wing, out of which 622 bridges are in State Highways and 1,990 are in Major District Roads/ Other District Roads and 104 bridges maintained by PWD in Village Roads/ROBs. Details are given in **Appendix 11.1.3, 11.1.4 and 11.1.5**.

After inspection related with Enath Bridge, it has been identified that 162 bridges need to be reconstructed. Thereafter due to unprecedented floods in 2018 and 2019 it was found that 208 bridges needed reconstruction. Out of which Administrative Sanction was accorded for 62 bridges, in which 3 works were completed, 3 works are nearing completion, 16 works are ongoing and the remaining works are in various stages for tendering process. 146 bridges need Administrative Sanction.

Among 160 bridges across National Waterway (NWW) and State Waterway (SWW) identified under bridges wing PWD, 69 bridges (27-National Waterway, 42-State Waterway) needs reconstruction as per standard norms of inland water transport. At present there are 312 bridges under construction, which are under (i)139 Budget work (ii) 127 KIIFB projects (iii) 15 NABARD projects (iv) 8 Kasaragod Development Projects (v)19 Reconstruction works (vi) One Deposit work and (vii) 3 MLA ADF works are ongoing.

Major Initiatives of PWD (Roads and Bridges) in 2018-19 is given in the **Box 11.1.2**.

The State PWD is responsible for policy, planning, design, construction and maintenance of the State Highways, MDRs and the National Highways on behalf of the National Highway Authority of India (NHAI). State PWD performs an extremely vital role in the systemic provision of road infrastructure. However, they need to be reoriented to the current needs with emphasis on private sector participation and implementation of large scale projects through multilateral assistance from agencies like Japan Bank for International Cooperation (JBIC), World Bank and Asian Development Bank (ADB).

PWD National Highways (NH) Wing

Ministry of Road Transport and Highways (MoRTH) is planning the development of NHs in Kerala. The NH Wing of State PWD is responsible for the upkeep and development of NHs in the State, mainly through GoI assistance. There are

Box 11.1.2 Major initiatives of PWD, Roads and Bridges in 2018-19

- Initiatives to improve efficiency, quality and management of PWD
- Design wing decentralised and Regional Design Offices formed.
- Strengthened Investigation and Quality wing.
- New unit for road maintenance wing formed
- With technical support from Central Road Research Institute (CRRI), 6,000 km roads (State Highway) has been selected for implementing Road Maintenance Management System (RMMS) funded by World Bank

Source: PWD (Roads and Bridges), GoK

11 NHs comprising 1,781.50 km length within the State. Of the total road length, the length with PWD is 1557.99 km and length with NHAI is 223.6 km. The State NH Wing maintains 172.30 km four lane and above, 1333.65 km 2 lane and 275.6 km less than 2 lane roads. As part of the up-keeping of NH in traffic worthy condition, improvement works are carried out using State Plan Funds and maintenance works are done using State Plan or Non Plan funds. Apart from this, Central Road Fund works sanctioned by MoRTH are first met from State Plan Head for CRF works and later get reimbursed from MoRTH.

Among the 11 NHs, the Walayar-Edappally NH 544 (old NH 47), Edappally-Aroor stretch of NH47 (new NH66) and Vallarpadam-Kalamassery NH 47C (new NH 966A) are being developed/maintained by NHAI. Maintenance of Urban links to NHs and NH road stretches bypasses are with NH wing. Routine maintenance, traffic safety works in National Highways, junction improvement works, bypass works, which are essential in the State, are being carried out through Kerala budgetary support. Central Road

Fund allocation is also used for the development of State roads, that is, State Highways and MDRs. The details are presented in **Table 11.1.6**.

Widening of NH-47 – Karamana to Kaliyikkavila

Construction of 5 km stretch from Karamana to Pravachambalam has been completed as Phase I Reach I. The land acquisition for Phase I Reach II, that is, 6.5 km from Pravachambalam to Vazhimukku has been sanctioned for ₹364.97 crore and is in progress. Administrative Sanction amounting to ₹162.46 crore is accorded through KIIFB for the construction. The work from Pravachambalam to Balaramapuram (5km) is awarded to M/s ULCCS Ltd for ₹112.07 crore with construction period of 24 months and is expected to be completed by December 31, 2020. The land acquisition for the balance 1.5 km from Balaramapuram to Vazhimukku will be completed this year. Investigation and DPR preparation of Phase II of the project, that is, for 17 km from Vazhimukku to Kaliyikkavila is in progress.

Table 11.1.6 National Highways (NH) in Kerala

Sl. No	New No.	Old No.	From	To	Length with NHAI and NH, PWD (km)	
1	66	NH 17	Thalappadi	Edappally	420.77	669.43
		NH 47	Edappally	Kaliyikkavila	248.66	
2	544	NH 47	Walayar	Edappally	168.14	
3	85	NH 49	Bodimettu	Kundanoor	167.593	
4	744	NH 208	Kollam	Kazhuthuruthy	81.280	
5	766	NH 212	Kozhikode	Muthanga (Kerala- Karnataka Border)	117.600	
6	966	NH 213	Kozhikode	Palakkad	125.300	
7	183	NH 220	Kollam	Theni(Tamil Nadu Border)	216.30	
8	966 B	NH 47 A	Wellington Island	Kundanoor	5.920	
9	966 A	NH 47 C	Vallarpadam	Kalamassery	17.20	
10	183 A		Bharanikkavu	Pathanamthitta (via) Vandipperiya	116.80	
11	185		Adimaly	Kumili (via) Painavu	96.00	
Total					1,781.50	

Source: PWD (NH)

Kollam and Alappuzha Bypasses

Kollam and Alappuzha bypasses on the NH 47 are being implemented on a cost sharing basis between Central and State Governments. The total cost of the two projects is ₹700.48 crore and an amount of ₹350.24 crore as State share is included in the major infrastructure development project by the State Government.

Kollam bypass having a length of 13 km in NH 66 (Old NH 47) was constructed with financial participation of Government of Kerala and Government of India with 50:50 cost sharing basis. The bypass includes 3 major bridges, new 7 km road and widening of 4 km existing road. The work commenced on May 27, 2015 under EPC mode, was completed and inaugurated on January 15, 2019. The importance of Kollam bypass is that it touches 3 major National Highways-NH66, NH 183 and NH 744 passing through the State. The construction of Kollam Bypass has been completed on EPC basis at a revised cost of ₹352.05 crore.

Construction of Alappuzha bypass, 6.80 km 2 lane with paved shoulders in NH66 (Old NH 47) from km 408/100 to 414/900 on EPC basis with 50:50 cost sharing between Government of Kerala and Government of India (MORTH) was sanctioned for ₹348.43 crore. M/s RDS CVOC (JV) is the contractor of this EPC Project with a contract sum of ₹274.34 crore. The progress achieved as in September, 2020 is 98.60 per cent, and is expected to be completed by the end of November, 2020.

Coastal Highway

State Government has decided to construct a Coastal Highway parallel to the existing NH 66 starting from Kollankode in Kerala-Tamil Nadu border in the south and ending at Kunjathoor in Kasaragod District having a total length of 655 km amounting to ₹6,500 crore with funding support from KIIFB. The proposed coastal highway passes through 9 Districts, that is Thiruvananthapuram, Kollam, Alappuzha,

Ernakulam, Thrissur, Malappuram, Kozhikode, Kannur and Kasaragod. It will have connectivity with major ports such as Vallarpadam, Vizhinjam and Kollam.

15 km stretch of coastal highway construction from Padinjarekkara to Unniyal in Malappuram District amounting to ₹52.78 crore is in progress and currently 52 per cent of the work has been completed. AS has been issued for 3.85 km of coastal highway construction from Mohyudeen Palli to Kettungal Bridge in Malappuram District for ₹26.0 crore.

Detailed Project Report for other three works was submitted to KIIFB for according Administrative Sanction. DPR under preparation for another 7 road stretches and investigation for 9 bridges has been completed. It is decided to construct Coastal Highway with minimum 14 m ROW and land acquisition units have been constituted and Tahsildars with supporting staff deployed.

Present status of Coastal Highway is given in **Table 11.1.7**.

Hill Highway

The proposed Hill Highway envisages the development of the much needed North-South corridors through the hilly regions by upgrading or improving the existing network optimally.

The alignment of Hill Highway passes through all Districts of Kerala except Alappuzha. Also, the alignment of Hill Highway passes through forest area in 8 Districts and action is being taken for getting required forest land for the development of Hill Highway. KRFB is designated as SPV of the project.

Total length of Hill Highway is 687.179 km and it is split up into different reaches for speedy implementation of the project. The DPR of 21 reaches has been prepared and submitted to KIIFB for Financial assistance. KIIFB has accorded Financial Sanction for total 21 reaches for a total amount of ₹1,726.397 crore. The total

Table 11.1.7 Present Status of Coastal Highway

District	Length (km)	Stretch	Present Status
Thiruvananthapuram	78.00	Kollenkode-Kappil Bridge	Proposal for land acquisition of Chiranyinkeezhu constituency submitted to KIIFB. Drone survey completed. DPR preparation under progress.
Kollam	55.10	Kappil bridge-Azhikkal	Alignment stone laying from Pozhikara to Thanni in progress and requisition submitted to Revenue Department for LA. DPR under preparation for the rest of the stretches
Alappuzha	82.10	Valiazheekkal-South Chellanam	DPR under preparation for the stretches
Ernakulam	49.90	South Chellanam-Munambam Beach	Tender process of hiring Consultant for the preparation of DPR in Ernakulam and Thrissur District are in progress
Thrissur	63.90	Azheekode-Edakkazhiyoor	Work in progress for 15 km length from Padinjarekara to Unniyal. Stretch from Kettungal Bridge to Mohiyudeen Palli in tendering stage. Investigation in progress for balance stretches
Malappuram	69.40	Singapore Palace Junction-Kadalundy	
Kozhikode	102.45	Kadalundy-Poozhithala	DPR submitted to KIIFB for a length of 22 km. Boundary stone laying under progress for 8.60 km. Survey and Investigation in progress for rest of the stretches.
Kannur	72.70	Mahe-Ramanthali	Administrative sanction accorded for 4.66 km stretch for an amount of ₹ 34.71 crore, Investigation completed for 45.80 km. Investigation and estimate preparation in progress for balance stretches
Kasaragod	80.70	Valiaparambha Beach-Thalapady	DPR submitted for a stretch of 24.90 km. Investigation work for Bridges under progress.
Total	654.25		

Source: PWD (NH)

length of sanctioned reaches is 549.413 km and works started in the 11 reaches. The work of other sanctioned reaches will be taken up immediately on getting sufficient land for the project.

PWD (Road Maintenance) Wing

Separate wing for Road Maintenance was created under Chief Engineer (Road Maintenance) vide G.O (MS)No.39/2017/PWD dated.29.06.2017 and established seven Division offices and Fourteen Sub Division offices each for each District as per GO (Rt.)No.1519/2018/PWD dated 25.09.2018.

The Road Maintenance wing is carrying out the data collection required for the implementation of Road Maintenance Management System (RMMS) in 4000km road from 2019 July onwards. The overall objective of RMMS is to establish an enhanced and user friendly web based road information system. The main objective of RMMS is to optimise the use of limited resources available for maintenance works, to have a systematic approach and planning of road maintenance work programme and to reduce the entire transport costs through proper and timely maintenance works. The target for the completion of this project is December,

2020. But due to the COVID-19 pandemic situation, the survey works cannot be completed in time and it is likely to be completed only at the end of the financial year 2020-21.

Data collection for the implementation of Output and Performance Based Road Maintenance Contract (OPBRC) for selected roads of Kerala for a period of 5/7 years was also started in 2019-20. Both the projects (OPBRC and RMMS) are being carried out with the financial assistance of World Bank through KSTP.

The prioritisation of Core Road Network (CRN) has also been done broadly based on economic importance, connectivity to economic growth centres and strategically important corridors, traffic volume, share of commercial vehicle, public transport routes, disaster relief and climatic resilient functionalities. As per G.O (P) No.1/2020/PWD dated 7.4.2020, notification has been issued for 7000 km PWD roads as Core Road Network (CRN).

Kerala State Transport Project (KSTP)

KSTP-II is a World Bank assisted project and bank has approved a cost of ₹2,403 crore (US\$445 million) for the project. Though the loan agreement with the Bank was signed on June 19, 2013, the effective date of the agreement was September 2013. Though the loan closure date was April 2019, it was extended to April, 2021. The disbursement ratio is 56 per cent by World Bank and 44 per cent by GoK for the eligible items (except land acquisition and operation cost).

The objective of the project is to improve the riding quality of 363 km road section with enhanced road safety provisions. The project has three components (A) Upgradation of 363km of road; (B) road safety management; and (C) institutional strengthening. The roads identified for improvement pass through about 87 villages covering eight Districts. The project includes innovative components like development of a demonstration safe corridor of 80 km,

strengthening of Kerala Road Safety Authority and other institutions including PWD Road Safety Cell, Community Participatory Road and Asset Management Programmes, strengthening of Public Information and Grievance Redressal Cell in PWD and the pilot project on Road improvement through Public Private Partnership (PPP).

The following works are progressing under KSTP Phase II project. The details are presented in **Table 11.1.8.**

Challenge Fund Programme

Challenge fund falls under Component B-Road Safety Management as per the World Bank's Project Appraisal Document (PAD) for KSTP-II programme. The objective of this programme is to develop, through local partnerships, another five "safe corridors/zones" across the State. The Challenge Fund is intended to elicit innovative road safety proposals in a collaborative effort between local road user stakeholder groups and DRSCs, KRSA, PWD and KSTP. The Challenge Fund will target high risk locations with opportunities to address highly vulnerable road users (pedestrians, cyclists, motor cyclists). The evaluation criteria for the fund will be based on the accident history, innovativeness of approach and the extent of local participation and commitment.

The following works are progressing under the Challenge Fund. The details given in **Table 11.1.9.**

Rebuild Kerala Initiative Projects (German Bank/World Bank assisted)

As per G.O (Rt.) No.235/2020/P&EA dated 29.5.2020, Administrative sanction was issued to implement road reconstruction works for ₹3,346.09 crore under RKI utilising World Bank assistance of ₹1,200.0 crore and KfW loan (German bank) assistance of ₹1,800.0 crore. World Bank would provide 100 per cent assistance under Development Policy Loan. But

Table 11.1.8 List of completed and on-going projects under Phase II with State fund, 2019-20, in ₹ crore

Sl.No	Name of work	Revised contract amount	Financial Progress as on May 31, 2020	Physical Progress (per cent)	Remarks
1	UG 1-Kasaragod-Kanghangad Road (27.78 km)	114.00	122.85	100	Completed
2	UG 2-Pilathara-Pappinisserry Road (20.90 km)	102.00	101.62	100	Completed
3	UG 3 A-Thalassery-Kalarode Road (28.80 km) (Re-arranged)	156.00	104.81	63.74	Rearranged. Expected date of completion December, 2020.
4	UG 3 B Kalarode-Valavupara (25.20 km) (Re-arranged)	200.00	191.46	86.49	Re arranged. Work in progress. Expected date of completion for Iritty bridge is December 31, 2020 and for Kootupuzha is April 30, 2021.
5	UG 4-Chengannur-Ettumanoor Road (47.70 km)	288.00	278.35	100	Completed
6	UG 4 A-Thiruvalla Bye pass (2.3 km)	37.03	16.55	51.12	Re arranged. Work in progress. Expected date of completion December, 2020.
7	UG 4 B-Thiruvalla Town (2.00 km)	7.77	4.83	98	Completed
8	UG 5-Ettumanoor-Muvattupuzha Road (40.12 km)	159.00	164.71	100	Completed
9	UG 6-Ponkunnam -Thodupuzha Road (50 km)	270.00	223.25	100	Completed
10	UG 7-Perumbilavu-Perinthalmanna Road (39.37 km)	8.11	7.58	100	Completed
11	Safe Corridor Demonstration Project Kazhakuttam-Adoor	146.67	122.51	100	Completed

Source: KSTP

Table 11.1.9 Works progressing under Challenge Fund, in ₹ crore

Sl. No.	Proposals received from DRSC	Project Corridor	Length of Corridor	Estimated Cost	Status
1	Kozhikode	Pavangad-Korapuzha (civil work awarded)	5.5 km	10.00	Work in progress
2	Thiruvananthapuram	Medical College-Kannamoola-Pettah	5.0 km	7.50	Work tendered.
3	Kollam	Kottiyam-Kundara PWD Road	11.6 km	5.00	Work tendered.
4	Ernakulam	Vypin-Munambam e-Yatra Project)	25 km	10.02	Work tendered.
		Total	47.1 km	81.32	

Source: KSTP

KfW project loan assistance would be 70 per cent and balance will be State share.

As part of the Rebuild Kerala Initiative (RKI), KSTP had undertaken reconstruction/restoration of the roads damaged due to the floods and landslides in 2018 to make them traffic worthy. For this purpose, 62 roads (1,600 km) were proposed by the PWD Roads Wing with a preliminary cost estimate of ₹2,807.0 crore. The 62 roads were further reduced to 59 based on the immediate impact of flood event on the infrastructure and the anticipated socio-economic growth factors. DPR preparation of the entire selected roads is almost ready and bidding for arranging the contract works has already been started. The projects funded by the World Bank are proposed to be arranged under EPC mode and the projects funded by German bank will be arranged under item rate contract.

Kerala Road Fund Board (KRFB)

KRFB is a statutory body under the State Government established by the Kerala Road Fund Act (KRF Act) 2001. The Board mainly implements the City Road Improvement Projects on Public Private Participation (PPP) mode. The Thiruvananthapuram City Road Improvement Project has been implemented by KRFB on PPP (BOT-Annuity) mode involving the development of 42.069 km of roads in the capital city and its maintenance for 15 years after construction. The construction works under the project have been completed, and now maintained on annuity payment mode. The annuity amount is ₹35.498 crore for each year.

Kozhikode City Road Improvement Project

Phase I (A)

KRFB has completed the Kozhikode City Road Improvement Project Phase I (A), which involved development of 22.251 km of 6 corridors at a total cost of ₹211.00 crore. The project was taken up on Design, Build, Finance, Operate and Transfer (DBFOT) Annuity mode. The

work commenced on January 05, 2016 and the concessionaire completed the entire works by December 15, 2017, before the Schedule Project Completion Period (SPCD) and annuity amount is ₹46.22 crore for each year.

Phase I (B)

Kozhikode City Road Improvement Project Phase I (B)-Mananchira-Vellimadukunnu Road is one of the corridor in total seven corridors included in Phase-1(A) Kozhikode CRIP. Since land acquisition works were not completed, the project could not be taken up with Phase 1(A). The total fund sanctioned for land acquisition amounts to ₹344.50 crore. The acquisition of land is progressing.

Subsequently, KRFB initiated Kozhikode City Road Improvement Project Phase II involving development of 10 roads for a length of 29.24 km. Now, the project is under DPR preparation stage.

Kannur City Road Improvement Project

The other project initiated by KRFB is Kannur City Road Improvement Project, on DBFOT-Annuity mode which involves development of 44.065 km of 11 corridors at an estimated cost of ₹401.467 crore excluding land acquisition cost. Sanction was also accorded for acquisition of 26 hectares of land at an estimated cost of ₹337.648 crore for the implementation of Kannur City Road Improvement Project on DBFOT-Annuity mode. In 2019 Government has accorded sanction to form special LA unit and started actions to acquire 14.5 Ha of land for 4 corridors namely C1, C3, C8 and C12 and site inspection works for land acquisition under progress.

Other City Road Improvement Projects

The other projects initiated by KRFB are Alappuzha City Road Improvement Project Phase I (B) (Muppalam Junction Improvement) and Phase II, Thrissur City Road Improvement

Project, Kollam City Road Improvement Project, Kottayam City Road Improvement Project, Malappuram City Road Improvement Project, and City Road Improvement Projects in 6 towns (namely, 1, 2, 3, 4, 5 and 6).

In addition to the regular PPP works, KRFB is also engaged in funding of PWD projects. Under Sustainable and Planned Effort to Ensure Infrastructure Development (SPEEID) Kerala Programme 4 projects and in District Flagship Infrastructure Project (DFIP) works, 5 projects are funded by KRFB.

After the amendment of KIIFB Act, KRFB was entrusted as the SPV for KIIFB funded projects.

Road Infrastructure Company Kerala Limited (RICK)

RICK Limited is a special purpose vehicle incorporated under Indian Companies Act, 1956 by KRFB. GoK had taken initiative to implement State Road Improvement Project (SRIP) aimed at the development of selected State Highways and MDRs. There are two packages under the SRIP-Rehabilitation under PPP annuity mode and the up gradation with funding from multilateral funding agencies. The rehabilitation package is intended to improve 83 km of roads in two packages A and B in Thiruvananthapuram,

Kottayam and Kasaragod Districts at a total cost of ₹209.91 crore.

Government had approved the lowest bid of package – A (modified) and package – B at semi annuity of ₹10.73 crore and ₹18.70 crore respectively. During construction period, the concessionaires have been paid equity grants of ₹14.9 crore and ₹21.5 crore respectively for Package – A (Modified) and Package – B in 5 instalments, according to the phase of completion of works. Major activities of RICK in 2019-20 are given in **Box 11.1.3**.

Research and Development in Road Sector

Research and development activities play an anchoring role in developing innovative models and techniques to address the challenges in modernising the road system in general and technology up gradation with cost effective infrastructure measures in particular. Design, Research, Investigations and Quality Control Board (DRIQ Board), Kerala Highway Research Institute (KHRI) and National Transportation Planning and Research Centre (NATPAC) are the research organisations currently engaged in research and development of the road transport sector.

Box 11.1.3 Major activities of RICK in 2019-20

1. Package A under State Road Improvement Project

Construction of two roads under Package A – Uppala – Kaniyana Road (9.4 km) and Vidya Nagar-Seenthangoli Road (15.6 km) with project cost of ₹81.00 crore. The construction period is one year and maintenance period is 14 years. Since 2019-20, the project is under Operation and Maintenance period and annuity amount of ₹21.46 crore released to the Concessionaire.

2. Package B under State Road Improvement Project

Construction of two roads under Package – B, Kanjirappally-Kanjiramkavila Road (36.10 km) and Vellanad-Arynadu – Chettachel Road (21.90 km) at a project cost of ₹128.91 crore. The construction period is two years and maintenance period is 13 years. From 2019-20, the project is undergoing Operation and Maintenance period and an annuity amount of ₹37.4 crore released to the Concessionaire.

3. Karamana-Vellarada Road-land acquisition procedure under processing.

Source: RICK

1. PWD (Design wing)

The main activities of the Design Wing are structural design of Bridges, Buildings, DPR preparation of Roads and Bridges, Quality Control of PWD Projects, Research and Advanced Training to staff of PWD. In 2019-20, 134 bridges design works completed at an approximate amount of ₹20,000 crore. Design for upgradation of Alappuzha-Changanassery road in Alappuzha and Kottayam Districts are completed.

2. Kerala Highway Research Institute (KHRI)

KHRI, the regional office is the quality control wing mandated with the task of assuring quality in works undertaken by PWD. Quality control sub division of Pathanamthitta, Alappuzha, Kollam Districts are under the jurisdiction of KHRI.

To act as an advisory body/ think tank for transforming the road sector in Kerala by prioritising the thrust areas and providing thought leadership, strategic advice and problem-solving inputs, KHRI was upgraded as Centre of Excellence vide G.O.(Ms) No.53/2020/PWD dated 11.6.2020. This CoE is proposed to act as an advisory body/ think tank for transforming the road sector in Kerala through five identified thematic areas namely, Innovation in design/construction practices Road asset management, Road safety management, Quality assurance and contract management and Promoting indigenous research and development.

3. National Transportation Planning and Research Centre (NATPAC)

NATPAC is the research centre conducting research and development and extension activities in the field of transportation and allied areas under Kerala State Council for Science, Technology and Environment (KSCSTE) with the Science and Technology

department. The broad areas of activities by NATPAC includes transportation, planning and road safety, regional transportation, highway planning and development, traffic management, water transport and providing consultancy services to various user agencies in the domain area.

NATPAC has been providing technical services and advices to different levels of Government machinery like local bodies, departments, agencies and ministries on almost all aspects of transportation. They cover areas like road safety, traffic engineering, environmental issues, policies and programs, urban transport, public transport issues, tourism and Inland water transport. Some of the major services provided by the Centre are as follows:

- i. Identification and prioritisation of crash black spots in Kerala State.
- ii. Enhancing road safety with adaptive traffic signal system-demonstration cum implementation.
- iii. Designing of model road safety corridors.
- iv. Periodic updation of price indices for different public transport and freight operations.
- v. Investigation of major accident spots, causative analysis and mitigation.

Road Transport

Road transport activities in road sector are carried out by KSRTC and Motor Vehicles Department (MVD) in the State. KSRTC is rendering essential and economical transport service to the general public. The Motor Vehicles Department envisions to ensure road safety and transparency in all the services rendered, to enforce Motor Vehicles Act and Rules effectively in order to reduce accidents as well as enhance motor vehicle tax collection.

In Kerala, the road transport industry is dominated by private service providers. The road freight services are wholly owned and operated by the private sector.

Table 11.1.10 Department-wise outlay and expenditure of the road transport sector in 2019-20 and 2020-21, in ₹ lakh

Sl. No	Departments	Annual Plan 2019-20		Annual Plan 2020-21	
		Outlay	Expenditure (%)	Outlay	Expenditure as on 9/2020 (%)
1	Kerala State Road Transport Corporation (KSRTC)	5600	0	9991	0
2	Motor Vehicles Department	4643	408.19 (8.79)	3877	655.01 (16.89)
3	SCT College of Engineering	0	0	900	0
	Total	10243	408.19 (3.95)	14768	655.01 (4.43)

Source: State Budget 2019-20, 2020-21, and Planspace, State Planning Board.

The Department-wise outlay and expenditure of the Road Transport sector in the Annual Plan 2019-20 and 2020-21 are given in the **Table 11.1.10**.

Motor Vehicle Department

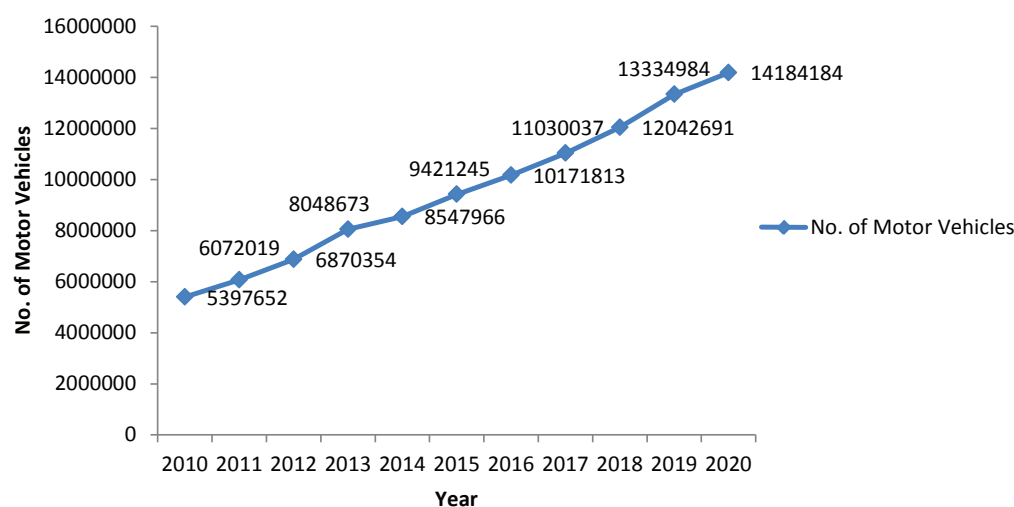
Kerala has 141.84 lakh registered motor vehicles as on March, 2020. For the last two decades it has experienced a compounded annual growth rate of above 10 per cent. The number of vehicles per 1,000 populations for Kerala as on March 2019 is 425. According to world development indicators (2015), number of vehicles per 1,000 populations

in India is 18, China 47 and United States 507, which means Kerala's vehicle population, is far ahead of China and at par with developed countries.

The growth of vehicle population in Kerala has decreased to 6.36 per cent over the previous year's population of 10.7 per cent. The growth of motor vehicles during last eleven years is shown in **Figure 11.1.1**.

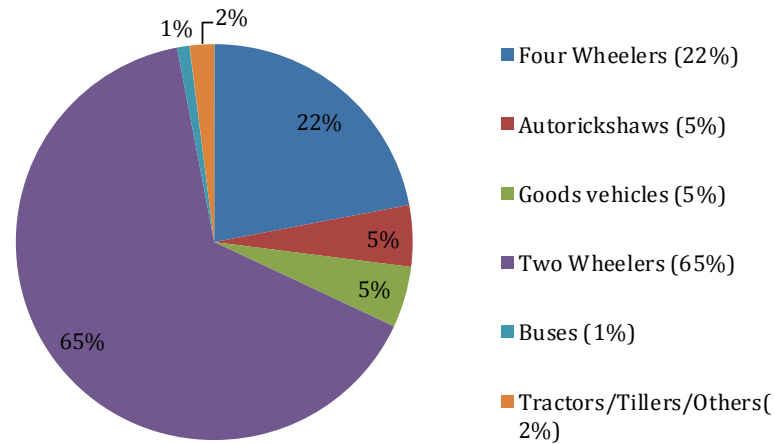
The number of motor vehicles having valid registrations as on March 31, 2020 is 1,41,84,184 as against 1,33,49,984 in the previous year. The

Figure 11.1.1 Growth of motor vehicles since last eleven years



Source: Motor Vehicles Department, Government of Kerala

Figure 11.1.2 Distribution of motor vehicles registered by type in 2019-20



Source: Motor Vehicles Department, Government of Kerala

details are in the **Appendix 11.1.6**. The number of newly registered vehicles in 2019-20 is 8,49,200 (12,92,295 in 2018-19) and the details are given in **Appendix 11.1.7**. The revenue earned by Kerala Motor Vehicles Department through vehicle tax and others has risen from ₹1,831.15 crore in 2012-13 to ₹3,625.31 crore in 2018-19 and in 2019-20 the revenue collection was ₹4,582.92 crore, which is 26.41 per cent increase over the previous year. The revenue earned in 2020-21, till September, is ₹1,063.72 crore. The percentage of category-wise motor vehicles registered in 2019-20 is shown in **Figure 11.1.2**.

The District-wise growth of motor vehicles numbers in Kerala is given in **Appendix 11.1.8**. The highest vehicle population was recorded in Ernakulam District with 20,55,842 vehicles (14.49 per cent) followed by Thiruvananthapuram with 17,72,975 (12.49 per cent). Wayanad District has the lowest number of 2,35,759 (1.66 per cent) vehicles. Category-wise growth of motor vehicle registrations in Kerala during 2012 to 2020 is given in **Appendix 11.1.9**. The mismatch between growth in motor vehicles and the capacity augmentation of roads has resulted in increasing traffic congestion and road accidents throughout Kerala.

The growth in auto sector sales in 2019-20 and 2020-21 (upto September) is given in **Box 11.1.4**.

The two wheeler registration in Kerala as on September, 2020 is 51,979 as against 56,171 in the previous year, showing a decrease in (-)7.46 per cent. In 2020, upto September 2020, the number of three wheelers registered is 1,182. At the same time it was 2600 during the previous year. The three wheelers registration shows (-)54.54 per cent decrease in registration. The Vehicle Registration details in Kerala in 2019-20 and 2020-21 (upto September, 2020) is given in **Table 11.1.11**.

The loss in revenue to the State Government in the form of vehicle taxes, registration, fees and fines amount to ₹276.20 crore in March and April as compared to corresponding period in 2019.

Major schemes implemented by Motor Vehicles Department are road safety measures, establishment of vehicle testing stations and modernisation of check posts. Under Radar Surveillance System, with the help of Speed and Red Light Violation Detection Cameras, so far 17,64,430 offences were booked and ₹16.33 crore collected. The budgetary support to Motor Vehicle Department is mainly for administrative,

Box 11.1.4 Growth in auto sector sales in 2019-20 and 2020-21 (upto September)

With social distancing on customer's mind coupled with Government's push to further normalise business conditions and banks becoming more considerate to finance vehicles, entry level passenger vehicles saw good demand thus indicating a preference for personal transportation over public. New launches and vehicle availability played their part as catalyst. A lower base during last year also helped the cause.

Indian retail industry, especially the passenger vehicle segment and tractor, steered back to the growth path in September 2020. However, Two wheelers (2W), Three wheelers (3W) and Commercial vehicles (CVs) remained in slow lane in their year on year (YOY) performance.

The industry reported registration of 13,44,866 vehicles in September, 2020 as against 14,98,283 vehicles registered in September 2019, less by 10.24 per cent.

Passenger vehicles (PVs) registration reported in September, 2019 was 1,78,189 marking 9.81 per cent growth YoY at 1,95,665 vehicles in September, 2020, making a remarkable comeback of sorts as economy showed visible signs of revival, Government creating conducive atmosphere for ease of doing business, new launches and people preferring personal transport over public transportation.

Two-wheelers registered amounted to 10, 16,977 vehicles in September, 2020 against 11, 63,918 vehicles registered in September, 2019, a slide down of 12.62 per cent.

Three wheelers registrations during the month stood at 24,060 vehicles, down 58.86 per cent from 58,485 vehicles in September 2019.

Commercial vehicles in its performance over pre-Covid times, lagged behind by 33.65per cent YoY to 39,600 vehicles against 59,683 vehicles registered in September 2019.

Vehicle Registrations in September continues to grow by 11.45 per cent on MoM basis but falls by -10.24 per cent on YoY basis. On yearly comparison, 2-Wheeler degrows by -12.62per cent, 3-Wheeler by -58.86per cent and CV by -33.65 per cent. PV for the first time grew by 9.81per cent since unlocking began.

Source: Federation of Automobile Dealers Associations (FADA)

Table 11.1.11 Vehicle Registration in Kerala, 2019-20 and 2020-21 (upto September, 2020)

Category	September 2020	September 2019	YoY %
2W	51979	56171	-7.46
3W	1182	2600	-54.54
CV	1966	2257	-12.89
PV	17934	18372	-2.38
TRAC	24	26	--7.69
Total	73085	79426	-7.98

Source: Federation of Automobile Dealers Associations (FADA)

Table 11.1.12 Scheme-wise outlay and expenditure of Motor Vehicles Department in 2019-20 and 2020-21 (expenditure upto September 2020,) in ₹ lakh

Schemes	Annual Plan 2019-20		Annual Plan 2020-21	
	Outlay	Expenditure (%)	Outlay	Expenditure
Road Transport Safety Measures	1400	0	580	0
Implementation of E-governance in the M.V. Dept.	132	0	120	0
Vehicle cum Driver Testing Stations	675	200.61	1076	103.32
Modernisation of MV Check Posts	1050	0	500	39.20
Setting up of Model Inspection and Certification Centre	1	0	1	0
Motor Vehicle Department-Establishment of new Sub Offices	188	0	100	11.29
E-Mobility Promotion Fund	1197	207.58	1500	501.20
Total	4643	408.19 (8.79)	3877	655.01 (16.89)

Source: Planspace, State Planning Board

governance and regulatory infrastructure, road safety initiatives as well as human resource development.

The scheme-wise outlay and expenditure of Motor Vehicles Department in 2019-20 and 2020-21 (expenditure upto September 2020) is given in **Table 11.1.12**.

The major physical achievements of Motor Vehicles Department in 2019-20 and 2020-21 are given in **Table 11.1.13**.

Major Upcoming Projects

1. As part of the Safe Kerala project, purchase of 65 electric vehicles of Tata Nexon EV model on

Table 11.1.13 Major physical achievements of Motor Vehicles Department in 2019-20 and 2020-21

2019-20	2020-21
As part of the State level inauguration of 31st National Road Safety week, 17 Interceptor Vehicles for innovative enforcement have been flagged off on January 13, 2020.	Commissioned 6 new Sub Regional Transport offices at Konni in Pathanamthitta, Varkala in Thiruvananthapuram, Pathanapuram and Chadayamangalam in Kollam, Ramanattukara (Feroke) in Kozhikode and Payyannur in Kannur Districts
As part of the Closing ceremony of 31st National Road Safety week, "Digital Enforcement", an Android based Point of Sale system program has been inaugurated on January 17, 2020.	
235 staff has been trained under e-Governance Capacity Building Scheme	
A Computerised Vehicle Testing Station and Driving Testing Track have been commissioned at Thaliparampa (Kannur District) and at Kasaragod.	
E-Challan app has been launched for facilitating online payment through VAHAN.	
Purchased 68 Digital Camcorder for the Driving Test Monitoring System project devised for recording the Driving Tests of applicants.	

Source: Motor Vehicles Department

- dry lease, for strengthening the enforcement activities is expected to be completed soon.
2. Centralised Vehicle Pollution Testing system with the help of NIC to ensure the efficacy of pollution testing certificates issued by the testing centres is in progress.
 3. Centralised printing and delivery of polycarbonate based Driving Licenses and Registration Certificate project with international security features through M/s. Kerala Books and Publication Society Ltd, Kochi is expected to be launched soon.
 4. Establishment of an International Driving Testing Track Cum Coaching centre to enable Indian citizens to acquire Driving License competing with international standards initiated. This will enable them to drive in foreign countries especially gulf nations.
 5. Wireless Communication network project enabling the department's enforcement officers to interact with each other during natural disasters is expected to be rolled out soon.
 6. As part of the Safe Kerala project to reduce accident rates and ensuring road safety; 14 District control rooms and 1 centralised control room is expected to be completed before March 31, 2021.
 7. Motor Vehicles Department with the help of CDIT is ready to launch a bilingual website for publishing information in both Malayalam and English languages.

E-Governance Initiatives

Government aims to strengthen web based database of the vehicles and adopt E-Governance for online payment of taxes, registration, modern methods of vehicle tracking and monitoring systems.

Automatic Driver Licensing System and Automatic Vehicle Testing System

1. Piloted Vahan for Vehicle registration and Sarathy for driver licenses.
2. All RTOs to install automatic driver licensing systems and vehicle testing systems to ensure

fit to ply and pollution free vehicles on the road.

3. Strict test and usage of indicators and seatbelt.

Vahan and Sarathi-Web based Software

Vahan-4 (web based application software intended to carry out the works related to Vehicle registration) and Sarathi-4 (web based application software intended to carry out the works related to Driving Licenses) are intended for use across the country. Vahan and Sarathi facilitated with Smart Card/Plastic Card based licenses and Registration certificates are far superior to current laminated cards.

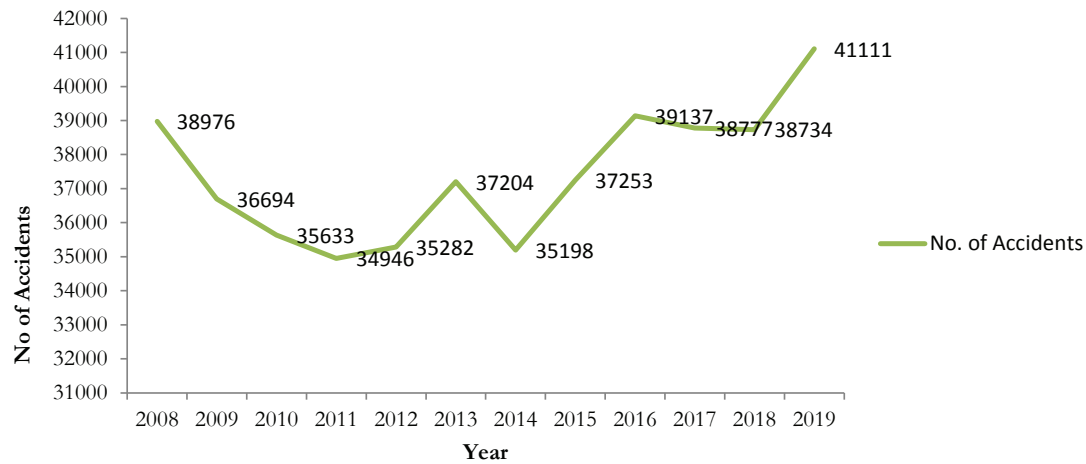
Road Safety

Even though several initiatives have been taken by the Police to enforce road discipline and also enforcement of rules by Motor Vehicles Department, road accidents are increasing. The increasing trend of traffic accidents is a matter of great concern. The District-wise motor vehicle accidents in Kerala and the category-wise details of motor vehicles involved in road accidents are given in **Appendix 11.1.10** and **11.1.11** respectively.

From January to September 2020, Kerala registered 20,012 accidents. Accidents due to KSRTC buses in 2019-20 were 865 and other bus was 3,192. The number of two wheelers has increased from 86.20 lakh in 2018-19 to 92.07 lakh in 2019-20, recording average annual growth rate of 6.80 per cent. The number of traffic crashes involving two wheelers has decreased from 34,473 (94 per day) in 2018 to 16,970 (46 per day) in 2019. Bike accidents account for nearly 41 per cent and Motor Cars for 27 per cent respectively of the total accidents reported in the State. Trend of Motor Vehicle Accidents in Kerala is presented in **Figure 11.1.3**.

The accidents per lakh vehicles registered in the State was 305 in 2018-19, and it reduced to 289 in 2019-20. In 2020-21

Figure 11.1.3 Trend of motor vehicle accidents in Kerala



Source: State Crime Records Bureau

Table 11.1.14 Accident trend in Kerala in 2010-2020

Year	No. of Motor Vehicles	No. of Accidents	Accidents/lakh vehicle
2010	53,97,652	35,633	660
2011	60,72,019	34,946	576
2012	68,70,354	35,282	514
2013	80,48,673	37,204	462
2014	85,47,966	35,198	412
2015	94,21,245	37,253	395
2016	1,01,71,813	39,137	385
2017	1,10,30,037	38,777	351
2018	1,20,42,691	38,734	322
2019	1,41,84,184	41,111	289

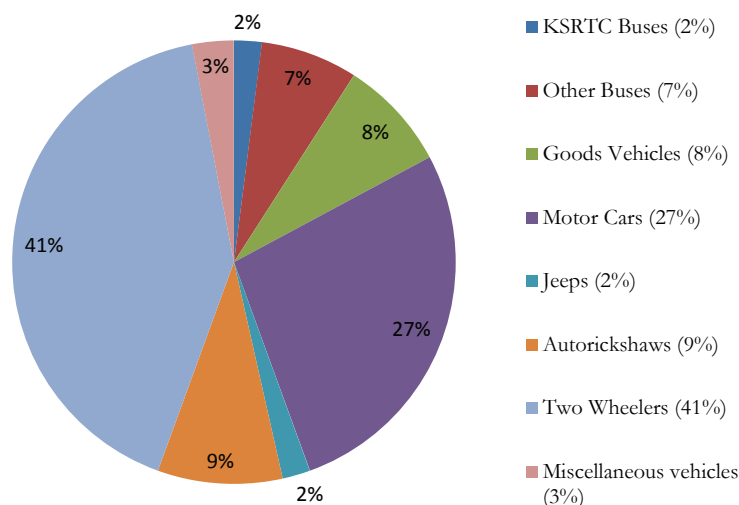
Source: Motor Vehicles Department, State Crime Record Bureau

(upto September, 2020), 20,012 road accident cases reported. It can be seen that the accident occurrences had exhibited fluctuation during various time periods although not showing any definite patterns of growth or decline. But it is to be highlighted that there is a constant decrease in accidents/lakh vehicles every year since 2010. The accident trend in Kerala during 2010-2020 is given in **Table 11.1.14**.

Most of the accidents are attributable to the fault of drivers as per records available with traffic

police. However, deficiencies in road design also affect motor vehicles, a fact generally overlooked as bad road conditions. Road safety training for various categories of road users, rectification in road design, deficiencies in inclusion of road safety aspects in the planning and operation stages of road construction are the primary facts to be taken up for reducing accidents. The percentage of vehicle category-wise accidents in Kerala in 2019-20 is shown in **Figure 11.1.4**.

Figure 11.1.4 Details of road accident by vehicle type in Kerala, in 2019-20



Source: State Crime Records Bureau

Kerala State Road Transport Corporation (KSRTC)

KSRTC is the single largest public sector undertaking, carrying out passenger transport operations in the State. The Corporation is now on the way of transformation. Government is framing various projects for the rejuvenation of KSRTC within the next three years with the whole hearted support and co-operation of its employees, which is expected to turn around the Corporation. Government intends to achieve this target while reducing the operational cost and by increasing the revenue. KSRTC also aims for the development of infrastructure and modernisation of workshops and total computerisation (implementation of e-office in Chief Office and three Zonal Offices). Plans for converting the diesel buses into CNG, LNG and purchasing of new electric buses within the next five years have been proposed. This in turn is expected to reduce the air pollution and to reduce fuel consumption by 30 per cent.

Innovative projects for increasing the non-operating revenue have also been planned. Government policy is to make public conveyance

available to the public from all walks of life more affordable, compared to using their own vehicle. Government is also planning to operate non-diesel buses in Thiruvananthapuram city for reducing air pollution. As an initial step for transforming public transport, KSRTC buses are being modified to that effect, followed by private buses, which is expected to result in declaring Thiruvananthapuram as the second 'Green City' after New Delhi in the Country.

The gross revenue earning of KSRTC decreased from ₹2,091 crore to ₹2,053 crore in 2019-20. The gross revenue expenditure in 2019-20 is ₹2344 crore compared to ₹2,554 crore in 2018-19 and operating loss in 2019-20 period is ₹291 crore compared to ₹227 crore in 2018-19.

Out of 5,493 buses of KSRTC, 2,396 (43.61 per cent) buses are ten or more year's vintage. In 2020, the number of buses on wet lease basis is 18, including 10 Scania and 8 electric buses. The age-wise details of buses owned by KSRTC are given in **Appendix 11.1.12**. The average earning per vehicle per day on road of the corporation has increased from ₹12,688 in

Box 11.1.5 Major internal indicators of KSRTC, in 2019-20

- Average Fleet held: 5,496
- Average Fleet operated: 4,153
- Average age of Fleet (Years): 10
- Over aged vehicles: 43 No's
- Staff strength: 29,148
- Staff per bus ratio (fleet held): 1:5.3
- Staff per bus ratio (fleet operated): 1:7
- Staff productivity (km/staff/day): 580
- Fuel efficiency (km/litre of HSD): 4.19 km/Ltr.
- Occupancy Ratio: 603 passengers

Source: Kerala State Road Transport Corporation

2018-19 to ₹13,521 in 2019-20. The major indicators showing operational efficiency and District-wise operational statistics of KSRTC are given in **Appendix 11.1.13** and **11.1.14** respectively.

The basic fares charged by KSRTC for ordinary and city buses are 70 paise per km. The fares of super-fast buses are 78 paise per km, 85 paise to super deluxe services, 93 paise for A/C Air bus and 145 paise for high-tech Volvo buses. The fare structure of KSRTC is given in **Appendix 11.1.15**.

As part of fleet renovation, KSRTC has introduced multi axle buses like Scania on wet lease basis from its dealers and operated in inter -State routes.

Financial performance of KSRTC is not in tune with its physical achievements due to an increase in operating expenditure, hike in pension commitments, increase in interest payments, operation in uneconomic routes and granting of concessional travels leading to increasing losses for the corporation.

Private operators are dominant in passenger transport operation in the State. Fleet utilisation of KSRTC is only 75.56 per cent. Out of 5,493 buses of KSRTC, 2,369 (43.12 per cent) buses are ten or more year's vintage. The number of buses owned by KSRTC is given in **Appendix 11.1.16**. The major internal indicator of KSRTC is given in

Box 11.1.5. The operational efficiency of KURTC is given in **Appendix 11.1.17**.

Heavy losses due to operational inefficiency, high bus/staff ratio, operation in uneconomic routes and unviable depots are some of the issues/challenges faced by KSRTC.

KSRTC is looking forward to a radical change in its operations which intends to provide amenities to the travelling public through implementing various Plan schemes/programmes during the 13th Five-Year Plan.

The scheme-wise outlay and expenditure of KSRTC in 2018-19 to 2020-21 (expenditure upto September, 2020) is given in **Table 11.1.15**.

Achievements in 2020-21

- KSRTC Commenced 'Relay' Point to Point service on June 26, 2020 to facilitate long distance travel during Covid-19 phase. The service is operating at 1 hour intervals. The bus is sanitised at every intermediate halts by fully complying with the guidelines of Government.
- KSRTC commenced-Bus-on-Demand("BonD") service on July 2, 2020. The service provides dedicated service for office goers upto their office entrance gate and assured seat. Facilities for bike parking at the boarding station and travel card with discount for regular passengers are the major attention of the service.

Table 11.1.15 Scheme wise Outlay and Expenditure from 2018-19 to 2020-21, in ₹ lakh

Sl. No	Scheme/ Components	Objectives	Annual Plan 2018-19		Annual Plan 2019-20		Annual Plan 2020-21	
			Outlay	Expenditure	Outlay	Expenditure (%)	Outlay	Expenditure
1	Development of Infrastructure and Modernisation of workshops	To improve the basic amenities in the bus depots	3464.00	0.00	3450.00	0.00	3193.00	0.00
2	Total Computerisation and E-Governance in KSRTC	Intended for sustaining the IT initiatives	1330.00	0.00	2030.00	0.00	1698.00	0.00
3	Providing Training to Drivers, Technical Personnel and Officers	Training and capacity building within the Organisation	120.00	0.00	120.00	0.00	100.00	0.00
4	Modernisation and Qualitative Improvement of Fleet	Purchase of new electrical CNG/ LNG buses as per Euro standards	1.00	0.00			5000.00	0.00
5	Loans to Kerala State Road Transport Corporation	Working Capital requirement				103353.89		
	Total		4915.00	0	5600.00	103353.89 (1845.60)	9991.00	0.00

Source: Planspace, State Planning Board

Academic Infrastructure Development of Sree Chitra Thirunal College (SCT), Thiruvananthapuram (An autonomous Institution under Transport Department)

Sree Chitra Thirunal College of Engineering (SCTCE), Thiruvananthapuram started functioning as a full-fledged engineering college from 1995 onwards. The college is one among the top few colleges which offers high quality engineering education in all the three levels namely, Graduate level, Post Graduate level and Doctoral level education. The present admission strength is nearly 2000 students. The placement is consistent and is one among the top three or four colleges in the State in terms of placement. The entire admission is purely on merit basis only and the fee structure is a subsidised one decided by the State Government.

The Government has provided an amount of ₹9.0 crore in 2020-21 to Sree Chitra Thirunal College of Engineering, Pappanamcode for the Academic Infrastructure Development for the construction of 2nd and 3rd floor of library block, construction of a ladies hostel and research block

Administrative Sanction has been received for the construction of ladies hostel for an amount of ₹6.0 crore vide G.O. (Rt.) No.245/2020/TRANS dated 23/07/2020 and for an amount of ₹1.73 crore vide G.O. (Rt.) No.242/2020/TRANS dated 21/07/2020 for the construction of 2nd and 3rd floor above library block. Because of Covid-19, the construction of ladies hostel has not yet started.

Electric Mobility Initiatives

Kerala is poised to become the first State in the country to deploy electric vehicles (EVs) for enforcement activities. The Motor Vehicles Department (MVD) has placed orders for 'plug-in electric vehicles' for 65 Enforcement Squads of the Safe Kerala project for enforcing motor vehicles rules and to ensure road discipline. The 65 EVs are being dry-leased from the Energy Efficiency Services Ltd (EESL), a Central Government institution under the Ministry of Power, through the Agency for Non-Conventional Energy and Rural Technology (ANERT). The MVD is the first to go for bulk EVs on lease in the State as per the Government decision not to purchase new vehicles.

The Government has opted for the dry lease (car without chauffeurs) of Tata Nexon EV for eight years by payment of upfront cost. An EV-charging network will also come up in the State with charging stations set up in the 65 offices of the Enforcement Squads. As the vehicles run for 312 km in one charging, the exchequer can save considerable money as per-km cost will be less than one rupee.

The Government is yet to take a call on making available the charging stations to the public using

EVs and on roping in home guards as drivers for the EVs to be procured by the MVD. The maintenance of the 65 EVs will be taken care of by the EESL.

Customised vehicles

The EVs being procured will be customised for enforcement activities and all gadgets for monitoring motor vehicles like speed radars will be installed in it. In addition to the driver, there will be one MVD officer during daytime and two at night in these vehicles that will be on the roads round the clock.

Details of electric vehicles registered is given in **Table 11.1.16**.

Kerala Automobiles Limited (KAL)

The research and development activities for the development of electric auto rickshaw, Kerala Neem G, were started on May 2018. The prototype vehicle was sent to the Automotive Research Association of India, Pune for getting road worthiness certificate as per Central Motor Vehicle Rules (CMVR) which is mandatory for RTO registration. The official commencement of commercial production of Kerala Neem G was started on July 10, 2019. KAL appointed more

Table 11.1.16 Electric vehicles registered in 2020-21

Sl. No.	Type of vehicle	Number of e-vehicle registered
Transport Vehicle		
1	Electric auto Rickshaw	223.00
2	Three wheeler goods	0.00
3	E Rickshaw	0.00
4	Motor Cab	3.00
	Total	226.00
Non Transport		
1	Motor Cycle	152.00
2	Motor Car	222.00
3	Three wheeler	0.00
	Total	374.00
	Grand Total	600.00

Source: Motor Vehicles Department

than 15 dealers in Kerala and around 50 dealers in India. However due to the current Covid crisis, supply of critical components like motor, lithium ion batteries had stopped from January, 2020 onwards as these critical components are imported from outside countries. KAL is hopeful of streamlining production once Covid crisis is over and expects to produce 15,000 vehicles per year. KAL is the only PSU to have got the CMVR certification for electric autos and is competing with corporate automobile manufacturers. Presently, KAL products are globally accepted and as a result have received orders from Nepal. KAL received a number of enquiries from Sri Lanka, Bangladesh, Taiwan, Kenya, Egypt and, African countries. KAL has enhanced its production capacity from 7,200 units to 15,000 units per year.

Presently, KAL has only 150 employees working in different verticals. On achieving the targeted production of 15,000 units, employee strength is expected to be enhanced to 750, which will create employment opportunities. Due to the steady growth of KAL, the allied industries will also become economically viable which will create indirect employment.

Future Plans

a. E Rickshaws:

KAL has already submitted one prototype vehicle for Central Motor Vehicles Rules (CMVR) certification at Automotive Research Association of India (ARAI). The ARAI certification was expected to be obtained by April 2020. However, due to Covid-19, it is delayed.

b. Electric Wheel barrow:

Developed a prototype of Electric wheel barrow suitable for various applications such as garbage collection and construction works. The equipment is very useful for waste management by LSGDs. Discussions with LSGDS are going on for commercial supply.

c. Lithium Battery Manufacturing:

A joint venture with M/s Toshiba Batteries, Japan is proposed for manufacturing of lithium titanate batteries in KAL. The project can be started after obtaining approval from the Government. In addition, company itself is planning for packaging of lithium ion cells and its manufacturing.

d. Development of BS VI Vehicles:

M/s Greaves Cotton Ltd has submitted a proposal for the development of BS VI CNG/LPG vehicles. The approximate lead time for development is 12 months. This project can be started after obtaining approval from the Government. In the BS VI category, company is planning for Petrol, Diesel, CNG and LPG vehicles. On introduction of CNG/LPG vehicles, company is planning to commence the retro fitment of existing diesel vehicles to LPG/CNG vehicles.

Company has also plans to coordinate with technical institutions in our State to engage engineering graduates, provide them on the job training for vehicle manufacturing. After the completion of the training, they will be inducted to vehicle production units thereby providing employment to them. Another proposed scheme is to set up an R and D incubation centre with the help of engineering students in KAL itself and combine the expertise of KAL workforce with ideas of young students to make innovative products.

The company is planning for the manufacture of electric scooters, cars and buses. Electric scooters are expected to be launched before 2021 and electric cars are expected to hit the market during the second half of 2021-22. KAL has the potential to become a major player in the market in coming years.

Issues, Challenges and Way Forward in Road Transport Sector

Most of the roads in the State do not have

adequate width to address the existing level of traffic, only one fourth of the roads have either two lanes or four lane capacity while most of the roads have single lane or intermediate lane capacity. In the case of National Highways, only about 12 per cent of the roads have four lane capacities while the remaining roads have only two lanes or intermediate lane capacity. Bulk of the inter-city and interstate traffic is carried by the National and State Highways which are only 8 per cent of the total network. Considering the demand supply gap, there is a huge need for up gradation of existing road network. The existing road network has to undergo a qualitative improvement with the aim to reduce traffic congestion and delay, easy access to destinations and reduction in accident risks. Most of the PWD roads have to undergo massive upgradation with widening and incorporating road safety features.

An action plan should be made for prioritising the road works in the State. Major emphasis should be given to widening the State Highways and MDRs along with professional design and adequate drainage facilities. The new road development initiative like the National Highway 4 laning, hill highways, coastal highways and bypasses. needs to be completed during the 13th Five-Year Plan period.

There is a need to undertake futuristic development of State Highways, important MDRs and city roads in the State, through geometrical improvement, junction improvements, covering pedestrian facilities, utility ducts, re-laying the roads incorporating technical corrections and entering into maintenance contracts. Road side parking is another issue to be addressed to improve the level of service.

Co-ordination between the physical infrastructure providers- PWD, Railways, Inland Transport Authority, Airports and Coastal Shipping Agencies to build transport infrastructure, operate and maintain the existing ones are required. Physical infrastructure has to be designed to support an intermodal transport network.

Rail Transport

Kerala occupies a significant position on the Indian Railways map with 1,257 route km and 1,588 km of total track. Thiruvananthapuram and Palakkad divisions of the Southern Railways are the administrative Divisions. Palakkad Division has a total route length of 577.74 km. Palakkad Division operates 99mail/express and 60 passenger trains and 64 freight trains. Thiruvananthapuram division has a total route length of 623 km. It operates about 170 mail/express /passenger trains and 8 goods trains per day. All the railway lines passing through the State have been converted into broad gauge. There are about 200 railway stations in the State (95 under Palakkad Division and 105 under Thiruvananthapuram Division). In 2018-19, electrified rail route under Thiruvananthapuram Division is 1,197 km and received a revenue earnings of ₹1,703.67 crore. Doubling and electrification works are in progress in various parts of the State. Feasibility studies for some new lines are also underway in the rail sector.

Kerala Rail Development Corporation (KRDCL)

KRDCL, a joint venture (JV) company between GoI and GoK, has been formed with the objective of taking up major railway infrastructure development projects in Kerala on a cost sharing mode. The Joint Venture (JV) is registered with an equity share of 51 per cent and 49 per cent between GoK and GoI and proposes to take up the upcoming railway projects in Kerala through project specific SPVs.

The JV Company has an initial paid up capital of ₹100 crore based on the quantum of projects to be undertaken. The authorised equity share capital and paid up capital can be enhanced from time to time with the approval of Ministry of Railways (Railway Board) and the State Government. Total land required for the project as on May 2019 was 1,226.45 Ha. Of which, 1,074.19 Ha is private land. 107.98 Ha is Government Land and 44.28 Ha is railway land

Table 11.1.17 Major Initiatives of KRDCL project in 2019-20

Sl.No	Projects	Present Status
1	Construction of New BG line between Thalassery and Mysore via Mananthavady	The survey in Kerala side has been completed. Approval process for getting survey permission in Karnataka State is in progress. M/s Konkan Rail Corporation Limited has prepared the revised Feasibility Report of Thalassery – Mysore Rail Project. The 200 km corridor is estimated to cost ₹ 13,987 crore. M/s KRCL proposed Heli-borne Geo-physical Survey in Kerala and Karnataka States that can be conducted without any public resistance and disturbing ecology of area.
2	Construction of new BG Line from Nilambur to Nanjangud	KRDCL propose a common gate way across Western Ghats to meet the requirements of both Thalassery – Mysore and Nilambur-Nanjangud projects. A discussion has been proposed between Kerala and Karnataka State to be held under the Chairmanship of Chief Secretary for the approval of alignment.
3	Development of New Terminus Station at Ernakulam (ERG) with Commercial Development Plan	The DPR was entrusted to KITCO Cochin and has been approved by Board of Directors of KRDCL and submitted to Railway Board in December, 2017. The Rate of Return for this proposal is 18 per cent. This proposal requires approval from Railway Station Development Authority/ Railway Land Development Authority.

Source: Kerala Rail Development Corporation Ltd

along the existing line. Status of the projects identified by KRDCL is given in **Table 11.1.17**.

Silver Line (Semi High Speed Rail)

The Silver Line Project is a 529.45 km long Semi High Speed Rail corridor connecting Kasaragod and Thiruvananthapuram, which will enable to run its Semi High Speed Train at an operating speed of 200 kmph. This will ease the transport between North and South ends of the State and reduce the total travel time to 4 hours against the existing 10-12 hours. The Project is envisaged as 100 per cent Green Project.

The corridor will traverse through 11 Districts and have 11 stations namely, Thiruvananthapuram, Kollam, Chengannur, Kottayam, Ernakulam, Kochi Airport, Thrissur, Tirur, Kozhikode, Kannur and Kasaragod. It will connect airports, IT Parks, health facilities, institutions, cultural amenities, and commercial nodes. By 2028, Semi High Speed Rail (SHSR) will divert road vehicles and trucks from road, causing reduction of approximately 2,87,994 tonnes of carbon dioxide equivalent and 5,94,636 tonnes by 2051. The connectivity to rural areas

through last mile connectivity using aggregate services and feeder services and mobility of goods through train, that is, RORO service has also been proposed.

The Kerala Rail Development Corporation Limited (KRDCL) prepared the pre-feasibility report of the project and submitted to Railway Board. Railway Board insisted for a detailed study and to submit a Project Report as per existing norms and practices for Railway Projects. K-Rail had prepared the Feasibility Report of the Silver Line Project through M/s Systra, Paris and has been approved by Government of Kerala as per G.O. (Ms) No. 43/2019/Trans dated 26.08.2019. Ministry of Railways, Government of India vide their Order No. 2019/JVCell/KRDCL/SHSRC dated. 17.12.2019 has also accorded In-Principle Approval (IPA) for the Project. Accordingly, the Detailed Project Report (DPR) for the above Project has been prepared with project cost of ₹63,941 crore. The Detailed Project Report has been approved by the Board of Directors of K-Rail and got approval from Government of Kerala as per the order G.O. (Ms) No. 18/2020/Trans dated 11.06.2020 and forwarded to Ministry of Railways and NITI Aayog for approval. The

Table 11.1.18 Technical/Design Specifications

Item	Design Specification
Route Length and No. of Stations	529.45 km, 11 No's
Gauge	Standard Gauge, 1435mm
Number of lines	Double track (One way)
Rolling stock	9 cars initially and 12 cars later

Source: Kerala Rail Development Corporation Ltd

Project has been prioritised as Special Project of Government of Kerala.

The Technical/ Design specification of Thiruvananthapuram-Kasaragod Semi High Speed Rail is given in **Table 11.1.18**.

Kochi Metro Rail Project (KMRP)

KMRP is the flagship project of the GoK designed to address the transportation woes of Kochi City. The project is implemented through the

Kochi Metro Rail Ltd (KMRL) which is a SPV jointly owned by the GoK and GoI through equity participation. The GoI gave sanction for the project in July 2012 at a total cost of ₹5,181.79 crore for Aluva-Petta 25.612 km stretch, on a fully elevated metro viaduct with 22 stations. KMRL has signed an agreement with GoI and Delhi Metro Rail Corporation Ltd (DMRC) for executing the project as per the tripartite agreement signed between GoI, GoK and KMRL. The details of the on-going project are given in **Table 11.1.19**.

Table 11.1.19 Details of on-going projects, Kochi Metro, in ₹ crore

Phase	Reach	Connected places	Length (km)	Project Cost (₹ crore)	Present Status
Phase I	Aluva to Petta (22 stations)		25.612	5687.79 (revised cost)	Commissioned on June 19, 2017
	Reach-I	Aluva to Palarivattom (11 stations)	13.40		Commissioned on October 3, 2017
	Reach - IIA	Palarivattom to Maharajas College (5 stations)	4.96		Inaugurated on September 03, 2019 and commercial operation was started on September 04, 2019
	Reach-II B	Maharajas to Thykoodam (6 stations)	5.65		Completed and ready for operation.
	Reach II C	Thykoodam to Petta (1 Station)	1.33		
Phase I (A)		Petta to S.N. Junction (Extension)	1.88	710.93 (revised cost)	Expected to commission by the end of 2021-22.
Phase I (B)		SN Junction to Thripunithura	1.20	355.70	Expected to commission by the end of 2021-22.
Phase II		JLN Stadium to Kakkanad IT City	11.00	1957.05	Land acquisition procedure will be started when the final approval is received from GoI. Preparatory works for road widening has started.

Source: Kochi Metro Rail Limited

The Phase I of Kochi Metro Project from Aluva to Petta with a stretch of 25.2 km including 22 stations has been completed. The stretch of 5.65 km from Maharajas College to Thykoodam with 5 stations was commissioned in September 2019. The statutory clearance for the opening of part of Phase I from Thykoodam to Petta (Reach 2C) with a length of 1.33 km and 1 station is received on May 28, 2020, and the stretch was opened to the public after the removal of COVID-19 lockdown on September 7, 2020 with all preventive measures.

The gross revenue earnings of Kochi Metro has decreased from ₹94.0 crore in 2019-20 to ₹14.96 crore in 2020-21. The gross revenue expenditure in 2020-21 is ₹41.41 crore compared to ₹116 crore in 2019-20 and the gross operating loss in 2020-21 period is ₹26.45 crore compared to ₹22 crore in 2019-20. In 2019-20, the number of passengers carried decreased from 181 lakh in 2019-20 to 1.746 lakh in 2020-21, showing a

decrease of 98.25 per cent in passenger carrying. The details are given in **Appendix 11.1.18**.

Major Highlights/Achievements of KMRL is given in **Table 11.1.20**.

Going Forward

Execution of Phase 1A from Petta to SN Junction is in progress and the stretch expected to be commissioned in March 2022. The Phase 1B from SN Junction to Thripunithura stretch is in progress and expected to commission in August 2022. The approval of Phase II JLN Stadium to Infopark via Kakkanad is expecting clearance from GoI and construction related activities are expected to start by December 2020. Preparatory works from Kakkanad junction to Infopark express way entrance (2.5 km) is in progress and that from JLN Stadium to Kunnumpuram (4.5 km) is awarded and work is expected to be completed by December, 2021.

Table 11.1.20 Major Highlights/Achievements of KMRL in 2019-20 and 2020-21

2019-20	2020-21
The stretch of 5.65 km from Maharajas College to Thykoodam with 5 stations was commissioned in September 2019.	Phase I of Kochi Metro completed with commissioning of 1.33 km stretch from Thykoodam to Petta.
Balance stretch of 1.33 km. stretch from Thykoodam to Petta ready for commissioning in March 2020.	Solar PV Project with a capacity of 5.445 MW awarded.
For airport connectivity Kochi Metro introduced the 'Pavandoot' service, that is, electric a/c bus service which operates between Kochi airport and Aluva Metro station.	6 stations of Kochi Metro including Depot and its corporate office are certified Platinum rated by Indian Green Building Council (IGBC).
Seaport airport road-preparatory works for Phase II awarded and work under progress.	Commenced rainwater harvesting system at metro stations.
The construction of Phase IA civil contract awarded and work is in progress. Target completion date November 2021.	E and M, Power and Traction works for combined Phase 1A and 1B was awarded.
Detailed Design Consultant contract for Phase IB (SN Junction to Thripunithura) awarded.	Civil works for Phase 1B awarded and work is in progress. Target completion date May 2022.
MoEFCC has granted environmental clearance for Kochi Water Metro project.	Phase 1A (Petta to SN Junction) Finishing and Architectural works was awarded. Water transport-Contract for 'Construction of 8 terminals) awarded and work under progress.
Design and Construction of 100 Pax (23 nos) of Boats was awarded	Works for construction of Floating pontoons awarded. Land Acquisition-SIA study for 14 terminals completed.

Source: Kochi Metro Rail Limited

Model projects, Specific achievements and Best practices

KMRL has constructed a Combined Auxiliary and Traction substation at Muttom Depot. The new substation will ensure continuous uninterrupted 415 V AC Auxiliary and 750 V DC Traction Power supply system. Six stations of Kochi Metro including Depot and its corporate office are certified Platinum rated by Indian Green Building Council (IGBC) for energy efficiency and sustainability and KMRL is the only metro with complete IGBC rating.

The Kochi Metro Rail Limited commenced the rainwater harvesting system at metro stations. It is expected that 420 lakh litres of water can be collected in 22 metro stations in a year. The rainwater harvesting project is being implemented with the technical support of SCMS Water Institute.

Impact of COVID-19

Due to COVID-19 lockdown the operation of Kochi Metro was stopped from March 22, 2020 to September 6, 2020. The passenger traffic has declined considerably affecting the earnings from the Metro services. The impact of COVID-19, increase in cost of construction materials and wages of labors have affected the cost of the project. Immediate mobilisation of labors and staff also becomes difficult due to the compulsory 14 days quarantine period. Restrictions in transportation of materials from other States and Districts, affects the mobilisation and procurement of construction materials and equipment. Due to social distancing, daily transportation of labors from camp to sites has a cost impact. COVID-19 pandemic has adversely affected the progress of construction activities.

Kochi-Metropolitan Transport Authority (MTA)

The Kochi Metropolitan Transport Authority (KMTA), the first authority of its kind in India to integrate, plan and regulate different commuting

modes, was formed on November 1, 2020. The authority was formed based on the Kerala Metropolitan Transport Authority Act, which is in force from April, 2020. Such comprehensive Act is formulated for the first time in the country, which will give powers to plan, coordinate and manage the urban transport in the city of Kochi and creating a single network of integrated, shared and green transportation system for the people of Greater Kochi Region. The Act had mandated for creating Urban Transport Fund (UTF) under each MTA and provisioned powers to source revenue to UTF.

Light Metro Rail Projects at Thiruvananthapuram and Kozhikode

Light Metro Rail Project is a Mass Rapid Transit System (MRTS) proposed to be implemented in the cities of Thiruvananthapuram and Kozhikode through a SPV, Kerala Rapid Transit Corporation Limited (KRTL). The DPR has been prepared by DMRC. GoK has accorded administrative sanction for the light metro projects at a total cost of ₹6,728 crore in which GoK's share is ₹1,619 crore, GoI's share is ₹1,278 crore and loan component is ₹3,831 crore. A route length of 13.33 km with 14 stations in Kozhikode is being taken up as the first phase of the project. The estimated cost of the project is ₹4,219.00 crore for Thiruvananthapuram and ₹2,509 crore for Kozhikode, totalling ₹6,728.00 crore (including central taxes and land cost).

A new metro rail policy has been announced by GoI in August 2017, which specified guidelines to be followed in the preparation of proposals for new metro projects in the country that seek financial assistance of the GoI. These guidelines are also applicable to all existing proposals for metro rails, being processed by the GoI.

The Detailed Project Reports for Thiruvananthapuram and Kozhikode Light Metro Rail Projects, which were revised in December 2017, to comply with the new metro policy of Government of India, were reviewed by a committee headed by the Principal Secretary,

Finance, Government of Kerala. The project cost has been revised to ₹2,773 crore and ₹4,673 crore for Kozhikode and Thiruvananthapuram respectively. The committee endorsed the projects, but pointed out that the actual ridership achieved may be much lower than the projections, which will necessitate financial support from the Government in the initial years of operation.

The Board of Directors of KRTL, chaired by the Chief Minister of Kerala, considered the report in July 2019. It was decided to explore the possibility of enhancing the viability of Thiruvananthapuram Light Metro project, by linking Technopark with the Light Metro alignment.

KRTL engaged M/s. UMTC Ltd., Hyderabad to conduct a study on the feasibility of linking Technopark to the Thiruvananthapuram Light Metro alignment. UMTC completed the study and submitted the report in September 2020.

The Board of Directors of KRTL, in its meeting held on October 19, 2020, approved the revised DP of Thiruvananthapuram and Kozhikode Light Metro Rail projects, and decided to forward the same to the Government for approval and for onward submission to the Government of India. It was also decided to prepare a DPR for linking Technopark with the Light Metro.

Preparatory works in connection with the Thiruvananthapuram Light Metro Rail project, which include construction of flyovers at Sreekaryam, Pattom and Ulloor, are underway. These works are being funded by KIIFB and are presently in the land acquisition stage. Construction of the proposed flyover at Sreekaryam is likely to commence soon.

Administrative Sanction has also been accorded for widening of Mananchira-Meenchanda road, along the proposed Light Metro corridor in Kozhikode.

Water Metro Project

Kochi Water Metro Project was sanctioned by Government of Kerala in November 2015 at a total project cost of ₹748 crore envisaging a route length of 76km in 16 routes covering 38 Jetties. Administrative Sanction was accorded for ₹682.01 crore, of which ₹579.71 crore is loan component and ₹102.30 crore is State share for implementing the project. The tri-party agreement between GoI, KfW (Germany) and KMRL was signed in June 2016 for 85 million Euro. General consultancy has been awarded to AECOM Consortia and agreement with the consultancy was signed on June 2, 2017. The details are given in **Table 11.1.21**.

The updated DPR of Integrated Urban Regeneration and Water Transport System (IURWTS) for the project costing ₹1,528.27 crore is under review by the administrative department. It is targeted to get approval from KIIFB by December 2020. Ministry of Environment Forest and Climatic Change (MoEFCC) has granted environmental clearance for Kochi Water Metro project on October 2019. Geotechnical, Bathymetric and Topographic survey works of Kochi Water Metro completed. The General Consultancy Services contract for the IURWTS project envisioned to renew and rejuvenate the 6 major canals in the city of Kochi was awarded to M/s Antea Nederland BV-Antea India joint venture for an amount of ₹22.68 crore. Specialised services like LiDAR Survey, SIA studies, Bathymetry survey and Water Quality studies for IURWTS project are completed.

Table 11.1.21 Water Metro-Funding Pattern, in ₹ crore

Source	Phase I	Phase II	Ancillary infrastructure	Total
Loan	181.81	132.78	265.12	579.71
Equity	32.08	23.43	46.79	102.30
Total	213.89	156.21	311.91	682.01

Source: Kochi Metro Rail Ltd

Box 11.1.6 Vande Bharat mission (VBM)

The Mission was launched on May 7, 2020 to evacuate Indian citizens stranded abroad after the breakout of the Covid-19 pandemic and the resultant lockdowns across the world. Considered one of the largest evacuations of civilians by a country, it involved repatriations by air, land and sea. Apart from bringing Indian citizens back to the country, the mission also facilitated travel of people who wanted to leave India on account of nationality, residency work commitments. The first phase of the VBM, which lasted for 11 days from May 7 to 17, was aimed at destinations with high concentration of Indians. While it included all three modes of transportation, air travel accounted for the most, with 64 flights carrying 12,708 people into the country and an equal number of flights catering to 3,562 outbound passengers. There was an incremental rise in the number of flights operated in subsequent phases. As of October 26, the phases carried out 1,606 flights.

Most Indian returning home were from the UAE, with more than 4.5 lakh repatriations, followed by Saudi Arabia and Qatar, with 1.63 lakh and 1.04 lakh respectively. Outside the Gulf region, the US accounts for the most, 77305 people, and the UK, 39141.

Kerala received the most number of repatriated Indians. The State has had 3,72,053 people returning, followed by Delhi 2,28,705, Uttar Pradesh 1,16,609 and Tamil Nadu 1,10,246. At the bottom of the table is Dadra and Nagar Haveli, with 41 returning citizens.

The VBM is the largest civilian evacuation conducted by a country in the world. It surpasses its own large-scale airlift of 1, 10,000 people in 1990 at the onset of the Gulf War, which was considered the largest such effort before 2020.

Source: Ministry of Civil Aviation, Government of India

Water Metro will be fully commissioned by June 2022 utilising 25 boats and Terminals. The Water Metro system will have an integrated ticketing with Kochi Metro Rail.

Air Transport

The Ministry of Civil Aviation is responsible for formulation of national policies and programmes for the development and regulation of the Civil Aviation sector in the country. The DGCA is the regulatory body in the field of Civil Aviation, primarily dealing with safety issues. It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety, and airworthiness standards. The Vande Bharat mission is given in **Box 11.1.6**.

Unlike other States, where the capital city has the highest air traffic, in Kerala, air traffic is

distributed evenly over the four airports. Despite this, three international airports of Kerala are among the top 15 busiest airports in India. More than eight lakh domestic passengers and 50 lakh international passengers are using these airports facilities in the State every year.

Kerala has four international airports namely, Thiruvananthapuram, Kochi, Kozhikode and Kannur. All civilian airports functioning in the State are international airports, a feature which is unique to Kerala. Thiruvananthapuram international airport is one of the major airports in south India. It plays a major role in the world aviation map, connecting and controlling about nine international air-routes and eight domestic air-routes and provides approach control service to eight major and minor aerodromes. Kozhikode International Airport is the twelfth busiest airport in India and the third in Kerala. On completion of Kannur International Airport,

Kerala joined Tamil Nadu as the State with the most number of international airports.

Cochin International Airport Ltd. (CIAL)

CIAL was ranked the third best airport in the 50 to 150 lakh passengers category based on the 2016 Airport Service Quality (ASQ) Survey conducted by Airports Council International (ACI), Montreal, Canada. CIAL is experimenting with innovative models which are comprehensive, sustainable and cost effective. Renovated domestic terminal with State of the art facilities were inaugurated on December 12, 2018.

The airport has 3,400m length with 45m wide code E runway. Total area of the new domestic terminal is 6 lakh square feet, from the existing one lakh square feet. It also has the State of the art facilities which include 56 checks in counters, 11 gates, 7 aero bridges with a capacity to handle 2000 passengers during peak hours. The uniqueness of the airport is modern baggage handling facility. Recently 110 kV Electrical substations was inaugurated consequent to capacity enhancement of solar power plants to 40 Mwp. At present, the 40 MW solar power plants generate around 1.63 lakh units of power a day. The average consumption per day is 1.53 lakh unit. The annual savings in electricity bill is ₹36 crore and solar power plants avert an annual greenhouse emission of 37, 200 tonnes.

In 2019-20, 38,441 domestic and 29,309 international flights operated from the airport.

But in 2020-21, as on 30th September 2020, it was 5,237 and 2,851 flights respectively. In 2019-20, 50,10,380 domestic and 47,00,293 international passengers travelled to various destinations. It was 3,13,071 domestic passengers and 2,24,679 international passengers in 2020-21 (upto September 30, 2020). In 2019-20, the volume of cargo handled were 15,007 tonnes through domestic services and 58,582 tonnes through international services.

In 2020-21 upto 30 September 2020, 16,645 and 1,867 tonnes of cargo were operated through domestic and international services respectively. The revenue earnings were ₹655.04 crore in 2019-20 and ₹76.78 crore in 2020-21 upto September 30, 2020. On the other hand, the expenditure incurred were ₹407.20 crore and ₹187.32 crore in 2019-20 and 2020-21 upto September 30, 2020 respectively.

Impact of COVID-19

COVID-19 has caused severe disruption and an unprecedented crisis in the aviation industry as most countries have travel advisories-or outright bans, in place to restrict the spread of the virus. Air travel in the country and in the Cochin Airport has remained disrupted since the start of the current fiscal year. While the restriction on domestic travel in India has been easing, international traffic, which is a key driver for CIAL, is still affected by many restrictions. **Table 11.1.22** shows snapshot of the impact of Covid-19 on CIAL.

Table 11.1.22 Snapshot of impact of Covid-19 on CIAL

Sl. No	April 2020 to September 2020	Change from similar period in previous year's (in per cent)
1	Passenger traffic (in million)	
1A	Domestic	-89.00
1B	International	-91.00
2	Revenue heads	
2A	Domestic	-76.00
2B	International	-83.00

Source: CIAL

Kannur International Airport Limited (KIAL)

Kannur International Airport Limited (KIAL) was set up by GoK to build and operate Kannur International airport. The Kannur airport project is being developed in two phases by KIAL. The first phase is envisaged to span from financial year 2016-17 to financial year 2025-26 and second phase would be from financial year 2026-27 to financial year 2045-46. In phase I, the airport would have flight movements of 39,638 numbers (peak hour's 18 no's) p.a with 4.67 million passengers and 60,758 tonnes of cargo.

The facilities in the airport include a runway length of 3,050 m (10,006.56 ft), with a terminal building of 96,000 sq.m, 20 parking stands (apron), and 22, 000 sq.m Car/Bus Parking, 1200 sq.m. ATC/Technical Building and around 7,750 sq.m near the apron area of Ground Service Equipment Parking area. The Board of Directors decided to extend the length of runway from 3,050 m to 3,400 m and the land acquisition processes are in progress for this.

In 2019-20, as on September 30, 2019, 5,439 domestic flights and 2,649 international flights operated from the airport. 1,35,251 domestic passengers and 89,134 international passengers travelled in 2018-19. In 2019-20 (upto August 30,2019), 4,60,490 domestic passengers and 4,06,899 international passengers travelled to various destinations. The revenue earnings were ₹19.36 crore in 2018-19 and ₹47.01 crore in 2019-20 upto September 30, 2019. On the other hand, the expenditure incurred were ₹76 crore and ₹83.15 crore in 2018-19 and 2019-20 upto September 30, 2019 respectively.

For the first time in the history of Kannur Airport, foreign airlines started arriving at Kannur Airport. Till date, Kuwait Airways, Fly Dubai, Air Arabia, Al Jazeera, Salam Airways, Saudia, Etihad Airways, Gulf Air and Oman Air have operated to Kannur Airport. Also, for the first time in the history of Kannur Airport, wide body aircrafts have started landing at Kannur with full capacity. These are Airbus 330/Boeing 777-300/Boeing

777-300 ER flights from Kuwait Airways, Saudia and Air India. Till August 31, 2020, eleven wide body aircrafts have operated to and from Kannur Airport. It is pertinent to mention that Kannur Airport resumed its domestic operations on May 25, 2020. As on date, flights are operating to and from Delhi, Bangalore, Hyderabad, Chennai, Goa, Trivandrum, Kochi and Hubli.

Kannur Airport's role in bringing back Pravasis

Kannur Airport operated 300 international flights and brought back 50,000 Pravasis during Covid-19 pandemic. Kannur International Airport resumed its operations after Government introduced relaxation in lockdown. As part of the "Vande Bharat" Mission, Kannur Airport received its first flight on May 12, 2020. Since then Kannur Airport has received 300 flights (till 12 midnight on August 31, 2020) including non-scheduled/chartered flights, thereby bringing back 50,050 pravasis to their motherland. Passengers from almost all Gulf countries have landed directly in Kannur. These destinations are Dubai, Sharjah, Abu Dhabi, Dammam, Muscat, Doha, Kuwait, Jeddah, Riyadh, Ras Al-Khaimah and Salalah. Under this mission, Kannur Airport welcomed its first flights from four new destinations, Moscow, Dushanbe (Tajikistan), Salalah and Ras Al-Khaimah. All major Indian carriers like Air India, Air India Express, Indigo, Go Air and Spice jet operated from Kannur Airport.

Thiruvananthapuram International Airport

Thiruvananthapuram International airport is the first airport in the State. The first flight took off on November 1, 1935. After Independence, the airstrip was used for domestic flights with construction of a domestic terminal T1. The domestic terminal with an area of 99,000 Sq. ft. can handle around 400 passengers at a time. Terminal 2, with passenger handling capacity of 1600, is for international operations and also handles domestic operations of Air India. Annual passenger handling capacity of the new international terminal (T2) is around 1.8 million.

International operations are mostly to Middle Eastern and south eastern countries. Further expansion of the airport has been planned for the construction of a newer one and other related facilities for Thiruvananthapuram airport. The State Government has agreed to acquire 18 acres for the construction of the domestic terminal.

The State Government has, formed a Special Purpose Vehicle (SPV) vide GO (Ms.) No 72/2018/Trans dated 15.12.2018 to run the airport, with a 26 per cent share of the State Government. The newly-formed TIAL (Thiruvananthapuram International Airport) is in the PPP (public private participation) model of the companies running Cochin and Kannur International airports.

Water Transport

Water transport provides a cheap mode of transport is safe and energy efficient, more environment friendly and causes least carbon emission. In Kerala, water transport is a viable supplement to road and rail transport. It has the largest carrying capacity and is most suitable for carrying bulk goods over long distances. There are three primary categorisation for water transport, namely ocean transport, inland water transport and coastal shipping. The complex network of connections between coastal ports, inland ports, rail, air, and truck routes forms a foundation of material economic wealth worldwide. For enhancing the efficiency and sustainability of water transport, a comprehensive normative framework for the key aspects of navigation need to be established. This section deals with the review of various Government Plans and policies aimed at the overall development of ports and inland waterways facilitating and promoting coastal shipping, foreign trade and inland water transport.

Port Sector

Maritime transport is the backbone of globalised trade and the manufacturing supply chain, as more than four fifths of the volume of world

merchandise trade is carried by sea. The United Nations Conference on Trade and Development (UNCTAD) has published the Statistics Manual, 2019; which reports the current global trade indicators. As per the Manual the total value of global trade (exports) stands at 19.5 trillion dollars (UNCTAD, 2019). 793 million TEUs (Twenty-foot Equivalent Units) were mobilised in ports around the world, increasing by 4.7 per cent between 2017 and 2018.

Initial expectations for the year 2020 was that it would bring moderate improvements in the economy and trade, the unprecedented global health and economic crisis triggered by the COVID-19 pandemic severely affected the outlook of the economy. The decrease in maritime transport and trade was dramatic, with all economic indicators showing a downward trend. In the prevailing and persistent uncertainty, UNCTAD estimates that the volume of international maritime trade will fall by 4.1 per cent in 2020. (Source: Review of Maritime Transport 2020)

Port sector in India

According to the Ministry of Shipping, Government of India, around 95 per cent of India's trading by volume and 70 per cent by value is done through maritime transport. India has 12 major and 200 notified minor and intermediate ports. Under the National Perspective Plan for Sagarmala, six new mega ports will be developed in the country. The Indian ports and shipping industry play a vital role in sustaining growth in the country's trade and commerce. India is the sixteenth largest maritime country in the world with a coastline of about 7,517 km. The Indian Government plays an important role in supporting the ports sector. It has allowed Foreign Direct Investment (FDI) of upto 100 per cent under the automatic route for port and harbour construction and maintenance projects-Source IBEF (India Brand Equity Foundation-www.inef.org).

India has 12 major ports: Deendayal (erstwhile Kandla), Mumbai, JNPT, Mormugao, New Mangalore, Cochin, Chennai, Kamarajar (earlier Ennore), VO Chidambaranar, Visakhapatnam, Paradip and Kolkata (including Haldia).

Sagarmala Programme-Government of India

The Sagarmala Programme is the flagship programme of Government of India to promote port led development in the country exploiting coastline and their strategic location in maritime routes. Sagarmala aims to modernize India's Ports so that port-led development can be augmented and coastlines can be developed to contribute to India's growth. As part of the Sagarmala Programme, more than 574 projects (Cost: ₹6.01 lakh crore) have been identified for implementation, during 2015-2035, across the areas of port modernisation and new port development, port connectivity enhancement, port-linked industrialisation and coastal community development. As of September 30, 2019, a total of 121 projects (cost: ₹30,228 crore) have been completed and 201 projects (cost: ₹309, 048 crore) are under implementation (Table 11.1.23).

Cargo handled by Major Ports in India

There are 12 major ports and 200 non-major ports (minor ports) in the country. While the Major Ports are under the administrative control of Ministry of Shipping, the non-major ports are under the jurisdiction of respective State Maritime Boards/State Government. All the 12 Major ports are functional. Out of the 200 non-major ports, around 65 ports are handling cargo and the others are "Port Limits" where no cargo

is handled and these are used by fishing vessels and by small ferries to carry passengers across the creeks.

Major ports of India handled 704.82 lakh tonnes of cargo in the period of April to October 2019. It is only 0.82 per cent higher than that of April to October 2018. The commodity group P.O.L (Crude, Products, LPG/LNG) comprises 33.65 per cent of the total cargo traffic in the period of April to October 2019. It was 33.24 per cent in the same period of previous year. There were positive changes in cargo traffic in some items compared to previous year such as P.O.L (2.08 per cent), iron ore including pellets (35.17 per cent), final fertiliser (12.69 per cent), Cooking and other coal (2.56 per cent) and raw fertilisers (-)5.5 per cent, Items such as other liquids, (-)1.50 per cent, thermal and steam coal (-)12.72 per cent and miscellaneous items (-)4.78 per cent showed negative growth. Details are shown in the Figure 11.1.5.

The total traffic handled at Major Ports in 2019-20 was 709.93 million tonnes, showing an overall growth of 0.82 per cent from previous year in the traffic handled.

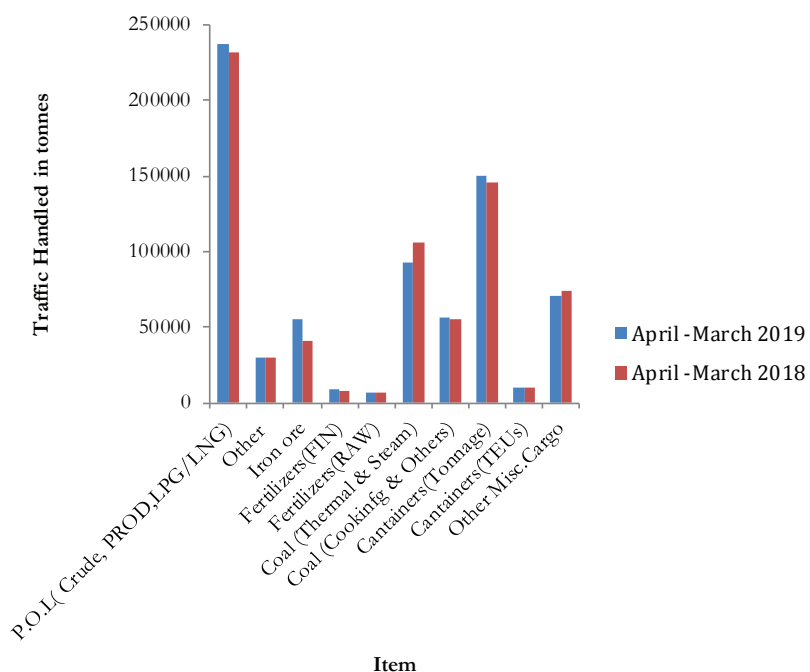
As per the data from the Indian Ports Association (Figure 11.1.6), the growth in total traffic in 2019-20 was 0.82 per cent and in 2018-19 was 2.9 per cent. Paradip recorded highest growth rate (11.36 per cent) in cargo handling in the year 2019. The growth of cargo in eastern ports was as follows, Kolkata (3.12 per cent), Chennai (5.05 per cent), and V.O Chidambaranar (3.3 per cent).

Table 11.1.23 Summary of projects under Sagarmala-India

Activity	Total		Completed		Under Implementation	
	No. of Projects	Project Cost (in ₹ crore)	No. of Projects	Project Cost (in ₹ crore)	No. of Projects	Project Cost (in ₹ crore)
Port Modernization	236	1,18,352	68	22,551	70	36,998
Port Connectivity	235	2,35,528	35	5,803	94	1,19,360
Port Led Industrialization	35	2,40,234	2	512	17	1,51,745
Coastal Community Development	68	7,369	16	1,362	20	945
Total	574	6,01,483	121	30,228	201	3,09,048

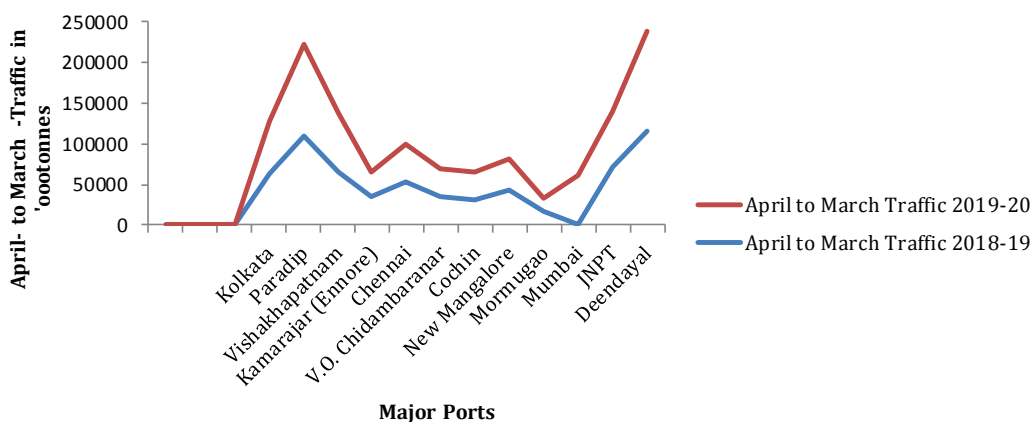
Source: Ministry of Shipping, GoI

Figure 11.1.5 Traffic Handled at Major Port (in 000' Tonnes)



Source: Indian Port Association-2020

Figure 11.1.6 Traffic in Major Ports



Source: Indian Port Association-2020

The growth of cargo in western side ports is as follows, Cochin port (6.3 per cent), and Mumbai (0.18 per cent).

Capacity utilisation of Major Ports in India

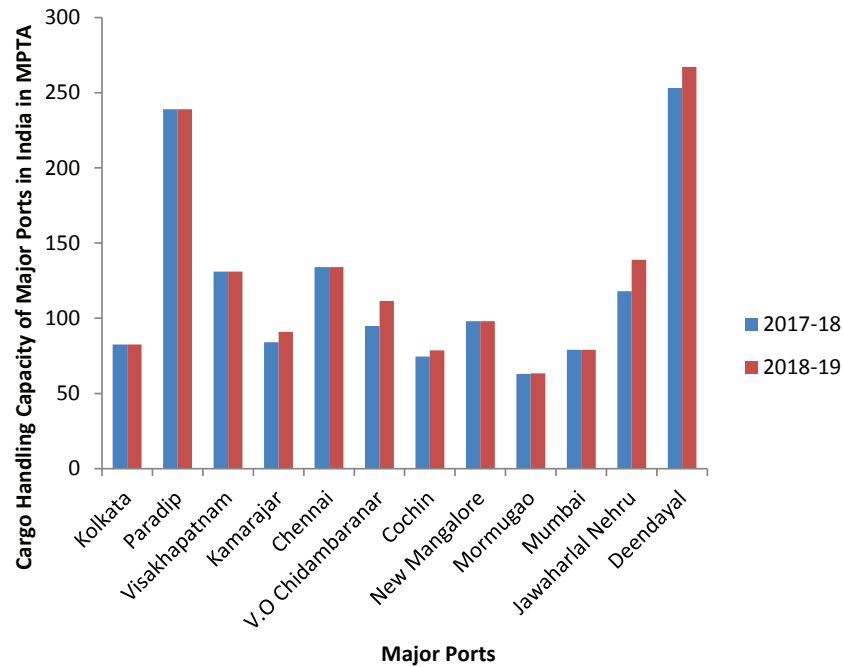
Deendayal has the largest capacity of 267.10 million tonnes and handled the largest amount

of traffic in 2018-2019 followed by Paradip with capacity of 239.00 million tonnes. Details of capacity utilisation are shown in **Figure 11.1.7**.

Capacity utilisation of Non-major Ports in India

Government of India is moving towards enhancing the capacity of ports in the nation

Figure 11.1.7 Cargo Handled Capacity of Major Ports in India (2017-2018 to 2018-2019)



Source: www.indiastat.com
*Million Tonnes per Annum (MPTA)

through SAGARMALA and Sagar projects. Gujarat has the largest capacity of 542 million tonnes and also handled the largest amount of traffic in 2018-2019. Non-major ports in Kerala have a total capacity of 0.55 million tonnes and 37.10 per cent of its capacity was utilised in 2018-19. Details of capacity utilisation of non-major ports are provided in **Figure 11.1.8**.

Cochin Port

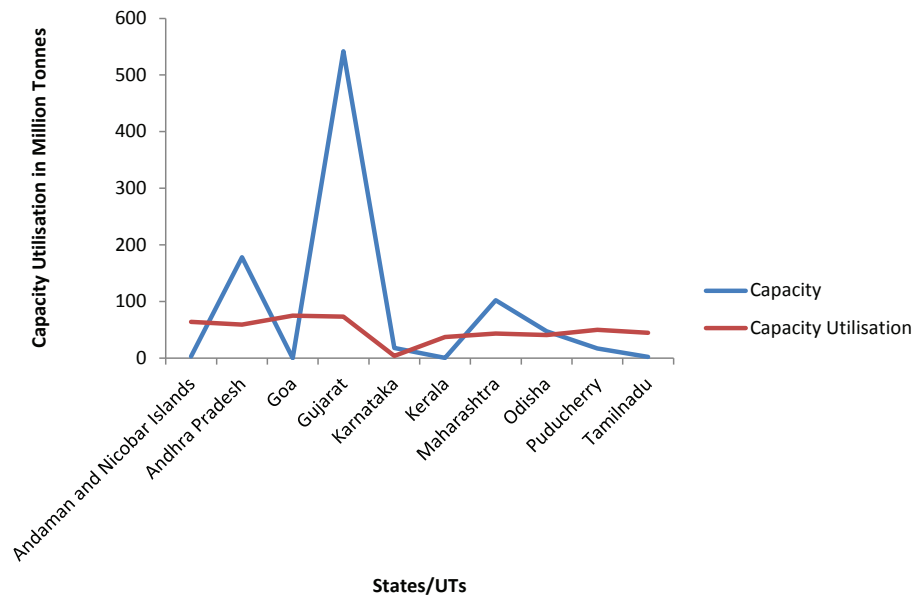
Cochin port is one of the Major Ports in India situated in Kerala. The port lies in two islands namely Willington and Vallarpadam. The total cargo traffic handled by the Cochin Port in 2019-20 was 19.47 MMT as against 32.02 MMT in 2018-19. This shows a decrease of 39.2 per cent over the previous year. The COVID-19 pandemic that continues to restrain free movement of goods across the globe brought down port traffic. An increase of 38.9 per cent was recorded in the break bulk cargo as compared to the previous

year. The details of traffic handled is given in the **Figure 11.1.9**.

The major components of import cover other cargo including fertilizers and raw materials, food grains, iron, steel and machinery. Tea, cashew kernels, sea foods, coir products, spices, coffee and miscellaneous items are the major components of exports.

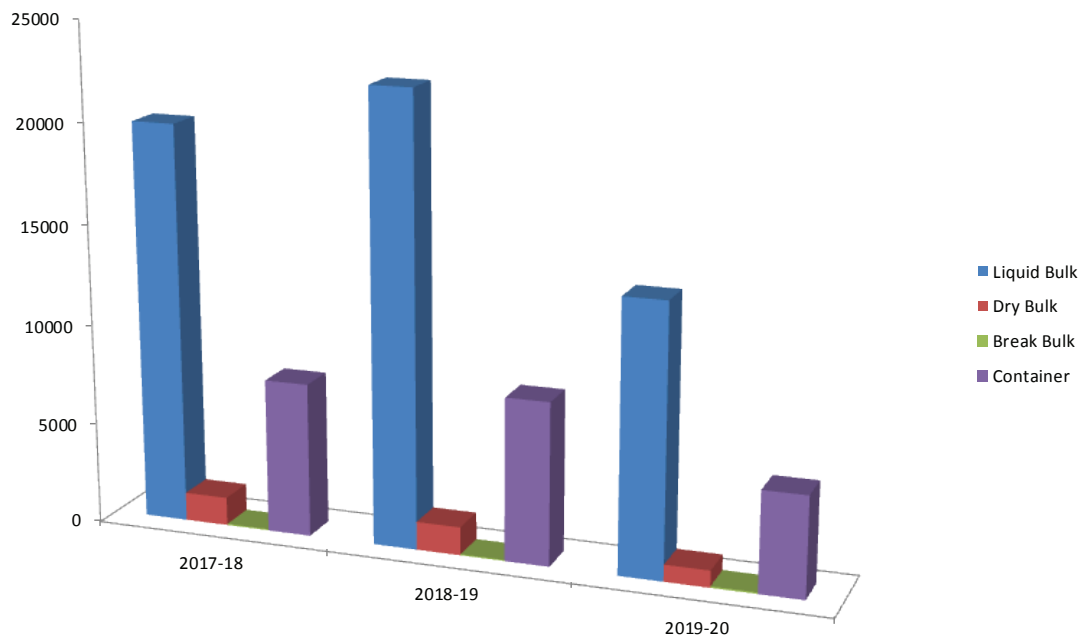
Helicopter service was introduced for cruise tourist in Kochi port from Willington Island. Cochin port is one of the well sought after tourist destinations in India. In 2018-19, 49 international cruise ships visited Cochin Port with 62,753 passengers, and 28,828 crew members. Helicopter service was introduced on November 21, 2019 and it is aimed to operate to destinations like Munnar and Jatayu earth centre. New Mangalore port has already introduced helicopter services on November 3, 2019.

Figure 11.1.8 8 Selected State-wise capacity utilisation at Non Major ports In India (2018-19)
(in million tonnes)



Source: www.indiastat.com,2020

Figure 11.1.9 Cargo Traffic in Cochin Port 2017-18 to 2019-20



Source: Cochin Port Trust

Cochin Shipyard

Cochin Shipyard is the largest shipyard in the country. It builds ships upto 1,10,000 DWT and repairs every type of ships. CSL has been renowned for securing ship building orders from internationally renowned companies. At present, it is nominated to build country's first indigenous Air Defence Ship (Air Craft Carriers INS Vikrant). As a part of the efforts to develop Kochi as a maritime hub of India, CSL had set up a maritime park near to the International Ship Repair Facility at Willington Island, which was inaugurated by Hon'ble Minister of State (Independent Charge) for Shipping, Shri Mansukh L Mandaviya on September 19, 2019. Ten globally renowned firms in the maritime industry have already partnered with CSL for setting up their units in the Maritime Park in the first phase. The details of financial progress related to Cochin Shipyard Limited are provided in **Table 11.1.24**.

The company posted yet another year of impressive performance despite the ship building market scenario remaining lacklustre. Diversified operational segments and product profile helped the Company to achieve a turnover of ₹3,422.49 crore in 2019-20 as compared to ₹2,965.60 crore in 2018-19. The profit before tax is ₹863.43 crore for the year as against ₹751.38 crore in the previous year. The net profit is ₹637.69 crore as compared to ₹481.18 crore for the previous year

Ports in Kerala

Kerala has a coastal length of approximately 585 km. There is one Major Port at Cochin and 17 non-major ports and another upcoming major port at Vizhijnam. Out of 17 non major ports in Kerala, four are considered as intermediate ports based on berthing, cargo handling and storage facilities available in them. They are Vizhinjam, Beypore-Kozhikode, Azhikkal and Kollam ports. The remaining 14 minor ports in the State are Neendakara, Alappuzha, Valiyathura, Kayamkulam, Manakkodam, Munambam-Kodungallur, Ponnani, Thalasserry, Kozhikode, Kannur, Cheruvathoor-Neeleswaram, Kasaragod Manjeswaram. There is also one inland port at Vattakom in Kottayam

Kerala Maritime Board (Directorate of Port)

The Port department under the Government of Kerala administers the non-major ports in the State. The main function of the Department of Ports is to conserve the assets of the non-major ports in the State. Though the State has a 585 km long coastline, the maritime activities and real time shipping operations comparable to acceptable standards and performance are concentrated at Kochi alone. Nine out of fourteen Districts of the State are along the coast. The optimum and sustainable utilization of the maritime resources of the State would unveil enormous opportunities for its economic growth. To achieve this objective, the maritime activities need to be enhanced at other locations along the

Table 11.1.24 Financial Progress of Cochin Shipyard 2018-19 and 2019-20

Sl.No.	Particulars	2018-19	2019-20
1	Gross Income	3192.89	3669.99
2	Profit before finance cost, depreciation and tax	799.83	956.75
3	Financial Cost	14.30	44.59
4	Depreciation and writeoff	34.16	48.73
5	Profit before tax	751.38	863.43
6	Tax expense	270.20	225.74
7	Net Profit	481.18	637.69

Source: Cochin Shipyard (Annual Report 2019-20)

entire coast. Hence, a project for the development of coastal shipping was designed and a business plan for the strategic implementation of the same was prepared. The project envisaged the diversion of significant volume of cargo/passenger from road/rail to coastal waterways through the non-major ports of Kerala. The project was planned in such a way that it would transform the transportation/logistics sector of the State. Coastal shipping project, being implemented under Department of Ports, is the first of its kind in the country and would secure cross sectoral gains by integrating it with fisheries, industries, maritime education and tourism. The Director, Port department is also responsible for the implementation of Kerala Inland Vessels Rules (KIV Rules) in the State. After the approval of Kerala Maritime Board Act 2017 all activities done by Port department is entrusted with KMB.

Kerala Maritime Board came into existence after the approval of Kerala Maritime Board Act on September 2017. As per the act, KMB is constituted for the non-major ports in Kerala and to vest administration, control and management of non-major ports and certain undertakings. The Board consists of a chairman, a vice chairman, 6 ex-officio members and four nominated members. By virtue of the act, Kerala State Maritime Development Corporation and Kerala State Maritime Development Society came under the control of KMB. All port related activities, modernization of ports and enhancement of shipping activities are major objectives of Kerala Maritime Board.

Kerala Inland Vessel (KIV) Rules, 2010

On September 15, 2010, KIV Rules came into existence. The Director, Port department was the implementing authority, but now the implementation is vested with KMB. As per the KIV Rules, there are 6 Port of registries including Vizhinjam, Kollam, Alappuzha, Kodungallur, Beypore and Azhikkal. As per the KIV Rules, the registration period of vessels is decided as 5 years and the annual survey certificate is valid for 1 year. These two certificates are essential for

operation of the vessel. In addition, the vessels should be surveyed in dry dock once in 3 years. As per the KIV Rules, survey certificates should be provided to house boats only on providing viability certificate for 3 years from pollution control board and third party insurance for one year period.

Registered Vessels

There are 469 vessels registered at various ports of Kerala in 2019-20. They are at Vizhinjam (77), Kollam (128), Alappuzha (102), Azhikkal (32) and Kodungallur (74). The type of vessels registered includes passenger vessel, speed boat, house boat, cargo vessel, floating resort, motor boat, cutter section dredger, jankar, shikkaras, tug, rescue boat, and cruise boat. In 2019-20, 1857 vessel were inspected, of which 1297 were found perfect and 554 were defective vessels.

As the port department is implementing the KIV rules, it conducts inspections and facilitates registration of vessels. Details are in **Table 11.1.25** and **11.1.26**.

Cargo Handled in Intermediate ports and minor ports in Kerala

The **Table 11.1.27** shows the details of cargo handled by non-major ports in Kerala for the last four years. Considering the last four years, drastic fluctuation between years is seen in the quantity of cargo handled by intermediate ports in Kerala. In all these four years, export cargo (export = coastal and foreign) is higher than import cargo (import = coastal and foreign). The total cargo exports from Kerala in 2017 was 2, 98,799 tonne and in 2020, it was 1, 15,968 tonne.

In Kerala, 4 ports have cargo handling capacity. They are Beypore, Azhikkal, Kollam and Vizhinjam (Details are shown in **Appendix 11.1.19**). The total yearly capacity of the four ports comes to approximately 9000 lakh tonnes. There is huge gap between cargo handling capacity and utilization which is below 1 per cent. Capacity utilization needs to be enhanced exploring issues / challenge in under utilization.

Table 11.1.25 Details of Inspection conducted for KIV implementation

Sl.No.	Item	2016-17	2017-18	2018-19	2019-20
1	No. of vessels inspected	899	712	833	1857
2	No. of vessels found perfect	532	402	485	1297
3	No. of vessels found defective	367	310	348	554
4	No. of detention orders issued	25	41	25	56

Source: Kerala Maritime Board

Table 11.1.26 Number of vessels registered in Kerala

Sl.No.	Item	2016-17	2017-18	2018-19	2019-20
1	Category A	NIL	1	NIL	10
2	Category B	50	33	84	251
3	Newly constructed vessel	54	33	84	103
4	Registration Name changed (old)	4	3	7	105

Source: Kerala Maritime Board

Table 11.1.27 Cargo Handled at the Intermediate and Minor Ports of Kerala 2017 to 2019 (in tonnes)

Year	Import			Export			Total
	Coastal	Foreign	Total	Coastal	Foreign	Total	
2017	106663	0	106663	291219	7580	298799	405462
2018	12174	0	12174	126619	0	126619	138793
2019	92542	4459	97001	122380	3767	126147	223148
2020	37338	908	38246	115968	0	115968	154214
Total	152717	5367	158084	656186	11347	667533	921617

Source: Kerala Maritime Board

Box 11.1.7 Overall performance in the Port Sector

1. The four operational non major Ports in Kerala are Azhikkal, Beypore, Kollam and Vizhinjam.
2. Major share of port revenue of ₹52.73 crore comes from dredged material.
3. Kerala's port capacity is 0.55 million tonnes and 37.10 per cent capacity utilized in 2018-19.
4. The total cargo exports from Kerala was 2,98,799 tonnes and 1,15,968 tonne in 2017 and 2020 (upto October) respectively
5. 224 steamers and 252 sailing vessels visited the non-major ports of Kerala in 2019-20. Out of this, 203 steamers and 251 sailing vessels visited Beypore port.
6. 469 inland vessels registered at various ports of Kerala in 2019-20.

Source: Kerala Maritime Board

Revenue from Ports in Kerala

Details of revenue collected in the intermediate and minor ports of Kerala from 2016 to 2020 is given in **Table 11.1.28**. The total revenue declined considerably in 2018. In 2019, it

recorded an increase, though not to previous level. The main activity of a port is considered to be merchandise transport. Unfortunately, the share of export and import dues is below one per cent of total revenue in three years ranging from ₹40 lakh in 2016 to ₹32 lakh in 2019. Major share of port revenue comes from dredged material.

Table 11.1.28 Category-wise break up of Revenue collected at the intermediate and Minor Ports of Kerala from 2016 to 2019, in ₹ lakh

Year	Port Dues		Export Import dues		Merchant Overtime Charges		Dredged Material		All Others		Total
	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total	Amount	% of total	
2016	9.05	0.15	40.04	0.67	45.42	0.76	5468.57	91.02	444.77	7.4	6007.85
2017	4.18	0.07	27.38	0.47	46.16	0.79	5603.65	96.12	148.31	2.54	5829.68
2018	7.95	0.3	31.49	1.18	15.48	0.58	1169.03	43.76	1447.8	54.19	2671.75
2019	7.97	0.16	32.66	0.67	33.01	0.68	4342.43	89.71	424.52	8.77	4840.59
2020	4.9	0.08	5.03	0.09	46.27	0.81	5273.6	90.90	476.8	8.23	5802.0

Source: Kerala Maritime Board

It is around 90 per cent of the total revenue in 2016, 2017, 2019 and 2020. Actual port activity needs to be enhanced. Category-wise break up of revenue collected at the intermediate and minor ports of Kerala in 2019-20 is given **Appendix 11.1.20**. **Figure 11.1.10** shows the share of each item in the revenue of intermediate and minor ports in Kerala 2020.

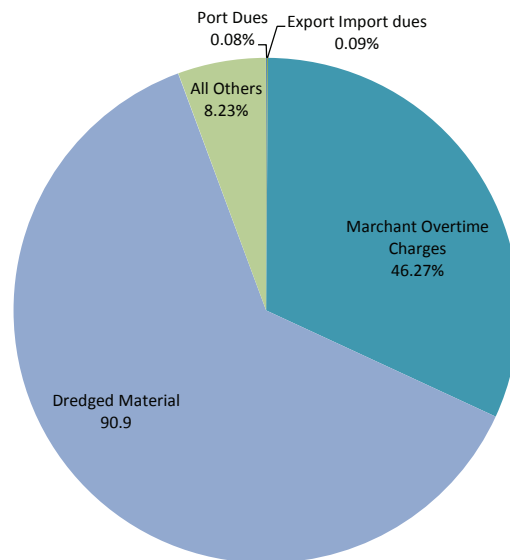
Port Activities/Operations (Non-Major ports in Kerala)

Out of the 17 non major ports, four ports were operational for trade in 2019-20. Kollam port

had inward and outward transport of machinery, Vizhinjam had overseas transportation of vegetables, Azhikkal and Beypore (Kozhikode) ports also had trade activities in 2019-20. Details are given in **Appendix 11.1.19**.

In 2019-20, an amount of ₹58.02 crore was generated from different activities related to port by intermediate and minor ports in Kerala. The largest amount of revenue was earned from dredged materials (₹52.73 crore). The total import export dues in 2019-20 were ₹50 lakh. Details of revenue earned by intermediate

Figure 11.1.10 The share of revenue collected at the intermediate and minor ports in Kerala 2020, in ₹ lakh



Source: Kerala Maritime Board

and minor ports of Kerala are given in **Appendix 11.1.20**.

Beypore (Kozhikode) port is the busiest port among the four operating ports in Kerala in terms of number of steamers and vessels. 224 steamers and 252 sailing vessels visited the non-major ports of Kerala in 2019-20. Out of this, 203 steamers and 251 sailing vessels visited Beypore port. Details are given in **Appendix 11.1.21**.

The Beypore port has the largest facilities among the four operating ports in Kerala. Beypore has 310 m wharf, availability of fork lift and 800 m² of godown area. Details of facilities available in non-major ports of Kerala are given in **Appendix 11.1.22**.

Over all Financial Performance during the 12th Five-Year Plan and 13th Five-Year Plan (2017-18 to 2020-21)

As per the **Table 11.1.29** given, during the 12th Five-Year Plan period, the overall outlay of Port sector was ₹700.3 crore and the expenditure was ₹782.00 crore (111.7 per cent). Out of this an amount of ₹223.72 crore was allocated for Vizhinjam International Seaport Ltd (VISL) and corresponding expenditure was ₹523.68 crore. In the 13th Five-Year Plan, Budget allocation to VISL is brought under Major Infrastructure

Development Programme with a token outlay of ₹1 lakh in port sector, which is the reason for a sharp decline in outlay.

Coastal Shipping Promotional Schemes

Cargo Incentive Scheme

Cargo incentive at the rate of ₹3/tonnes/km is provided for moving the cargo in waterways along the Kerala coast between Pozhiyoor in South and Manjeswaram in North, loaded/unloaded at a non-major port. The department has disbursed approximately ₹136 lakh as incentive under this scheme since the launch of the Coastal Shipping Project.

The objective is to divert specific cargo/commodity moved into the State from east and west coast like food grains, construction materials like cement, granite, marble, ceramic tiles, cashew nuts and kernels, fertilizers and chemicals like soda ash. The exact distance is calculated based on the navigation charts used by the Department to finalize the incentives.

Physical Achievement in Port sector

There are agencies working in port sector for achieving specified objectives and for executing specific functions. They are KMB, Hydro Graphic

Table 11.1.29 12th Five-Year Plan and 13th Five-Year Plan Outlay and Expenditure (Sector-wise), in ₹ crore

Sector	12th Five-Year Plan		13th Five-year Plan							
	2012-17		2017-18		2018-19		2019-20		2020-21 *	
	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure	Outlay	Expenditure
Ports	476.58	258.27	138.09	38.4	126.39	60.5	110.06	37.7	80.11	8.8
VISL	223.72	523.68	0.01	175.0	0.01	100.7	0.01	3.91	0.01	0
Total (Port+VISL)	700.3	781.95	138.1	213.4	126.4	161.2	110.1	41.6	80.12	8.8

Source : Budget Estimates, GoK, and Planspace, State Planning Board

* Expenditure upto October 2020

Survey Department, Harbour Engineering Department and KSMDCL.

2019-20

- Seamless governance in port sector through e-office, training and capacity building, investigation, planning, research and development activities
- Crew changing facilities at Vizhinjam and Beypore Port
- Automated cargo handling gears at Kollam, Beypore and Azhikkal Port completed
- Multi-purpose passenger-cum-cargo wharf at Kollam Port costing ₹20 crore (under Sagarmala scheme) completed with ₹7.23 crore as Government of India share
- Regular services connecting Lakshadweep with Beypore Port.
- Vizhinjam Port serves weekly vessel operations to Maldives.
- Customs EDI terminals are being established at Beypore and Azhikkal
- More than 5,000 students trained at Neendakara Maritime Institute under the boat crew training programme. The institute runs waterborne training activities, pre-sea courses in both nautical and engineering streams and also take up basic safety courses which are mandatory for prospective mariners.
- Kollam, Beypore and Azhikkal Ports are equipped with cargo/ container handling equipment
- Completed Transit Shed and Electronic Data Interchange Facility at Beypore Port
- Construction of new wharf at Ponnani progressing.
- Rectification of leeward break water and seaward breakwater at Vizhinjam
- Construction of new gate and gate house at Kollam port
- Consultancy engaged for preparation of Techno Economic Feasibility Report and Detailed Project Report for road and rail connectivity to Kollam Port
- Initial work started on Environmental Impact Assessment for securing environmental

clearance for construction of coastal berth at Beypore port

- Completed the repair works of M T Chaliyar
- Installed CCTV at Beypore Port
- Dredging works at Kollam and Beypore ports completed
- Kollam and Azhikkal Ports are being developed on priority basis for coastal shipping operations.
- A major milestone in the recent history of Kerala's port sector is the establishment of crew changing facility at Beypore port. The first crew changing was on July 15, 2020 in favour of the cargo vessel MV Ever globe. So far this facility could be made available to 682 crew of 39 vessels and an amount of ₹33.98 lakh could be earned revenue through the crew changing operations.

STATE OWNED MAJOR PORTS

Vizhinjam International Seaport Ltd (VISL)

Vizhinjam International Transshipment Terminal will be the first deep water transshipment terminal in India. The main advantage of Vizhinjam port is natural depth of 18m, proximity of 10m to the international shipping route and minimal littoral drift along the coast. Government of Kerala has constituted a special purpose vehicle namely Vizhinjam International Sea port Limited (VISL).

The first phase of the port is planned with a container handling capacity of 1 Million TEUs with 800 m berth length with future expansion plans to 3 Million TEU/2,000 m berth length in successive phases. The total estimated cost of the first phase of the project is ₹7,700.00 crore with (i) ₹4,089.00 crore as PPP component (ii) ₹1,463.00 crore as funded work of breakwater (iii) ₹1,808.00 crore for external infrastructure and land acquisition (iv) ₹340.00 crore for Resettlement and Rehabilitation (R and R) for Project Affected People (PAP) and for general administration expenses.

This is the first port project in the country being executed in Public Private Partnership (PPP) model with Viability Gap Funding (VGF) from GoI and first such project in the State. Out of the PPP component of ₹4,089.00 crore, investment of ₹1,635.00 crore is the VGF part (with ₹817.8 crore from GoI and ₹817.2 crore by GoK) and the investment of ₹2,454.00 crore is by the Concessionaire, Adani Vizhinjam Port Private Ltd. (AVPPL).

The port construction works was initiated in December 2015 and construction works of 565 m length of breakwater, 800 m long berth, container yard, boundary walls and access roads are in progress. 3.3 Million Litres Per Day (MLD) water treatment plant and 11 KV power substation works are completed. The total amount invested by Government of Kerala for the project in 2020-21 is ₹1194.1 crore. Financial progress of the project is shown **Table 11.1.30**.

The present status of port construction is given in **Table 11.1.31**.

Azhikkal Port (Malabar International Port and SEZ Ltd)

Azhikkal Port Limited, an SPV formed, with Chief Minister as Chairperson and Minister for Ports as Vice Chairperson was incorporated on March 6, 2018 for the development of Azhikkal port. The port is now renamed as Malabar International Port and SEZ Ltd. The authorised capital of the Company is ₹100 crore and the initial paid up capital is ₹25 crore. It is wholly owned by Government of Kerala registered under Companies Act, 2013. The Technical Consultancy Services has been awarded to M/s HOWE Engineering projects India Pvt Limited on April 23, 2018 and the agreement was entered on May 9, 2018.

The port will have facility to cater to vessels with draft of 14.5 meter. Port shall have 2-3 berths in Phase 1 and augmented further in next phases. LNG facility shall be considered in future phases. The possibilities of developing dedicated terminals for bulk handling of food grains, cement and edible oil will be explored.

Table 11.1.30 Financial Progress of VISL, in ₹ crore

Sl.No.	Particulars	2016-17	2017-18	2018-19	2019-20	2020-21 upto October	Total
1	Funded work-Construction of breakwater and fishing Harbour	146.3	146.3			0	292.6
2	Land	596.5	26.1	30.2	0.5	2.1	655.4
3	Water	7.3	-	-	-		7.3
4	Power	51	-	-	-		51
5	Rail Connectivity	4.1	-	10.5	-		14.6
6	R and R for PAP's	20.4	11.4	49.0	2.2	3.1	86.1
7	Administrative and other expenses	72.9	6.2	5.8	1.4	3.2	89.5
8	Total amount spent	898.4	189.9	95.5	4.1	8.5	1196.5
9	Amount received from Government	931.6	141.1	100.7	-	20.7	1194.1
10	Interest income	19.7	0.04	0.1	-	0.3	20.1
	Total	2748.2	521.04	291.8	8.2	37.9	3607.14

Source: Vizhinjam International Sea Port Ltd

Table 11.1.31 Status of Construction works of Vizhinjam Port

Sl.No.	Item	As on February, 2019	completed as on November, 2020	Target
1	Breakwater	565 metres	676 metres	3100 metres
2	Dredging	2.3 million m3	2.3 million m3	7 million m3
3	Container berth	piling works completed	beam networking completed	deck superstructure works to be completed
4	Container yard (reclamation)	33 Ha	33 Ha	53 Ha
5	Approach road	subgrade works upto 500 metres chainage	Subgrade works beyond 500 metres chainage in progress. Bridge construction works also in progress	2 km

Source: Vizhinjam International Sea Port Ltd

The port is envisaged to be developed as a Greenfield port. The company has already awarded the work to M/S Furgro Geotech India Private limited for conducting geo technical investigation at the project site. As part of the Geotech investigations, land (9 numbers) and marine (40nos) bore hole studies will be performed to get the detailed soil profile, which is required for the preparation of design at DPR Stage. The work in this regard will be ₹3.54 crore (including GST and supervision charges) as approved by Government of Kerala vide G.O.(Rt) No.144/2020/ F & PD Dated 06/03/2020.

As part of the development project, schemes for enhancing trade and port-led economic development are envisaged. These will enhance the traffic and income of the port, making it viable and reducing the investment of the Government, while also generating economic development and jobs. The work of the development of the SEZ/Industrial parks will go in parallel to the development of the port so as to attract more competitive bidders for the port project. The Government has given administrative sanction for an amount of ₹ 2.5 crore vide G.O.(Rt) No. 175/2020/F and PD dated 19/03/2020 and appointed M/S Hinterland Business as consultant to undertake a study, prepare a feasibility report and handhold the authority in finding a concessionaire for the development of port as per PPP Model.

Harbour Engineering Department

The Harbour Engineering Department acts as a service department of the Fisheries, Port and Tourism Departments. In addition, it manages all fishing harbours in the State except Munambam fishing harbour.

The major task of the department is to investigate, explore, develop and execute new methods and technology for creating infrastructure development in marine sector. It provides technical support to Fisheries Department, Port Department and Tourism Department in coastal sector.

Major Achievements of Harbour Engineering Department

2019-20

- Construction of Division Office Building at Kasaragod progressing.
- Constructed Rain water harvesting tanks in the HED Compound at Kamaleswaram
- Construction of Superintending Engineers Office Design centre and quality control lab at Kamaleswaram in progress.
- Completed UPS room and improvements to Water supply system at CEs office.
- Extension and modernization of Investigation South Zone Subdivision office at Thangassery
- Construction of staff quarters at Ponnani Completed

- Strengthening of main break water at Thangassery from Ch. 1350 to 1500 M completed

Hydrographic Survey Wing (HSW)

Hydrographic Survey Wing was founded in 1967 with the objectives of investigation and collection of Hydro graphic Survey data for inland navigation and development of all non-major ports in the State. Since its formation, the Wing has been conducting regular pre-dredging, post-dredging, pre-monsoon and post-monsoon surveys to ascertain various aspects such as requirement of dredging, bathymetric data required for the infrastructure development like, construction of fishing harbours, fish landing centres, small ports, and bathymetric data required for the navigational, recreational and research purposes. The Wing mainly works for Port department and harbour engineering department. The Wing also undertakes survey works for other departments such as Irrigation, PWD, Fisheries, Tourism, Inland Navigation, other major organisations such as Kerala Water Authority, Kerala Electricity Board Ltd, Kerala State Maritime Development Corporation Ltd. and various research institutions such as Kerala Engineering Research Institute, CWRDM and CESS. The tidal and hydro graphic information requested by the Naval Hydro graphic Office at Dehra Dun (Indian Navy) for updating the Indian Admiralty Charts (Navigational Charts, published by Naval Hydro graphic Office) are also forwarded by the Hydrographic Survey Wing.

Hydrographic Survey Institute

The Kerala Institute for Hydrography and Advanced Studies (KIHAS), established in 2013 and registered under the Travancore Cochin Literary Scientific and Charitable Societies Registration Act 1955 has been functioning at Fisheries University Campus in Kochi. The Institute conducts basic hydro graphic course for duration of six months. During this year, course for two batches were conducted. 19 students completed this course and certificates

were given to them. Most of the students who have completed this basic hydrographical Survey course got employment in India. Steps are being taken to affiliate this institution with Kerala University of Fisheries and Oceanography (KUFOS). From 2013 to 2019, 123 students completed hydro graphic survey course and 72 students got job. In 2019, the course work of 7th on going batch with 16 students is in progress.

Physical Achievements of Hydrographic Survey Wing

2019-20

- Purchased 2 Automatic Tide Gauge.
- Purchased one Echo Sounder and Differential Global Positioning System
- 32 surveys conducted.
- Seminar conducted on World Hydrographic Day
- Renovation of 2 survey vessels.

Under the scheme, pre and post dredging survey and pre and post monsoon survey, data was collected, verified, systematized, compiled and survey charts were prepared. The following survey works were carried out for the period 2020-21

- Cochin port Trust Survey- 1 number, Cochin Shipyard Survey- 6 numbers
- Thenmala survey in connection with flood- 1 number
- Neendakara dredging survey- 2 numbers
- Tentative survey-1 number

Issues/Challenges

The contribution of waterways in the transportation sector is considerably low on account of multifarious reasons like low accessibility, reliability, cost and convenience. The hurdles of this sector are following

- Labour issues in ports
- Lack of return cargo
- Disputes with fishermen community/ local people in port development

- Lack of disaster management system
- Capacity building in human resource in port sector
- Disputes with local community on port development/ land acquisitions.

Inland Water Transport (IWT)

Inland Water Transport (IWT) is a viable alternative or friendly mode of transportation in addition to road, rail transport or air counterparts. Inland Water Transport has potential to contribute for the development of economies and to connect different strata of the societies. Today, IWT can help nations to achieve Sustainable Development Goals and can act as an engine of economic development. IWT is more energy efficient than the existing transport systems, is safer, and can give relief to road traffic congestions.

Though the effect on environment is less and it is one of the most economical modes of transport, it remains largely under exploited. By enhancing the efficiency and sustainability of inland water transport, around 20 per cent cargo movement can be shifted from roads to water ways.

In general, inland waterway systems are found in areas with large rivers. Canals extend and improve the use of those transportation systems. Navigable Water Ways in the world is estimated around 6,23,000 km. China has the largest network of navigable water ways with 18 per cent of global length, followed by Russia (16 per cent), Brazil (8 per cent) and USA (7 per cent), while Indian navigable waterways comes around 2 per cent of global length of water ways.

India has nearly 14,500 km of navigable Inland Water Ways. Out of which, 9,200 km (5,200 km river, 4,000 km canal) can be used for mechanised crafts. Government of India had declared 111 Water bodies/sections throughout the country as National Water Ways. Freight transport by waterways is highly under-utilized in India compared to other parts of the world. The total cargo moved (in tonne kilometres) by inland waterways was 0.1 per cent of the

total inland traffic in India, compared to the 21 per cent in the United States. Organised Cargo transport is developed in a few States in India such as Goa, West Bengal, Assam and Kerala.

Inland waterways in India consist of the Ganges-Bhagirathi-Hooghly rivers (1620 km), the Brahmaputra (891 km), the Barak river, the rivers in Goa, the backwaters in Kerala, inland waters in Mumbai and the deltaic regions of the Godavari-Krishna rivers (1078 km). About 44 million tonnes of cargo is moved annually through these waterways using mechanised vessels and country boats. The Inland Waterways Authority of India (IWAI) is the statutory authority in charge of National Water Ways in India constituted under NHAI Act-1985. The IWAI is authorised to build the necessary infrastructure in these waterways. It also examines the economic feasibility of new projects. The details of cargo movement in National Water Ways across the country for the period April 2019-April 2020 is given in **Table 11.1.32**.

As per the data, traffic in NW 3 in Kerala has increased by 1.4 per cent from April 2019 to April 2020.

Inland Water Transport-Kerala

The Inland Water Transport System, like any other form of transportation, caters to the movement of both passengers and freight traffic, although slow in turn-around. The inherent advantage of the system lies in its capacity to move bulk cargo at a cheaper cost. Besides this, it is the only means of conveyance available to people living in remote waterlogged areas, islands and backwater regions where the availability of road system is inadequate. Augmenting the capacities of road or rail system require huge investment, whereas the waterways being the gift of nature can be navigable with minimum investment. State Water Transport Department (SWTD), Coastal Shipping and Inland Navigation Department (CSIND) and Kerala Shipping and Inland Navigation Corporation (KSINC) are the major agencies under IWT.

Table 11.1.32 Cargo Movement on National Waterways in India (in metric tonnes)

Sl.No	Inland waterways	April 2019	April 2020	% of increase or decrease
1	NW -1 (Ganga Bhagirathi-Hooghly River)	714128	365615	-49%
2	NW-2 (Ganga Brahmaputra River)	32243	5338	-83
3	NW-3 (West Coast Canal and Champakara Canal and Udyogmandal Canal)	17379	17627	1.4
4	NW-4 (Krishna River)	47307	-	-100
	Sub Total (National Waterways 1-4)	811056	388580	-52
Maharashtra Waterways				
5	NW-10 (Amba River)	2044651	1410774	-31
6	NW-83 (Rajpuri Creek)	59956	40371	-33
7	NW-85 (Revdanda Creek and Kundalika River)	198018	140835	-29
8	NW-91 (Shastri River-Jaigad Fort Creek)	-	-	-
	Total	2302625	1591980	31
Goa Waterways				
9	NW-68 (Mandevi River)	154140	95643	-38
10	NW-111 (Zuari River)	216895	355343	64
	Total	371035	450986	22
Gujarat Waterways				
11	NW-73 (Narmada River)	6561	6296	-4
12	NW-100 (Tapi River)	2958486	1095455	-63
	Total	2965047	1101751	-63
13	(NW-97) Sunderbans	328658	181118	-45
14	(NW-16) Barak River	-	-	-
15	(NW-44) Ichamati River	-	-	-
16	(NW-94) Sone River	-	-	-
	Grand Total	6778421	3714415	-45
	Grand Total (In Million Metric Tonne)	6.78	3.71	-45

Source: Ministry of Shipping, GoI-2020

Note: The traffic on National Waterways in the month of April 2020 has reduced by 45 per cent vis-a-vis April 2019 mainly due to nationwide lockdown in the period.

Outlay and expenditure of CSIND and KSINC in 2018-19, 2019-20 and 2020-21 (expenditure upto September 2020) is given in **Table 11.1.33**.

Coastal Shipping and Inland Water Navigation Department (CSIND)

Government of Kerala is giving top priority to develop the West Coast Canal connecting the National Waterway-III. Waterways in the State include the main arterial Waterway, West Coast Canal (WCC) and feeder canals. The total length

of the potential Inland Waterways in the State is 1,700 km. Total length of WCC is 616 km. There are 1,100 km feeder/link canals connecting WCC and important destinations like commercial centres, ports and tourism spots. Out of the total length of 616 km, three portions between Mahe and Valapattanam having total length of 26 km are uncut portions. Further extension for 41 km from Neeleswaram to Kasaragod is also under consideration.

Table 11.1.33 Department wise review from 2018-19 to 2020-21, in ₹ lakh

Department	Annual Plan 2018-19		Annual Plan 2019-20		Annual Plan 2020-21	
	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure upto September 2020
CSIND	8918	1935	8762	1381.3	7482	534.2
KSIC	1600	1179	1572	1011	1018	322
Total	10518	3114	10334	2392.3	8500	866.2

Source: Planspace, State Planning Board

Portion of the West Coast Canal from Kollam to Kottappuram was earlier declared as National Waterway-III. Portion of WCC from Kottappuram to Kozhikode and six feeder canals were also declared as part of National Waterways. WCC can broadly be divided into five sections namely (1) Kovalam-Kollam (74.18 km), (2) Kollam-Kottappuram (Kodungallur) (168 km), (3) Kottappuram-Kozhikode (160 km), (4) Kozhikode-Neeleswaram (187.82 km) and (5) Neeleswaram-Kasaragod (41 km) respectively. Entire navigation canal system in Kerala can ensure sufficient water throughout the year and can be developed as Smart Waterways.

A road map in three phases is approved and the development of waterway system in the State is being taken up as follows: Phase I-WCC will be developed with possible width in the available land to be completed in the year 2020. Phase II-The rehabilitation of encroachers, land acquisition and widening of canal will be completed in 2020-22. Phase III-The extension of WCC upto Bekal in Kasaragod District, development of feeder canals and amenities for cargo transportation and tourism facilities will be achieved during 2022-25 period. Navigation aids and signals will be positioned for Smart waterways to enable permanent and round the clock navigation.

State Water Transport Department (SWTD), Coastal Shipping and Inland Navigation Department (CSIND) and Kerala Shipping and Inland Navigation Corporation (KSINC) are the major agencies under IWT in Kerala. The development of State Waterways is done jointly by CSIND and Kerala Waterways and

Infrastructure Ltd (KWIL), a Special Purpose Vehicle formed by the State Government and Cochin International Airport Ltd (CIAL) as a major partner. With KIIFB assistance KWIL has nearly completed the development activities in Parvathi-Puthanar (Kovalam-Akkulam stretch). While the development works of Akkulam-Kollam, Kozhikode-Mahe and Valappattanam-Neeleswaram are taken up by CSIND, IWAI is the GoI agency which is in charge of the development works in Kollam-Kozhikode (declared as National Waterways) stretch and its feeder canals.

Several parts of the canals are silted up and suffer from many navigation constraints like shallow depth and narrow width, bank erosion, absence of infrastructural facilities. National Waterway-III between Kollam and Kottappuram and the feeder canals of Champakkara and Udyogmandal were developed in Class-3 standard and barge services are operating in these canals. Passenger boat service is provided in Kollam, Alappuzha, Ernakulam, Kannur and Kasaragod. There are four sea openings in NW III. They are Munambam, Kochi, Kayamkulam and Neendakara. Besides that, various type of vessels including house boats, shinkar boats, speed boats, etc are plying in these canals and back waters linking tourism. Jhankar services are also being operated in certain locations.

Present status of development of various reaches of WCC

1. Kovalam – Kollam Reach (0-74.18 km)

A. Parvathy Puthanar between Kovalam and Akkulam Stretch (0-16.5km)

Dismantling and removing old bridge at Karikkakam. There is no sufficient vertical clearance for passing vessels. So the bridge is to be dismantled. For this purpose 6 crore was sanctioned. AS for 3 crore was issued.

B. Akkulam – Kollam Stretch (16.5-74.18km)

Maintenance works arranged for existing two boat jetties. Survey has been conducted for the rehabilitation of 480 encroachers through Kudumbasree Unit in Varkala Municipality and Vettoor Panchayath to identify those who already received house/land in various rehabilitation schemes. Cleaning work completed in Chilakkur tunnel and some maintenance works in progress. Also cleaning work in Sivagiri Tunnel is in progress.

2. Kollam to Kottapuram Reach (NW3) (74.18-242.18 km)

Remarks on DPR (NW-3, NW-8, NW-9, and NW-59) have already been forwarded to Government of India with a request to provide fund for the reconstruction of cross structures of National Waterway as per National Water way standards.

3. Kottapuram-Kozhikode Reach (242318-402.18 km) (NW-3 Extension)

Detailed project prepared by IWAI.

4. Kozhikode-Vadakara Reach (402.18-450.08km)

For Puthiyara bridge DPR is under preparation by PWD. Cleaning of Canoli canal was taken up by KWIL and dredged soil in the Eranjikkal and Kallayi mouths are dumped into deep sea by transporting through bottom opening barge.

5. Vadakara-Mahe reach (450.08-467.69 km)

Ist reach – 4km from ch.450.08km to 454.08km canal is partially formed. 2nd reach is navigable except the construction of cross structures under progress. LBS institute of Technology Thiruvananthapuram has been entrusted for the design of structures and soil investigation works for this deep cut portion of 3rd reach. In 4th reach, canal formation is almost completed. In 5th reach, canal is partially formed.

6. Mahi-Valapattanam Reach (467.69-526.20 km)

Land acquisition for 3rd cut between Valapattanam and Anjarakkandy is in progress. 85 per cent of the Environmental Impact Assessment for land acquisition of 1st cut between Eranholi and Mahi. Social impact study to be taken up by the shortlisted agency of Revenue Department.

7. Valapattanam to Neeleswaram Reach (526.20-590.53 km)

Clearing of banks of Neeleswaram river-Navigable-Depth issues at few locations in Nambiarkallu lock. Soil investigation completed and on receipt of report, it will be submitted to IDRDB for design

8. Neeleswaram to Bekal (590.53-616.60 km)

Soil investigation will be completed soon at Nambiar kallu lock. Demolition of Kodattu VCB completed and Allangottu VCB cum bridge, 90 per cent completed. Investigation work for both the above structures is under progress.

Kerala Shipping and Inland Navigation Corporation (KSINC)

Kerala Shipping and Inland Navigation Corporation Limited (KSINC) is one the pioneers in Inland Navigation, Coastal shipping and water based tourism and leisure activities in Kerala/ KSINC operates mechanised cargo transport in the inland waterways. Operational statistics of KSINC is given in **Table 11.1.34**.

State Water Transport Department

The mission of the department is “to provide better and speedy water transport facilities to the public especially to the people residing in water logged areas and proper enforcement of the statutory provisions, regulations and rules issued from time to time connected with inland navigation.”

The department caters to the traffic needs of the inhabitants of the waterlogged areas of the Districts of Alappuzha, Kottayam, Kollam,

Table 11.1.34 Operational statistics of KSINC

Particulars	2018-19	2019-20
No. of Jhankars	4*	4*
No. of Jhankars in operation	3**	3**
No. of Boats	1	1
No. of Boats in operation (Operating for Kochi Corporation)	1	1
No. of trips on schedule per day	75	75
No. of passengers carried (in lakh)	12.42	12.76
No. of Barges	7	7
No. of Tourist Boat	3	4
Total Distance Cargo (in km-approximate)	22932	34612
Volume of Cargo Carried (Tonnes)	203033	240756
Total revenue receipts on inland transport (in lakh) (Collection from tourists boats+ Barges+Jhankars)	1187.1	1690.1
Total revenue receipts on inland transport (in lakh)	1322.68	1736.46
Total revenue receipts on other business(in lakh)	197.60	322.42
Total revenue expenditure on other business(in lakh)	143.86	171.77
No. of employees (Total)	153	170

Source: KSINC Ltd

Note; * 2 Jhankars owned by KSINC Ltd and 2 Ro-Ro Jhankars owned by Cochin Corporation

** One Jhankar owned by KSINC Ltd and 2 Ro-Ro Jhankars owned by Cochin Corporation were under operation

Ernakulam, Kannur and Kasaragod. Even though the Department is a commercial Department, the functioning of this Department is like a service Department. Ever since 'Transportation' came under "Essential Service", this Department switched over as an Essential Service Department. The Department handles about 150 lakh passengers per annum using wooden/steel/ Solar based fiber Glass Passenger Boats.

Innovative Initiatives in 2019-20

A high speed 120 passenger capacity AC passenger cum tourist service boat "Vega 2" was inaugurated on March 10, 2020 in Alappuzha-Kumarakom-Kottayam region. Department procured 5 Nos of IRS class mono hull steel boats. These steel vessels are designed with less sound pollution and more speed as compared to the department's existing steel vessels. The Department also introduced ferry service in Payyannur region, service between Mattool-Azheekal route.

Various studies on the possibility of introducing electric Ro-Ro have been made in 2019-20. Passenger cum tourist vessel "See-Ashtamudi", four Water taxis, two 75 pax catamarans and seven 100 passenger capacity catamaran boats are near to completion. Two solar boats and India's first Solar cruise vessel is at final stage. On completion of these vessels, the tourism potential of the department shall be highly benefited and the native passengers can reach their designation within shortest time lag.

Scheme-wise outlay and expenditure of State Water Transport Department in 2018-19, 2019-20 and 2020-21 (expenditure upto September 2020) is given in **Table 11.1.35** and the operational statistics is given in **Appendix 11.1.23**.

New ventures and vision

Inspired by the success of India's first solar boat 'Adithya' Department plans to purchase more solar boats replacing old wooden boats

Table 11.1.35 Scheme-wise Review from 2018-19 to 2020-21, in ₹ lakh

Scheme	Annual Plan 2018-19		Annual Plan 2019-20		Annual Plan 2020-21	
	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure	Budgeted Outlay	Expenditure upto September 2020
Land, Building and Terminal Facilities	400.00	13.51	160.00	14.59	160.00	59.55
Acquisition of Fleet and Augmentation of Ferry Services	1600.00	1042.18	2110.00	429.10	2100.00	342.20
Workshop Facilities	270.00	0.00	250.00	67.61	150.00	27.72
Purchase of new Engine and Reconstruction of old Boats	150.00	147.84	291.00	126.56	200.00	51.45
Total	2420.00	1203.51 (53.03 %)	2811.00	637.86 (22.69 %)	2610.00	480.92 (18.43 %)

Source: Planspace, State Planning Board

in Vaikom region. This will help to reduce the burden of daily hike of fuel price, in addition to reducing environmental pollution. Electric Ro-Ro will reduce Operation and Maintenance expenditure the expenditure. Department also plans to procure one electric Ro-Ro to bring down operating cost by replacing diesel Ro-Ro

The Department is also gearing up to introduce “Barge” service to transport dangerous and most hazardous products mainly chemicals and Petroleum and procure 5 air filled dinghy boats for use in emergency situations like flood. Department intends to reconstruct two station offices and provide waiting area with feeding room facility for women at Alappuzha and Ernakulam region.

Issues and Challenges

- Diversion of water for irrigation, industrial and other needs reducing the flows in the rivers resulting in the reduction of depth and shoal formation.
- Excessive silt loads from erosion of uplands due to bad catchment management and increased deforestation.
- Inadequate river conservancy measures, resulting in gradual deterioration of waterways.

- Non availability of adequate navigational aids resulting in unsafe passage and high travel time.
- Lack of adequate terminal facilities at the loading and unloading points being non-existent and where existent being inadequate.

Way Forward

Port Sector

At present majority of the coastal cargo especially containerised traffic is routed through Cochin Port, from where it is dispatched to its final destination in the State by road. By developing the non-major ports in Kerala as coastal gateways, the coastal cargo can be offloaded at the nearest non-major port of the intended destination thereby reducing logistics cost.

Minor/Non major ports need to be developed with adequate draft, proper connectivity, modern material handling equipment, storage facilities and security system. The shipping sector must be governed by international standards, conventions and agreements, and events related to our maritime facilities, services and security must meet international standards to achieve adequate growth and development in the maritime sector

Inland Water Transport

1. Strengthening public-private partnership has to play the key in developing the inland waterways sector. Private players can undertake terminal development, cargo and passenger handling, and building low-draft vessels and related repair facilities.
2. Focus on developing basic infrastructure, addressing technological bottlenecks and maintenance of rivers to ensure year-round navigability
3. To ensure availability of seamless, multimodal last-mile connectivity to and from hinterland to reduce trans-shipment cost and make inland water transport economically more viable
 - Cargo transport through inland waterways to be incentivised.
 - Promote industrial corridors along river banks and foster waterways-based industrialisation.
 - Levy higher road taxes on transportation of coal and inflammable material over longer distances
4. Policies to promote river tourism projects/ tourists
5. Environmental and social impact of Inland waterways development needs to be assessed to negate potential damage ensuring economic benefits.

11.2 ENERGY

Energy has universally been recognised as one of the most important engines of modern economic growth and human development. It provides light and fuel to lakhs of households, power to industry, agriculture, and commerce and all service sectors. Electricity demand in our country has increased rapidly and is expected to rise further in the future. In order to meet the increasing demand for power in the country, massive addition to the installed generating capacity is required. According to the World Bank, even today 84 crore people across the world live without electricity and hundreds of millions more live with insufficient or unreliable access to it. Electricity has become a basic need without which people cannot survive. Making available the required quantity of quality power at affordable price is among the prime responsibilities of Government. The energy sector must also meet the challenges of sustainability.

Power Sector – Indian scenario

India is the world's third largest producer and third largest consumer of electricity. In the last three years, power shortage has reduced considerably. However there is unutilised generation capacity because of various constraints including constraints in the power network and the adverse financial position of DISCOMs in many States. The Central Government lays special emphasis on reduction on transmission and distribution (T&D) losses

and demand side management (DSM) to optimise resource utilisation. Concerted efforts are going on to make power available to all in a sustainable manner, through policy initiatives, such as the development of power projects through tariff based bidding, Private sector participation in transmission sector, the National Mission on Enhanced Energy Efficiency, focus on development of renewable energy sources (RES) and flexible use of coal for generating power from India's cheapest source of generation.

The national grid has an installed capacity of 3,73,029.36 MW as on September 30, 2020. In India, electricity from thermal energy is the dominant source of power. It constitutes nearly 62.01 per cent of the total installed capacity in the country as on September 30, 2020. Contribution of electricity generation from different sources to the national grid and the comparison with the previous years is given in **Table 11.2.1**. Of late, renewable sources have emerged as the second largest electricity source in the country relegating hydroelectric power to the third position.

In the sector-wise breakup of total energy generation as given in **Table 11.2.2**, the contribution of the State sector is 1,03,616.90 MW (27.78 per cent), Central sector 93,926.93 MW (25.18 per cent) and private sector 1,75,485.53 MW (47.04 per cent).

Table 11.2.1 All India installed capacity as on September 30, 2020

Fuel	Installed Capacity (MW) as on October 31, 2018	per cent	Installed Capacity (MW) as on October 31, 2019	per cent	Installed Capacity (MW) as on September 30, 2020	per cent
1	2	3	4	5	6	7
Thermal	2,21,768.00	64.1	2,29,401.42	62.86	2,31,320.72	62.01
Hydro	45,487.00	13.1	45,399.22	12.44	45,699.22	12.25
Nuclear	6,780.00	2	6,780.00	1.86	6,780.00	1.82
Renewable Sources	72,013.00	20.8	83,379.50	22.84	89,229.42	23.92
Total	3,46,048.00	100	3,64,960.14	100	3,73,029.36	100

Source: Central Electricity Authority (CEA)

Table 11.2.2 All India installed capacity as on September 30, 2020

Sector	Installed Capacity (MW)	per cent
State Sector	1,03,616.90	27.78
Central Sector	93,926.93	25.18
Private Sector	1,75,485.53	47.04
Total	3,73,029.36	100

Source: Central Electricity Authority (CEA)

Power Sector in Kerala

Kerala is the first State in the country to attain 100 per cent house hold electrification. Electricity is being provided throughout the State 24x 7 x 365 without any power cut or load shedding. Having achieved universal electrification, the State is now concentrating on the modernisation of the grid to meet the ever increasing customer aspirations with respect to reliability, to attain the lowest level of system losses, to meet the requirements thrown up by decentralised renewable generation and to ensure safety of installations. In addition to all these, the State has also embarked upon a mission to build a state of the art transmission network by constructing new lines, substations and modernising existing systems, to be ready for taking in the projected boom in e-mobility. The State has kicked off the ambitious 'Oorja Kerala Mission' which is a bouquet of five inter related projects namely, 'Dyuthi 2021', 'Soura' 'Filament free Kerala' 'Transgrid 2.0' and 'e-safe', woven together as a combination of priorities set by the above aspects. The underlying spirit of

all the projects envisaged in the power sector of the State is to contain the challenges of climate change and to reduce the carbon foot print of the power sector.

The Government of Kerala is committed to maintaining the dominant position of the public sector in the State's power sector. The Kerala State Electricity Board is unarguably one of India's best performing public utilities in the power sector, on all aspects of its functioning including technical, customer service and financial parameters. In the series of disasters that have affected the State over the last three years, including two major episodes of flood and landslides and the Covid-19 pandemic, the KSEB has provided outstanding service to the people of the State in all respects. This includes maintaining the highest possible level of service, undertaking repairs and restoring damage speedily, and providing tariff and related concessions across many different sectors of the economy and the domestic sector, especially during the ongoing Covid-19 pandemic.

The vision of the State in the power sector does not see the KSEB as a competitor ranged against the development of renewable energy as is the dominant paradigm elsewhere. The KSEB's participation indeed holds the key to the rapid deployment of solar energy, especially grid connected solar, and other innovative solar and wind projects across the State. The "Soura" programme referred to above, has been conceptualised in this framework, with the KSEB handling a major part of the deployment. The technological capacities of the KSEB need to be harnessed to the development of renewable energy rather than being set aside or left unutilised.

The power sector in the State is fully alive to the technological advances that have taken place in the recent two decades in the country and the State's strategy in the sector is drawing on the benefits of this advance. It is also leveraging a number of new innovative ideas and initiatives to maintain its growth in the new era of sustainability. Especially in the era of renewables, newer forms beyond solar and wind need to be considered and evaluated for development and deployment in the State. The participation of the State's S&T as well as the technological higher

education institutions in such efforts would be mutually beneficial to both these institutions as well as the power sector itself.

Power demand

Peak demand of the State in 2019-20 was 4,316.8 MW on March 27, 2019 between 22.00 hours and 22.30 hours. Morning peak demand in 2019-20 was 3465 MW, on May 23, 2019 between 08.00 hours and 08.30 hours. Minimum demand was 1302 MW on August 09, 2019 between 4.30 and 5.00 hours. Average demand for FY 2020 was 3,567 MW.

Power Generation, Purchase and Sale

Kerala State's Power scenario for 2019-20 is given in **Table 11.2.3**.

Sale of Power inside the State

KSEBL in 2019-20 has sold 22,948.82 MU power to 1,28,26,185 consumers including 11 bulk licences. ₹13,91,754 lakh were generated as total revenue. The total revenue from sale of power, including sales to other utilities outside the State is ₹13,918.79 crore.

Table 11.2.3 Kerala State's Power scenario for 2019-20

Particulars	Energy in MU
Gross generation KSEBL	5,781.23
Power purchase from CGS at Kerala periphery	10,082.00
Power purchase through long term/medium term/short term contracts/swap at Kerala periphery	9,993.52
Total Power purchase from IPPs/CPPs inside the State	308.23
Total power purchase at Kerala periphery	20,383.76
Energy injected by Private IPP's at generator end for sale outside the State through open access	37.50
Energy availed through open access at Kerala Periphery	405.86
Auxiliary consumption to be deducted.	58.42
EXPORT-Energy sales by KSEBL, SWAP Return by KSEBL and Energy injected by Private IPP's at KSEB periphery for sale outside the State through open access	323.84
Total energy input to Kerala periphery for meeting the consumption of the State including energy wheeled through open access	26,226.08
Total energy at consumer end including energy wheeled through open access	23,058.91

Source: KSEBL

Pattern of Power Consumption

Consumption of all LT categories of consumers increased except decrease in public lighting category and LT Industrial category and EHT consumers. The decrease in public lighting can be attributed to increase in LED lamps. The reason of decrease in LT industrial category and EHT category is assessed due to impact of Flood 2019 and Covid-19 in last quarter of the year. The details of the pattern of power consumption and revenue collected in 2019-20 are furnished in **Appendix 11.2.1**.

In Kerala, electrical energy consumption has increased to 23,058.91 MU (includes open access consumption) in 2019-20 from 21,750.25 MU in 2018-19, an increase of 5.67 per cent. Electrical Energy consumption in Kerala in 2013-14 to 2019-20 is depicted in **Figure 11.2.1**.

Aggregate Technical and Commercial (AT & C) Losses

In 2019-20, AT&C loss has increased to 14.07 per cent from 13.14 per cent and transmission and distribution (T&D) loss came down to 12.08 per cent from 12.47 per cent. KSEB has made significant achievement in the field of reducing

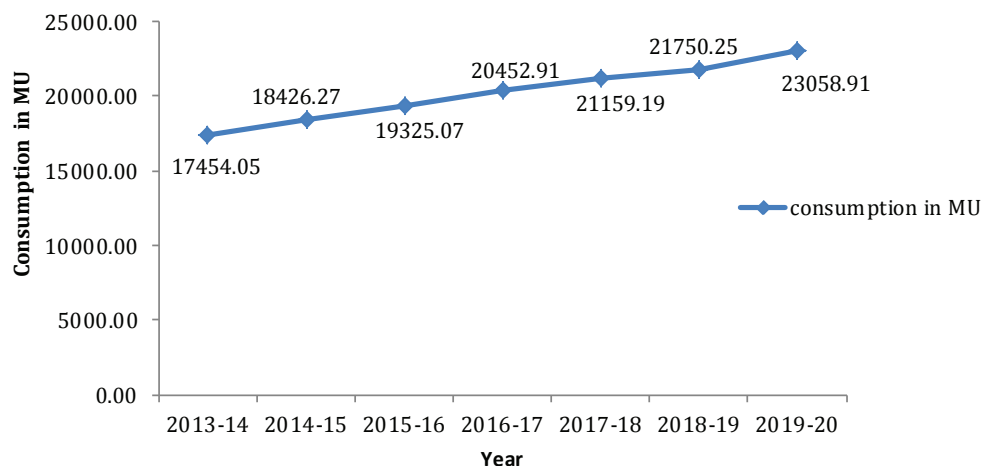
T&D loss. But AT&C loss increased due to the impact of Covid-19 pandemic and lockdown restrictions. For Distribution SBU, the AT&C loss is 10.77 per cent and distribution loss is 8.70 per cent in 2019-20. The impact of AT&C loss reduction during the last five years is shown in **Appendix 11.2.2**. The AT & C loss and T & D loss from 2014-15 to 2019-20 is illustrated in **Figure 11.2.2**.

Performance of Power Sector Agencies

Power development activities in the State are carried out mainly through four agencies, namely, Kerala State Electricity Board Limited (KSEBL), Agency for Non-conventional Energy and Rural Technology (ANERT), Electrical Inspectorate, and Energy Management Centre (EMC). The outlay and expenditure of these departments in Annual Plan 2019-20 and Annual Plan 2020-21 are shown in **Table 11.2.4**.

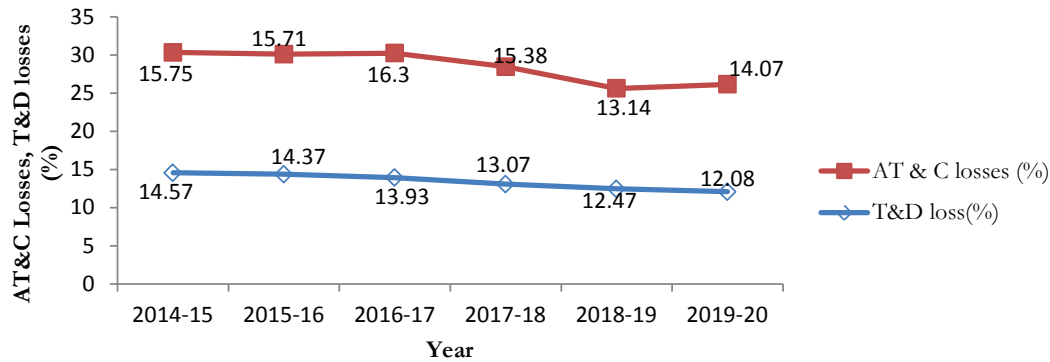
In the Annual Plan 2020-21, an amount of ₹1,76,457.00 lakh is provided for Energy sector. Out of this, ₹ 1,70,821.00 lakh is for Kerala State Electricity Board Ltd. (KSEBL), ₹4,180.00 lakh for Agency for Non-conventional Energy and Rural Technology (ANERT), ₹693.00 lakh for Meter Testing and Standards Laboratory (MTSL) and

Figure 11.2.1 Electrical energy consumption in Kerala



Source: KSEBL

Figure 11.2.2 Aggregate Technical and Commercial (AT&C) losses, and transmission and distribution losses, in per cent



Source: KSEBL

Table 11.2.4 Outlay and expenditure in the Annual Plan 2019-20 and Annual Plan 2020-21, in ₹ lakh

Sl No	Name of the Department/Agency	Annual Plan 2019-20			Annual Plan 2020-21		
		Outlay	Expenditure	per cent	Outlay	Expenditure up to September 2020	per cent
1	KSEBL	1,71,237.00	1,45,238.96	84.82	1,70,821.00	46,636.11	27.30
2	ANERT	5,200.00	1,061.56	20.41	4,180.00	1,133.56	27.11
3	EMC	883.00	401.27	45.44	763.00	0.00	0
4	Electrical Inspectorate	825.00	84.94	10.29	693.00	21.65	3.12
	Total	1,78,145.00	1,46,786.73	82.40	1,76,457.00	47,791.32	27.08

Source: Plan space

₹763.00 lakh for Energy Management Centre (EMC). As per expenditure reported in the Plan space, ₹47,791.32 lakh i.e., only 27.08 per cent of the total outlay is expended till September 2020. The expenditure reported by KSEBL is ₹46,636.11lakh (27.30 per cent), ANERT is ₹1,133.56 lakh (27.11per cent), and Electrical Inspectorate is ₹21.65 lakh (3.12 per cent). But, EMC has not reported expenditure up to September, 2020.

Kerala State Electricity Board Limited (KSEBL)

Kerala State Electricity Board Limited is a (power utility) company incorporated under Companies Act 1956 (Central Act 1 of 1956). It is fully owned by Government of Kerala, under provisions of section 131 of the Electricity Act 2003 by re-vesting (under sub section (2) of section 131 and

133 of the Act) the functions, properties, interest, rights, liabilities, proceedings and personnel vested in State Government from erstwhile Kerala State Electricity Board. Revesting was done on October 31, 2013. KSEBL is a single holding company with Distribution, Transmission and Generation strategic Business units with separate accounting. The company was incorporated on January 14, 2011 and it started operation as independent company with effect from November 1, 2013. KSEBL has been responsible for the generation, transmission and distribution of electricity in the State, with particular mandate to provide electricity at affordable cost for domestic as well as agricultural purposes.

Achievements of KSEBL in 2019-20

- The power disruptions that occurred during Floods 2019 was restored and normalised

within a short span of days through Mission Reconnect 2019.

- Provided uninterrupted power and maintained all essential services during Covid lockdown and subsequent unlocks through its dedicated staff, maintaining strict Covid protocol.
- 2,91,517 new service connections were effected and 1,301 nos. of new distribution transformers installed. 1,080.5 km of 11 kV line and 3,689.141 km of LT lines constructed.
- Construction of one 220kV substation, nine 110 kV, two 66 kV, six 33 kV substations and 366.4 km of lines in the voltage levels including 33 kV and above, capacity addition of 200 MVA step up transformers and 2,638 MVA step down transformers are the achievements in the transmission sector.
- Transmission and Distribution losses brought down to 12.08 per cent in 2019-20 from

12.47 per cent in 2018-19. AT&C loss for Distribution Strategic Business Unit has been remained at 10.77 per cent despite impact of Covid in last quarter of 2019-20 and distribution loss is reduced to 8.70 per cent in 2019-20 from 9.09 per cent in 2018-19.

- The 400 kV Tirunelveli-Kochi-Madakkathara-Udumalpet Power highway become a reality as the right of way was cleared by the resolution and action by State Government and KSEBL
- Six e-Vehicle charging stations were set up with State funds in short span of time.
- A capacity addition of 0.62 MW in Generation was achieved in 2019-20

Oorjja Kerala Mission

Government of Kerala has launched 'Oorjja Kerala Mission' on June 14, 2018, aimed at the

Table 11.2.5 Status of Solar Projects

Sl. No.	Project	MWp	Target date	Status
1	Roof top solar-Phase-1 EPC	46.5	2020-21	Under implementation through three vendors.
2	Roof top solar-Phase-1 RESCO	60	2020-21	For 60MWp in RESCO demand aggregation from roof tops of Government buildings envisaged.
3	Roof top solar-Phase-2 Subsidy (sanctioned)	50	2020-21	Under tender process (12.5MW to be implemented by ANERT) and is expected to be completion by April 2021
4	Roof top solar-Phase-2 Subsidy (anticipated)	100	2020-21	Also under tendering process and expected completion date is December 2021
5	Solar park Ambalathara	50		Commissioned
6	Solar park Paivallika	50	2020-21	Ongoing, developed by THDCIL
7	Solar Park-Cheemeni	100	2021-22	Land handed over to RPCKL by Government
8	NTPC Floating Solar	225	2021-22	Detailed Project Report received for 100MWp in Anchuruli and 25MWp in Cheruthoni. Another 100 MWp planned.
9	SECI Floating Solar	150	2021-22	Kulamavu-50MWp and Banasurasagar 100MWp-bathymetric survey to be conducted
10	Reverse bid by KSEBL from IPPs	200	2020-21	Bid on solar from ground mounted plants floated after approval from KSERC on all India basis
	Total Soura	1,031.5		

Source: KSEBL

integrated development of electricity sector in the State. It aims at implementing five important projects detailed below in the next 3 years. The status of these projects are analysed below

Soura

KSEB intends to achieve a cumulative capacity of 1000 MW to its renewable content through Solar Projects by 2021. The status of the projects are given in **Table 11.2.5**.

Filament free Kerala

Through this project all the existing CFL and filament bulbs in domestic and street lighting sector in the State will be replaced with energy efficient and long lasting LED lamps targeting reduction in peak demand, global warming and Hg pollution. More than 13 lakh consumers have already registered for LED lamps in the 1st phase in which domestic sector was targeted. KSEBL has accorded sanction to award procurement of one crore LED bulbs to two firms in 70:30 ratio. It is expected that LED distribution can be completed by February 2021.

Dyuthi 2021

The projects included in Oorjja Kerala Mission, are in progress with a mission to up lift the distribution grid of KSEBL to international level. The total Plan outlay is ₹ 4,036.30 crore. Devastating floods during 2018 and 2019 has also affected the progress. Also Covid-19 pandemic has retarded the progress of projects. Now the target for 2019-20 and 2020-21 has been revised to March 2021. The financial progress is 21.85 per cent as on September 30, 2020.

Transgrid 2.0 – 2nd Generation Transmission network

This project aims at strengthening of transmission network to meet the future energy requirement of the State and is scheduled to be implemented in two phases. The 1st phase of

the project is scheduled for execution during 2017-2022 and 2nd phase for 2019-2024. The works included in the 1st phase of the project are grouped into 13 packages and comprises construction of 12 substations and 2084 Circuit kilometre of EHT lines. Out of these 12 substations, 4 are Air Insulated Substations (AIS) and the remaining 8 are Gas Insulated Substations (GIS). 12 substations (AIS-3 Nos. and GIS-9 Nos.) are included in Phase II of the project which is grouped into 12 packages. ₹1,052.89 crore works have been completed as on September 30, 2020. This includes ₹523.54 crore funded by KIIFB, ₹461.87 crore funded in PSDF and ₹67.47 crore with KSEBL's fund. Works amounting to ₹760 crore can be completed by end of this year. This year only ₹301.56 crore works are completed as on September 30, 2020. The physical progress of the work as on date is given in **Table 11.2.6**.

eSafe

The eSafe project jointly mooted by Electrical Inspectorate and KSEB aims at zero electrical accidents in the State. In this Budget year, Electrical Inspectorate has been allocated funds to the tune of ₹ 4.08 crore to implement e-safe projects. Conduct of safety awareness programmes, rewiring tribal households at Agali, Sholayur and Pudur Panchayat Pilot implementation of safety system preventing accidents from snapping of Over Head lines and electric fence energiser test set up are envisaged this year. Also Local Self Government Department has accorded sanction to local bodies on January 24, 2020 to prepare project including family of NPG consumers to rewire their premise with at least four points and ELCB ensuring safety standards in their coming Annual Plan @ ₹12,287 per family. With the completion of the project, it is expected that all domestic households will be connected with earth leakage protection as per standards.

Generation

In 2019-20 the internal generation of KSEBL is 5,781.23 MU which is 24.18 per cent lower than

Table 11.2.6 Progress of Transgrid 2.0, Phase I and II in 2019-20

Sl No	Work	Quantum of work	Progress
A	Transgrid 2.0 – Phase I		
a	KIIFB Funded works		
1	Erection of substations (220 kV-11, 400 kV-1)	12 nos	220 kV s/s Manjeri commissioned on June 23, 2020. Other 11 substations works are in progress
2	Construction of transmission lines	321 route-km	220 kV Karukkadam-Kothamangalam charged on December 11, 2019. Other works are in progress
b	PSDF Work		
1	Construction of transmission lines	211.46 route-km	Two packages are funded in PSDF. Kak-kayam-Nallalam work commissioned. The 220 kV portion of MDKA-MLPA already charged on July 10, 2019. All other works are in progress.
B	Transgrid 2.0 – Phase II		
a	KIIFB Funded works		
1	Erection of substations (220 kV-8, 400 kV-1)	9 nos	20 kV s/s Kakkad and Pathanamthitta tendered. For Sasthamcotta, Thuravur and Irinjalakuda KIIFB sanction is awaited. In case of Panjal, Palakkad and Edamon, DPR is being prepared
2	Construction of transmission lines	431.4 route-km	Kottiyam-Kollan GIS work completed. Other two works awarded. For balance 4 works KIIFB sanction is awaited. For 6 works DPR is under preparation.
b	Green Corridor Package		
1	Erection of substations (220 kV-3, 400 kV-1)	4 nos	Approval of MNRE awaited
2	Construction of transmission lines	102 route-km	

Source: KSEBL

Table 11.2.7 KSEBL internal generation

Sl. No.	Particulars	Capacity as on March 31, 2019 (MW)	Capacity added in 2019-20 (MW)	Capacity as on March 31, 2020 (MW) (2)+(3)	Total Internal Generation in 2019-20 (MU)
0	1	2	3	4	5
1	Hydel	2,058.76		2,058.76	5,741.83
2	Thermal	159.96		159.96	12.03
3	Wind	2.025		2.025	1.42
4	Solar	16.85	0.62	17.47	25.95
	Total	2,237.60	0.62	2,238.22	5,781.23

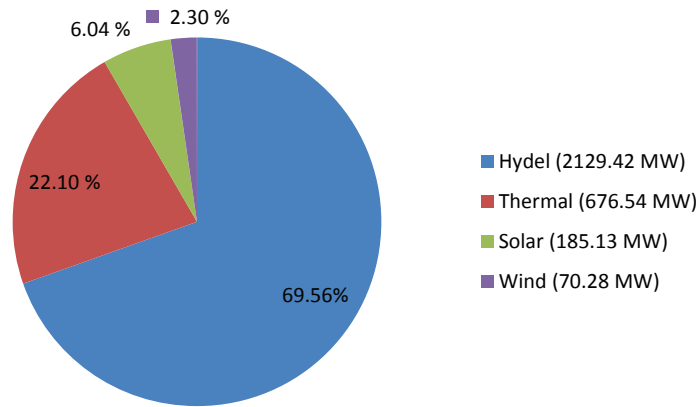
Source: KSEBL

last year. Net generation of the State is 6,050.65 MU. The internal generation of KSEBL is given in **Table 11.2.7**.

Capacity Addition in 2019-20

Total installed capacity of power in the State as on March, 2020 is 3,061.37 MW. Of which, hydel

Figure 11.2.3 Installed capacity, mega watt



Source: KSEBL

power contributed the major share of 2,129.42 MW (69.56 per cent); while 676.54 MW was contributed by thermal projects (22.10 per cent), 70.28 MW from wind (2.30 per cent), and 185.13 MW (6.04 per cent) from solar. **Figure 11.2.3** highlights the total installed capacity of Kerala from hydel, thermal and renewable sources.

Appendix 11.2.3 gives the details of energy source and its installed capacity during the last five years while sector-wise details are presented in **Appendix 11.2.4**. Of the total installed capacity of 3,061.37 MW in 2019-20, the contribution of State sector is 2,238.22 MW (73.11 per cent), Central sector 359.58 MW (11.75 per cent) and private sector 463.57 MW (15.14 per cent). The details of power availability during the last six years are illustrated in **Appendix 11.2.5**.

Installed Generation Capacity

Kerala State Electricity Board Limited owns 37 hydel stations of capacity 2,058.76 MW, one wind farm of 2.025 MW, two thermal plants of 159.96 MW and solar plants of 17.47 MW at various places. In 2019-20 the major addition was 60.39 MW by private plants. KSEBL added only 0.62 MW solar plants. RGCCPP Kayamkulam is the only CGS in the State. IREDA Solar Park of 50 MW

at Kasaragod and 2MW ANERT, Kuzhalmadam solar plants are the State invested projects.

Ongoing Generation Projects in the State

The details of the ongoing hydroelectric projects in the State with expected date of commissioning are given in **Table 11.2.8**. KSEBL is executing 10 Hydel projects in the State with installed capacity of 193.5 MW, to be completed by 2021-22. Details of other hydroelectric projects, which are in the pipeline, are listed in **Appendix 11.2.6**.

Enhancing Renewable Energy component in the Energy Mix of the State

KSEBL is considering all option to harness renewable power. Besides development of solar power through Soura projects, installations of other renewable plants are expedited. The target is to meet 40 per cent of energy requirements from Renewables by 2022. The existing, ongoing and pipeline renewable projects for 3309 MW are given in **Table 11.2.9**.

The details of existing Solar plants of 204.22 MW are given **Appendix 11.2.7**.

Table 11.2.8 Ongoing Hydro Power Projects in the State

Sl. No.	Name of Scheme	Installed Capacity (MW)	District	Date of Project Sanctioned	Expected date of commissioning
1	Thottiar HEP	40	Idukki	January 16, 2009	December, 2021
2	Sengulam Augmentation Scheme	85 MU	Idukki	July 06, 2009	March, 2022
3	Chathankottunada II SHEP	6	Kozhikode	November 09, 2017	March, 2021
4	Poringalkuthu SHEP	24	Thrissur	January 01, 2014	May, 2021
5	Bhoothathankettu SHEP	24	Ernakulam	February 15, 2014	August, 2021
6	Upper Kallar	2	Idukki	December 12, 2016	April, 2021
7	Pallivasal Extension	60	Idukki	March 02, 2007	December, 2021
8	Pazhassi Sagar	7.5	Kannur	October 27, 2017	December, 2021
9	Chinnar	24	Idukki	April 27, 2018	March, 2022
10	Peruvannamoozhy	6	Kozhikode	May 25, 2018	May, 2021

Source: KSEBL

Table 11.2.9 Ongoing and pipeline renewable projects in the State

RENEWABLE ENERGY-Installed, Ongoing and Proposed				
	Project	Capacity in MWp	Year of Completion	Present Status
A	SOLAR			
I	Existing	204.22		
ii	Ongoing and Proposed			
1	KSEBL projects	23.27	2020-21	Ongoing 13.355 MWp and Proposed 9.912MWp
2	Solar park-THDCL Paivalika, Kasaragode and Cheemeni.	150	2019-20	Paivalika 50MWp ongoing, Cheemeni 100MWp-land handed over to RPKCL
3	Saura Roof top solar-Phase-1	110	2020-21	46.5 MW in EPC mode under implementation. For 60MWp In RESCO demand aggregation from roof tops of Government buildings envisaged.
4	Saura Roof top solar-Phase-2 MNRE subsidy scheme	150	2020-21	50 MWp allocated by MNRE is under tender process (12.5MW to be implemented by ANERT) and is expected to be completed by April 2021. Balance 100MWp allocation expected from MNRE is also under tendering process and expected completion date is December 2021
5	NHPC Floating Solar, West Kallada	50	2020-21	Tendering in process

	Project	Capacity in MWp	Year of Completion	Present Status
6	NTPC Floating Solar-Kayamkulam	92	2020-21	Draft PPA Signed, work awarded by NTPC.
7	NTPC Floating Solar	225	2021-22	Detailed Project Report received for 100MWp in Anchuruli and 25MWp in Cheruthoni. Another 100MWp in Cheruthoni is under consideration
8	Reverse bid by KSEBL from IPPs	200	2020-21	Bid on solar from ground mounted plants floated after approval from KSERC on all India basis
9	PM-KUSUM	50	2020-21	Demand aggregated for 10MWp sanctioned. Requested for additional 40 MWp to MNRE
10	SECI Floating Solar	150	2021-22	Kulamavu-50MWp and Banasurasagar 100MWp-bathymetric survey to be conducted
11	Solar Power through SECI	200		Negotiation in process
	Total Solar-Existing, Ongoing and proposed	1,604.49		
B	Wind			
I	Existing	80.28		
II	Proposed and ongoing			
1	NHPC Palakkad	8	2020-21	Ongoing
2	Ramakkalmedu (Pvt.)	2	2020-21	Ongoing
3	SECI TRANCHE VI scheme	200	2020-21	PSA executed
4	SECI TRANCHE VII scheme	100	2020-21	PSA executed
5	KSEBL-Kanjikkode	2.5	2020-21	Ongoing
6	KSEBL-Intercropping	2.65	2020-21	Ongoing
	Total ongoing and proposed	395.43		
c	Hydel (Renewable)			
i	Existing	215.56		
ii	Proposed-Ongoing	193.5		
iii	On pipeline	894		Includes 780MW Idukki extension scheme
	Total Hydel under RE-existing, ongoing and proposed	1,303.06		
D	Waste to Energy			
1	Wayanad	0.2	2019-22	Planned
2	Njalianparambu	6	2019-22	Tender invited for work
	Waste to Energy-Total ongoing and proposed	6.2		
	Total Capacity expected at the end of 2021-22	3,309.18	MWp	

Source: KSEBL

Distribution

The distribution network as on March 31, 2020 has 64,212 Ckt-km of 11 kV lines, 2,93,280 Ckt-km of LT lines and 81,470 distribution transformers with step down capacity of 9,915 MVA. The target and achievement of the distribution infrastructure in 2019-20 are given in **Appendix 11.2.8**. The infrastructure development of distribution system is included in Dyuthi 2021 project, under Oorjja Kerala Mission. During Covid-19 lockdown, KSEBL implemented several relief measures to consumers to support them during hard times. Also Customer Care Centre was strengthened and new services introduced to achieve customer loyalty and facilitate care of service.

- 1. Service at Door steps**-Pilot implementation started in 39 sections under Electric Circle, Palakkad. As the name indicates the programme is to provide all services rendered by KSEBL to public as well as consumers at their door steps on call. The pilot implementation has attracted attention of all parties and is lauded as an earnest step in customer satisfaction by public as well as the media.
- 2. Self-Meter Reading App** - KSEBL is developing a self-meter reading app and is planning to implement it by first November, 2020. The app can be used by layman or woman with ease. The app will serve as a solution to door lock problems and meter reading errors. The novel step will be useful for all categories of consumers as well as KSEBL field staff.
- 3. e-samayam.** e-samayam, a virtual queue to visit section offices of KSEBL is being implemented as pilot in Kesavadasapuram and Vellayambalam section in Trivandrum.

Collection of arrears

Special attention was paid to collect arrears of electricity charges from time to time. The

outstanding dues of private consumers as on September 30, 2020 are ₹963.79 crore. The Government dues, both Central and State together at the end of first quarter is ₹ 723.67crore. Of this ₹ 604.15 crore is attributed to State Government departments and State public sector undertakings. The major chunk of this arrear amounting to ₹399.05 crore belongs to KWA. KWA has to pay the arrears including interest payable up to September 30, 2018 in four annual instalments. Only the first instalment has been paid. It was also decided that current charge bills of KWA after September 30, 2018 will be paid from water charges by LSG. ₹140.64 crore has been paid and transfer of fund is pending from January 1, 2019.

Transmission –Normal

To achieve the goal of 24x7 uninterrupted quality power to the consumers and also for availability of power on demand, sufficient capacity of transmission network is to be developed. Also, works are necessary to satisfy the N-1 planning criteria put forth by the Central Electricity Authority. It is targeted to complete another 45 substation of different voltage level and 1,300 circuit kilometre of transmission lines by March, 2022.

Kerala's transmission infrastructure consisting of substations, its targets and achievements and network details as on March 31, 2020 is given in **Appendix 11.2.9** and **Appendix 11.2.10**.

Flagship projects of KSEBL

In addition to five projects included in Oorjja Kerala Mission cited above, the following four projects also form the flagship projects of KSEBL.

E-Mobility

The State of Kerala is one among the first in India, which declared its e-mobility Policy. KSEB has been designated as the State Nodal Agency to ensure deployment of e-Vehicle charging stations across the State. With State

funding of ₹8.2 crore, KSEBL planned to set up 32 charging stations covering all Districts of the State for ensuring State wide charging facility for e-Vehicles. Of this 6 stations are completed and work for balance stations are in progress. In Central funding through Department of Heavy Industries, Faster Adoption and Manufacturing of Electric Vehicles in India (FAME-India) PHASE-II Scheme, 30 charging stations are being installed in seven cities with over one million populations. As on October 15, 2020 the Central Government has sanctioned another 181 stations and the installation of these 181 stations has to be completed by March 2022.

Kerala Fibre Optic Network (K-FON)

The scope of the project is to build a Wide Area Network across the State in order to provide cost effective and high speed internet connection to 30,000 Government offices and educational institutions and free internet access to 20 lakh BPL families. Implementation and maintenance of the network will be carried out by a Special Purpose Vehicle (SPV) with equity partnership of KSEBL, KSITIL and the State Government in the ratio 49:49:2. Among other benefits to KSEBL, the project ensures High Speed Internet Connectivity to all its offices. KSEB will get pole rent plus 4 fibres free of cost along the distribution line (47,289 km). It will meet additional data communication requirements for Control and Protection, Smart Grids and Smart Meters and Internet of Things. The assets created will vest with KSEBL.

The works are awarded in two packages. Package A with PAC ₹1,028.2 crore funded by KIIFB consist of K-FON works and Package – B, Reliable communication and Data acquisition network (RC and DA network) with PAC ₹ 99.2 crore in PSDF fund. The OPEX for Package A and B for seven years is ₹363.42 crore

The progress as on September 30, 2020 is as follows:

- NOC Non IT-85 per cent completed.
- DR IT-50 per cent completed.

- Point of presence (PoP) – Civil Foundation works for 119/375 PoPs and Prefab erection for 85/375 PoPs have been completed.
- Optical Ground Wire (OPGW) – 42.511/2,600.066 km has been completed.
- All Dielectric Self Supporting cable – 5,535/35,000 km has been completed.

Enterprise Resource Planning (ERP)

ERP will allow KSEBL to use a system of integrated applications to manage the business and automate many back office functions related to accounting, material management and human resources. The project was conceived as a Centrally Sponsored Scheme under IPDS. ERP Project Plan was submitted to Power Finance Corporation. First instalment of ₹42.64 crore sanctioned (60 per cent grant) and ₹6 crore has been received. ERP implementation to be completed by August, 2020. Extension up to March, 2021 has been issued by PFC. ERP software is being developed in house and progress is as follows:

- Project Plan finalised and development team formed as per time line.
- UAT to be started from November, 2020.
- Coding started from September 30, 2019 and it is in the final stage except some gaps. Delayed due Covid-19 restrictions.
- Looking for module-wise implementation and planning to start procurement module from December, 2020.

Communicating Fault Pass Detectors (CFPD)

The employees of KSEB, after in-house research, developed cost effective Communicating Fault Pass Detectors which are very user friendly. KSEBL intends to deploy 16,267 plus CFPDs in its HT network within 2022. The progress as on September 30, 2020 date is as follows:

- 3,255 units were assembled and issued so far, of which 2,564 units have been installed by October 06, 2020. Out of the total installed 801 units are found faulty.

- The training of System Supervisors for field level maintenance assistance for CFPDs completed.

Central Government schemes

The details of implementation of important Central Government power sector schemes in Kerala are detailed below.

Ujwal DISCOM Assurance Yojana (UDAY)

This is the financial turnaround and revival package for electricity distribution companies (DISCOMs) initiated by the Government of India. Kerala Government and KSEBL signed MoU with GoI. The objective of signing MOU is improvement in internal efficiency of KSEBL. No financial assistance is included in MOU. KSEBL has achieved important operational targets except smart meter installation, ERP and Rural feeder audit. ERP being developed in house is in coding stage and feeder monitoring has been completed for rural feeders. KSEBL has taken a policy decision not to implement smart metering as on date.

Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY)

Govt. of India scheme, Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) for the rural areas, was implemented in Kerala for rural electrification and strengthening of sub-transmission and distribution infrastructure, including metering at distribution transformers, feeders and consumers end. The details of financial and physical progress of implementation of DDUGJY are shown in **Appendix 11.2.11**. The closure report has already been submitted to REC.

Pradhan Mantri Sahaj Bijli Har Ghar Yojana-“Saubhagya”

Under Saubhagya scheme free electricity connections to all households (both APL and

poor families) in rural areas and BPL families in urban areas including single point wiring were envisaged. Saubhagya as such, was not sanctioned to Kerala. ₹95.75 crore (less State tax, net amount of ₹88.45 crore) was sanctioned to Kerala to reconnect 3,19,171 households de-electrified during 2018 floods. Of which, ₹54.59 crore has been received. The closure report of Saubhagya has already been submitted to REC on February 27, 2020.

Integrated Power Development Scheme-IPDS

IPDS stage-1 was implemented in 25 distribution circles in the State to strengthen sub-transmission and distribution networks, metering of distribution transformers, feeders and consumers in urban area. Closures of IPDS (System Strengthening) for 25 Circles are in progress for submission to PFC Ltd.

The progress of IT part is as follows:

- **Phase-II IT Implementation under IPDS.** The DPR for ₹22.86 crore, covering 21 Towns was sanctioned on February 20, 2017. Implementation related activities like ring fencing has been completed in all 21 towns. 367 modems in border meters and feeder meters of all 21 towns are installed. Modems are communicating with Central server. The integration of software applications with the existing RAPDRP applications are progressing.
- **Real Time Data Acquisition System (RT-DAS) for Non-SCADA Towns under IPDS.** The Notice Inviting Tender for implementing RT-DAS was published on July 09, 2019. Since only one bidder has qualified the Technical evaluation, retendering was done. Now after Letter of Acceptance was issued to M/s. SCOPE TNM Pvt. Ltd. on June 11, 2020.
- **ERP Implementation under IPDS.** See ERP under flagship projects
- **Smart Meter Implementation for UDAY participating States under IPDS.** KSEBL has decided not to proceed with Smart Metering as on date.

- **RAPDRP Part A-SCADA/DMS Project.** Part-A installation of SCADA completed in all three cities, Trivandrum, Kochi and Kozhikode. Third party inspection has been completed. Part-B works completed on March 31, 2018. Project closure was done on June, 2018.
- **Big Data Analytics.** It is envisaged to develop a system for Big Data Analytics with an objective to transform large amount of raw data from the Core Applications of KSEB to a knowledge base for analytical purpose.
- **Cyber Security Projects**

The following projects will be implemented in KSEBL with the handholding support of the Cyber security Consultant

1. Implementation of various advanced cyber security measures for improving the overall IT security landscape of the Organisation
 2. Availing ISO Certification for the Data Centre/DR Centre.
- **KFON Project.** Elaborated under flagship projects in States.

Pradhan Mantri Kisan Urja Surakshaevem Uttahan Mahabhiyan (PM KUSUM)

PM-KUSUM envisages utilisation of barren agriculture land for installing solar plants, providing a permanent income to farmers from power generation and solarisation of agriculture pumps which will reduce utilisation of power from grid and in turn reduce financial support from Government in the form of subsidies. MNRE has allotted 10MW solar plants to the State in component-A of PM-KUSUM scheme. KSEBL is implementing the scheme and has put forward two models for land owners. The first one is the Lease Model where panels are installed on lease (EPC/RESCO method) and second one is the Investment model (PPA method) where investment is done by land owners itself. 169 participants have registered in PM-KUSUM. Detailed survey completed and locations suitable for 10 MW plants have been identified in both

models. Discussion with applicants in investment mode will be initiated at first and it is expected that the project can be completed at the earliest. In component -C, Solarisation of 10 Lakh Grid-connected Agriculture Pumps of individual pump capacity up to 7.5 HP included. Government of India will provide financial support up to 30 per cent of the cost of solarisation and States to also provide at least 30 per cent of the cost of solarisation, balance cost to be shared by the beneficiary farmer. ANERT is entrusted to implement solarisation of grid connected pumps.

Sustainable Rooftop Implementation for Solar Transfiguration of India (SRISTI)

Government of India, Phase II Grid connected rooftop solar programme, with a target for achieving cumulative capacity of 40,000 MW from Rooftop Solar (RTS) Projects by the year 2022 will be implemented with total Central financial support of ₹11,814 crore with Power Distributing companies (Discoms) as implementing agencies. Domestic consumers with ceiling of 10KWp plants are eligible for CFA. 50MW has been allocated to the State in this subsidy scheme. The 37.5 MW capacity of the project will be executed by KSEBL and rest 12.5 MW by ANERT. The State has requested for an additional 200 MW for 2020-21.

24 x7 Power for all

Kerala has attained 24 x7 power supply status in all areas of the State including agriculture consumers. 1,100 Urban feeders and 640 rural 11kV Feeder are connected to National Power Portal (NPP) and can be monitored.

Unnat Jyothi by Affordable LEDs for All (UJALA)

This scheme provides LED bulbs to domestic consumers with a target to replace 7.7 lakh incandescent bulbs in the country with LED bulbs by June, 2020. Kerala has already replaced 135.6 lakh lamps in households with LED bulbs. The achievement of the State is 83.76 per cent

Perform Achieve and Trade (PAT)

PAT scheme is a flagship programme of Bureau of Energy Efficiency under the National Mission for Enhanced Energy Efficiency (NMEEE). The second cycle of PAT, notified in March, 2016 covers DISCOMs also. The Kerala State Electricity Board Limited has complied with all requirements mandated by the PAT Rules. KSEBL has ensured prompt and timely satisfaction of all action points stipulated in the PAT scheme, as part of the PAT Cycle II. KSEBL has also complied with all the mandatory provisions of the Energy Conservation Act 2001, as an electricity distribution company.

State funded projects

The progress of State Government funded projects in 2019-20 are given in **Table 11.2.10**.

PGCIL interstate projects

The major interstate transmission projects are:

Pugalur-Trichur HVDC project. This project is an extension of 600 MW Raigargh –Pugalur HVDC corridor to Kerala. The Raigargh –Pugalur corridor has been test charged on May 2020. This 320 kV DC line of length 153.5 km has 92 km inside Kerala. Of this, 64 km up to Vadkkanchery is as overhead and rest 28 km is through UG cable. The line has 2000 MW capacity. The progress as on September 30, 2020 is as follows.

- 400 kV HVDC station Thrissur – 95 per cent completed.

- Transit Station Vadakkanchery –Expected to be completed by October, 2020.
- 320 kV HVDC – UG cable Vadakkanchery – Thrissur stretch – completed 320 kV HVDC OH Portion (Ozhalapathy to Vadakkanchery).
- Stringing on 12.34 km out of total 63.641 km pending
- 400 kV LILLO section (Thrissur S/S to 400 kV Kochi-Thrissur line) – Completed.

Project is expected to be completed by December, 2020.

Edamon-Kochi 400 kV line. The Edamon-Kochi line was test charged on September 2, 2019. With the completion of this stretch, first 400 kV power high way through the State i.e. Tirunelveli-Kochi-Thrissur-Udumalpet become reality. The line has 800 MW Capacity.

Dam Rehabilitation and Improvement Project (DRIP)

Dam Rehabilitation and Improvement Project (DRIP) aims to improve the safety and sustainable performance of existing dams and associated structures with the assistance of World Bank through Govt. of India. It is a flagship project of Ministry of Water resources, GR&RD, Government of India. The project has been extended to March, 2021. The components of DRIP are:

Component 1 – Rehabilitation; remedial measures and improvement of basic facilities of 12 Hydro Electric projects consisting of 37 dams.

Component 2 – Institutional strengthening.

Component 3 – Project management.

Table 11.2.10 The progress of State Government funded projects

Sl.No.	Project	Requested by KSEBL (crore)	AS accorded by Government (crore)	Expenditure (crore)
1	ERP implementation	5.68	5.68	5.68
2	Smart Grid Kochi	17.6		
3	Tidal and Wave energy	0.02	0.02	
4	ESCOT project – HVDS	0.46	0.46	
5	ESCOT Project – Standardisation of DTR	0.54	0.54	
6	Edamon Kochi 400KV line compensation	3		3
	Total	27.3	6.7	8.68

Source: KSEBL

In component 1 and 2 financial progress of ₹118.80 crore are achieved, while balance of ₹3.2 crore are only in tender stage, while in component-3 progress already achieved is ₹10.8 crore. The total expenditure incurred in all the components as per IUFR calculation till the quarter ending June 30, 2020 is ₹102.7 crore. The amount of claim reimbursed till date to Government of Kerala through GoI is ₹99 crore. The amount received by KSEBL from GoK is ₹62.8 crore.

DRIP II

In line with ongoing DRIP projects, CPMU, Central Water Commission is perusing with second phase of DRIP through World Bank Assistance. Administrative sanction has been obtained for ₹70 crore works from KSEBL. Works amounting to ₹22.5 crore have been tendered. The works included are strengthening of Poringalkuthu dam, strengthening road and setting up CC lab at Idamalayar dam.

Power Theft

Cases of power theft and connected abnormalities are very low in the State due to strict enforcement of law and awareness in society. KSEBL has Anti Power Theft Squad (APTS) constituted to detect pilferage and misuse of electricity in all Districts. Field staff is also given monthly targets for inspection. In 2019, 20,338 theft cases were detected, from which 2.38 MU were estimated as extracted by theft and malpractices. The cost of energy collected from assessments made during inspections in 2019-20 is ₹7.66 crore. Compared to 2018-19, there is an increase of 42.61 per cent in number of cases detected and 114.41 per cent increase in MU estimated. The cost of energy collected from assessments increased by 284.92 per cent.

Electrical Accidents

KSEBL has targeted 2019-20 as zero accident year and efforts were made to attain the objective. Considerable progress has been

achieved in reducing accidents to department staff. There were 113 fatal accidents to human beings and 39 fatal accidents to animals from KSEBL installation. Compared to 2018-19 there is a decrease of 8.13 per cent in fatal accidents to human beings and a decrease of 30.35 per cent fatal accidents to animals. There was also 185 non-fatal accidents to human beings in 2019-20, while it was 211 in 2018-19. From consumer installations, 126 fatal accidents occurred to human beings and 25 Non-fatal accidents to human beings.

The Catastrophies

Impact of Covid-19 on the Power Sector

Due to the lockdown imposed by the Government from March 24, 2020, there has been considerable impact on the power sector. There has been considerable reduction on electricity consumption due to lockdown and consumers were unable to pay their due to the distribution companies. This has also affected the liquidity position of the distribution companies impairing their ability to pay to the generating and transmission companies.

Important policy measures announced by Central Government

Ministry of Finance, Government of India vide Office Memorandum No.F.18/4/2020-PPD dated February 19, 2020 had clarified that disruption of supply chains due to spread of Novel Corona Virus in China and any other country will be considered as a natural calamity and *force majeure* clause may be invoked wherever considered appropriate following due procedure. In order to address the liquidity crunch of the distribution licensees, Ministry of Power, Government of India vide Order No.23/22/2019-R&R dated March 27, 2020, relaxed the provision of 100 per cent payment security to be ensured by the State Load Dispatch centres for the purchase of power by distribution licensees. As per the relaxation, it has been decided

that considering the unprecedented and *force majeure* situation, power may be scheduled even if payment security mechanism is established for 50 per cent of the amount for which payment security is to be otherwise established contractually till June 30, 2020.

Ministry of Power, Government of India as per letter No.23/22/2019-R&R Part-4, dated March 28, 2020 had issued Directions under Section 107 of the Electricity Act to Central Electricity Regulatory Commission in public interest to specify a reduced Late Payment Surcharge (LPS) for payments which become delayed beyond a period of 45 days from the date of presentation of bill during the period from March 24, 2020 to June 30, 2020 to generating companies and licensees treating the restrictions placed by the Central Government as *force majeure* event. The reduced LPS is applicable for a period till June 30, 2020. Further, it was stipulated that the LPS should not be more than the cost that the generating companies and transmission licensee would have to bear because of the delayed payment. In the case of generating companies and transmission licensees, whose tariff was determined under section 63, Discoms may claim the relief from its obligations regarding the rate at which LPS is to be paid as per the *force majeure* provisions in the PPA.

Government of India has also requested the State Governments to issue similar directions under Section 108 of the Electricity Act to respective State Commissions and the distribution companies pass on similar or more benefits to the consumers with regard to LPS. Further to this, Central Government vide letter No.11/16/2020-Th-II dated May 15, 2020 issued advisory to all Power Generation and Transmission CPSEs under Ministry of Power and all Subsidiaries/Joint Ventures of Power Generation and Transmission CPSEs under the Ministry of Power for deferment of capacity charges for power not scheduled, to be payable without interest after the end of lockdown period in three equal instalments and to provide rebate of about 20-25 per cent on power supply billed (fixed cost) to Discoms

and inter State Transmission charges levied by PGCIL. The advisory was communicated to the Government of Kerala and Discoms for passing on to the end consumers in the electricity bill for the lockdown period on account of Covid-19 Pandemic.

Further to this, Ministry of Power vide letter dated No.11/16/2020-Th-II dated June 10, 2020 communicated the amount of rebate as ₹50.86 crore and the capacity charges deferred is 63.38 crore to State of Kerala.

Reliefs announced by Government of Kerala

Government of Kerala has also announced several measures for coping with difficulties encountered during the lockdown. Hon'ble Chief Minister, Government of Kerala in the press conference held on April 21, 2020, announced that the Industrial and Commercial Consumers of KSEB Ltd. have been provided with an option for the deferred payment of fixed charges for the months of March, April and May, 2020 up to December 15, 2020 at an interest rate of 12 per cent (instead of 18 per cent) on deferred fixed charges. Later, this facility has been extended to Private Hospitals also, as per the directions of State Government. The domestic consumers were also allowed to remit half of their bill amount during lockdown period and to remit balance amount in two equal instalments.

Impact on finances of KSEB

The Covid-19 pandemic has adversely impacted the financial position of KSEB Limited. It is estimated that the loss sustained by the utility during the period March to July, 2020 because of the pandemic and considering the factors mentioned hereunder will be around ₹1240 crore.

A summary of financial impact of Covid-19 on KSEB is given in **Table 11.2.11**.

Table 11.2.11 Financial impact of Covid-19 on KSEB, as estimated on July 31, 2020, in ₹ crore

Sl.No.		Expenditure
1	Loss of revenue due to reduced sale of energy	₹865.13
2	Arranging transportation for stranded employees	₹0.08
3	Waiver of interest on delayed payment of electricity charges (domestic)	₹12.28
4	Absorption of bank transaction charges for online payment	₹4.50
5	Providing cash-back for promotion of online transaction	₹9.00
6	Waiver of Application Fee	₹1.00
7	Rebate on Fixed Charges (Industries/Comml Establishments. and Pvt Hospitals)	₹76.62
8	Interest burden on deferred payment of Fixed Charges	₹3.24
9	Additional Subsidy to Domestic Consumers	₹200.00
10	Interest burden due to deferment of Additional Security Deposit	₹17.00
11	Setting up Covid-19 relief facilities	₹50.00
12	Interest burden due to deferment of Pole Rental Charges	₹0.20
	Total	₹1239.05

Source: KSEBL

Floods 2019

Most of the losses due to the monsoon in 2019 were in the northern Districts of Palakkad, Kannur, Kozhikode, Malappuram and Wayanad. The three generators of Kakkayam, seven minor hydroelectric power stations and floating solar plant on the Barapole Canal were damaged. The operation of 43 substations, including two 220 kV substations and six 110 kV substations, was disrupted. It is estimated that 50.47 lakh consumers were affected by the 2019 floods. It is estimated that KSEBL had suffered a loss of ₹243.05 crore during this monsoon.

Floods 2020

The State of Kerala witnessed heavy cloud bursts followed by incessant rains bringing in large scale damages, as part of the monsoon during August, 2020. A large number of structures including electrical installations were damaged due to uprooted trees and some installations were washed away due to landslide and gushing water. KSEB Ltd. was one of the affected departments with many of its installations damaged and its distribution network in disarray. Damages caused widespread interruptions, especially in the Idukki and Kannur Districts.

In the distribution network damages to 56 transformers and 8,506 poles were reported, along with distribution line snapping at 36,274 locations (length of conductor damaged-7254.9 km) causing damages to the extent of 86.18 crore as per KSEBL estimation

After Floods

Emergency Action Plan

As on date Emergency Action Plan (Tier-I) for 37 dams approved by CWC has been published in KSEBL web site. Stakeholder consultation meeting for 24 dams of KSEBL was conducted. O&M manuals for 36 dams approved by CWC are published in the web site of KSEBL.

De-siltation of reservoirs

In the light of unprecedented rain fall and consequent landslides and flood during August, 2018 and August, 2019, KSEBL accorded sanction to invite Request for Proposal (RFP) for the desiltation of reservoirs of KSEB as per the guidelines specified in the approved Standard Operating Procedure (SOP) by Government of Kerala. Desiltation work of Lower Periyar reservoir has been awarded to M/s Travancore

Cements Ltd. The work could not be started for want of temporary diversion of forest land for stacking the desilted material. In the case of Maduppety, Anayirankal, Pommudi, Sengulam and Kallarkutty reservoirs, tenders were invited for assessing the storage capacity and letter of acceptance issued to M/s. Geo Marine Solutions Private Ltd., Mangalore on September 30, 2020. For Poringalkuthu reservoir Bathymetric survey was arranged through Kerala Engineering Research Institute, Peechi. Kundala reservoir storage capacity has been assessed recently and no desiltation required. Storage assessment study of major reservoirs is planned in DRIP-II.

Challenges and Issues

The challenges and issues faced by the utility are:

- **Legal Environment.** Further liberalisation of the Electricity market as proposed in the Electricity (amendment bill) 2020, if realised would further erode the consumer base and revenue of the utility considerably, which has been affected already by twin challenges of Open Access regime and decentralised renewable generation. The new Sub License clause may lead to induction of private licensees in profit prone areas. In the case of draft Electricity (Rights of Consumers) Rules, 2020 bulk proposal are already implemented by KSEBL but some proposals like prepaid metering have financial implications. The draft standard bidding documents for privatisation of distribution licences if implemented will leverage the process of privatisation, many clauses like costing of assets in NPV which allows transfer of asset at a very low value. These amendments question the existence of the utility in public sector.
- **Power purchase.** KSEBL has been able to keep power purchase cost at optimum level. Due to exorbitant cost, Kerala is not in a position to absorb power from Kayamkulam unit of NTPC; but is paying the Fixed Charge. Interference of power ministry was requested to ensure that the burden is brought down to minimum by reduction in Annual Fixed Cost and additional allocation of alternate cheaper power to Kerala, but no intervention was made till date. Also increase in cost of thermal power due to FGD and DeNOx equipment installation in TPS across the country and the transfer of burden to DISCOMs remains a threat.
- **Generation.** Capacity addition has become an issue in the State, due to limitations to develop large Hydel stations and coal based stations in wake of opposition from environmental groups. Scarcity of barren land to install solar plants, limited wind energy potential are the hindrances in developing RE power. Also waste to energy plants do not get started as expected in many places due to protest from local people against the plant. The ongoing hydel projects are badly delayed ranging from 5 to 10 years due to various reasons as seen from Table 11.2.8.
- **Transmission.** Inadequate power corridors to import power from Northern grid and insufficient network of intra state transmission lines have been the issues faced by the State. Right of way problem and scarcity of land for drawing new transmission lines is the main hindrance for intra state transmission network development. As per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020, the transmission charges of AC line under balance component will lead to transferring of liability of underutilised capacity to States like Kerala who are not responsible for these asset additions. It is expected that there will be an increase in transmission charges payable by State to 2-3 times the existing charges. Also in case of Raigargh-Pugalur-Madakkathara HVDC line, 70 per cent of the transmission charges have to be paid as regional component. If the line is declared as national asset, burden on State can be reduced to 30 per cent.

- **Distribution.** The network has many bottle necks like poor networking, old and under rated lines, lack of alternate feeding facility, low HT/LT ratio and non standard structures. Increasing electrical accidents is another issue faced. Upcoming e-vehicles boom, demands adequate charging infrastructure and additional power. The delay to announce and implement new Central schemes for distribution sector has forced the utility to divert its own fund for capital works. The task of installation of smart meters in distribution as envisaged by GoI is also a challenge to KSEBL which possibly can reduce losses and enhance prudent revenue collection.
- **Covid-19.** Impact of Covid-19 on the utility has been severe. 'Liquidity Infusion Schemes are the need of the hour. The Liquidity Infusion Schemes under the 'Atmanirbhar Bharat Abhiyan 'is only a loan package; that too with an unreasonable interest rate and conditions like Government guarantee. Moreover, scheme which proposes to transfer the amount directly to Generating Companies to clear their dues from DISCOMs is practically of no use to utilities like KSEB who are making prompt payment.

energy used in the world is from non-renewable supplies. Most developed nations are dependent on non-renewable energy sources like fossil fuels (coal and oil) and nuclear power. The other renewable or potentially renewable sources are solar, geothermal, hydroelectric, biomass and wind. Most developing countries have abundant renewable energy resources.

The implementing and regulating agencies associated with the non-conventional and renewable sources of energy in Kerala are (i) Agency for Non-conventional Energy and Rural Technology (ANERT), (ii) Energy Management Centre (EMC) and (iii) Meter Testing and Standards Laboratory (MTSL).

Agency for Non-Conventional Energy and Rural Technology (ANERT)

Agency for Non-conventional Energy and Rural Technology (ANERT) is an autonomous body under the Power Department, GoK. ANERT is the nodal agency for the implementation and propagation of non-conventional sources of energy in the State. It is also the nodal agency for the Ministry of New and Renewable Energy Sources (MNRE), GoI, to carry out the Central Government programmes in Kerala.

The scheme-wise outlay and expenditure of ANERT in 2019-20 and 2020-21 (expenditure up to September, 2020) is given in **Table 11.2.12**.

NON-CONVENTIONAL AND RENEWABLE SOURCES OF ENERGY

Energy can be generally classified as non-renewable and renewable. Over 85 per cent of the

Table 11.2.12 Outlay and expenditure of ANERT in 2019-20 and 2020-21, in ₹ lakh

Sl No	Schemes	Annual Plan 2019-20			Annual Plan 2020-21		
		Outlay	Expenditure	per cent	Outlay	Expenditure upto September, 2020	per cent
1	Programmes on Renewable Energy	3,500	478.80	13.68	2,030.00	863.28	42.53
2	Renewable Energy Public Engagement, Outreach, Studies and Development	1,700	582.77	34.28	400.00	270.28	67.57
3	ANERT – a Knowledge Hub for Renewable Energy				1,750.00	0.00	0.00
	Total ANERT	5,200	1,061.57	20.41	4,180.00	1,133.56	27.11

Source: Planspace

Achievements of ANERT in 2019-20

- 100 kW solar hybrid power plants have been installed. These are grid-connected systems with minimum battery storage to provide backup for critical loads. This is in light of the new Regulation of the KSERC permitting grid-connected systems with battery storage. The inauguration is expected to be done shortly.
- Government buildings – Total Capacity Commissioned – 619 kW with ANERT Plan funds, and 1,350 kW with the institution's funds.
- 4.3 MW of solar rooftop system under MNRE subsidy programme (April to September, 2019)
- Solar Cold storage – 5 tonne vegetable storage for 30 hours – 6 kW solar – Subicsha Coconut Producer Company Ltd, Kozhikode
- Solar Water ATM – 3,000 lpd water purification system with 3 kW solar – 2 nos. Installed at Alappuzha (commissioned) and Kannur
- Community Solar steam cooking system – Neryamangalam Pre-Matric Hostel – suitable for 100 inmates – 30 sq. metre solar concentrating collectors
- Supporting R&D and innovation – Small projects by academic institutions funded by ANERT. One project on fuel cell was completed
- Electric vehicles being provided on hire to Government departments and institutions in a tie-up with EESL
- Solar agro farming – 25 kW solar in farm lands without affecting the crops – installed at Chittoor, Palakkad
- Training for Urja Mithra technicians, accredited solar installers and inspectors.

In various stages of implementation:

- Rooftop solar for Police Department buildings in Ernakulam District – orders issued for 300 kW
- Solar charging station at ANERT (with fast charge facility) nearing completion
- Under the programme of setting up power

- plants for private entities – 5 MW solar power plant in a quarry at Malappuram – MOU signing stage
- Moonglimada – a 6 MW solar power plant in the land of KWA at Palakkad is in the tendering stage
- Training programme for college students in association with respective colleges – online basic programme to be launched in a few days. Many requests being received for advanced courses in renewable energy
- Testing laboratory set up for solar systems in cooperation with STIC (CUSAT)

Challenges and Issues

- Availability and accessibility of land
- Resource constraints for promoting Renewable Energy Projects.
- No clear policy on Power Procurement from Renewable Energy Sources.
- Non-adherence to Renewable Purchase Obligation (RPO) targets and compensation thereon.
- Lack of SOP's for RE Projects and relaxation on wheeling and transmission charges

As part of ANERT, a preferential tariff/generation based incentives/viability gap funding to promote RE projects meeting RPO targets, a renewable energy fund in the form of green energy cess against every unit of nonrenewable energy consumed, Policies for limiting wheeling/transmission charges on Renewable Energy and enhanced limits on solar generators to grid, Standard operating procedures for RE projects and making RE marketing in major domestic buildings/commercial industries, Hallmarking percentage of the infra fund in various sectors for RE projects, Re-orienting ANERT as a knowledge hub for Renewable Energy are to be considered.

Energy Management Centre (EMC)

Energy Management Centre (EMC) is the State designated agency of Bureau of Energy Efficiency, MoP, GoI for promoting energy conservation, energy efficiency and enforcing

Energy Conservation Act, 2001 in the State. EMC also promotes small/mini/micro hydel schemes. SHP Cell constituted by GoK under Power Department is also attached in EMC to give impetus for development of SHPs through private participation.

The scheme-wise outlay and expenditure of EMC in 2019-20 and 2020-21 (expenditure up to September, 2020) is given in **Table 11.2.13**.

Achievements of Energy Management Centre

Awards and recognitions

- NITI Aayog with the support of BEE prepared the State Energy Efficiency Preparedness index for the year 2019 and Kerala topped along with Haryana and Karnataka in Achiever Category
- EMC bagged the first place in the National Energy Conservation Award instituted by the Ministry of Power, GoI in the category of State Designated Agency

Energy Conservation programmes

- Energy conservation efforts in the State saved 337.6 MU of electricity and 17,674.8 kiloliters of Oil and reduction in 19,542 kg of Carbon Dioxide

- Investment Grade Energy Audit was conducted at Civil Station, Pathanamthitta and the energy audit recommendations were implemented through Kerala PWD (Electrical wing)
- In this financial year, 12 firms availed the energy audit subsidy scheme of EMC
- Implementation of energy efficiency activities in Government Hospitals as demonstration projects
- Implementation of energy efficient pumping system at "Raw Water Supply System to Niranam - Kadapra-PH Division, Thiruvalla" of Kerala Water Authority
- A detailed energy audit was performed at the Guruvayoor Dewasom Board buildings including the temple building for identifying the energy conservation opportunities
- Model Energy Efficiency Village Program in Aranmula Grama Panchayat inaugurated on 22nd June 2019. As part of the programme, Walk Through Energy Audits and awareness campaigns were conducted at Schools/ Government offices/buildings by the concerned selected Audit Firm and EMC Resource persons
- As part of Model Energy Efficiency Village programme, 6,000 nos of 9 watts LED bulbs were distributed to the domestic consumers of the Perumbalam Grama Panchayat @ ₹50 per bulb. With the support of BEE, EMC has awarded the work of installation

Table 11.2.13 Outlay and expenditure of EMC in 2019-20 and 2020-21, in ₹ lakh

Sl No	Schemes	Annual Plan 2019-20			Annual Plan 2020-21		
		Outlay	Expenditure	per cent	Outlay	Expenditure up to September 2020	per cent
1	State Energy Conservation Awards	25.00	10.00	40.00	25.00	0.00	0.00
2	Energy Conservation Activities	312.00	175.90	56.38	228.00	0.00	0.00
3	Infrastructure Development and Institutional Strengthening	361.00	149.96	41.54	295.00	0.00	0.00
4	Kerala State Energy Conservation Fund	185.00	153.50	82.97	215.00	0.00	0.00
	Total - EMC	883.00	489.36	55.42	763.00	0.00	0.00

Source: Planspace

of 10 kWp Off Grid Solar PV system at the Primary Health Centre at Perumbalam Grama Panchayat. The work is being implemented through ANERT Deposit work

- The detailed energy audit of six (6) major HT pumping stations of Kerala Water Authority (KWA) is performed through EMC empanelled energy audit firm
- Energy Management Centre had started the process of empanelling qualified/experienced vendors with the intention to supply star rated fan at an affordable price to customers through Urjamitra, thereby increasing the penetration of energy efficient equipment throughout the State.
- As part of Energy Clinic 2019-20, energy survey was done in 69,680 houses by the women volunteers in Kerala and 3,000 units of energy was saved.
- Total of 9,155 schools from all over Kerala were enrolled and awareness classes were conducted as part of the flagship programme SEP 2019-20.
- URJA KIRAN 2019-20 programmes covered all the 140 Assembly Constituencies. The focal theme for the Urjakiran program was “Energy efficiency and Conservation” and of 64,276 people participated in the programme.
- Energy conservation signature campaigns were conducted in all the 140 constituencies in Kerala with the association of 166 NGOs.
- 40 women empowerment projects conducted in assembly constituencies in Kerala in association with 40 agencies.
- 3 Day training programme on LED bulb repair for specially abled children from National Career Service Centre, Nalanchira was conducted in May, 2019 and 2 day training programme on LED star making was given to the same batch of students in December, 2019.
- As part of the KSECBC cell activities, 5 training programmes were conducted.
- As part of the SEP Tech, 11 student projects and 5 tech fest were guided and supported by EMC.

Small Hydro Power Development

- Projects in progress (execution in final Stage) : Anakampoil (8 MW), Arippara (4.5MW)
- EMC had showcased 89 Small Hydro Power Projects in various Districts of Kerala in the Global Investors Meet ‘ASCEND 2020’ organised by KSIDC, Government of Kerala.
- River basin study of Pampa River basin and Achencoil River basin of Pathanamthitta District is being prepared

Research and Development

- Energy Management Centre (EMC) Kerala in partnership with World Institute of Sustainable Energy (WISE) is conducting a study titled “Review of Energy Efficiency Policy Framework in India and Support State Designated Agencies in Implementing the Energy Conservation Policy”. As part of this study one day workshop was organized.
- EMC has completed the “Research Study on Energy Productivity: A Sectoral Analysis for Kerala” in association with Centre for Development Studies (CDS), Thiruvananthapuram.
- Projects in association with CDAC for “Energy Efficient Houseboats” and “Smart Energy Meter” are underway.

Challenges and Issues

- Financing models based on energy saving/productivity/benchmarks in priority areas.
- Mechanism to handhold and implement energy management projects
- Emission reduction and Climate Change mitigation not mandatory
- Commercial sector activities not mandated to follow energy efficiency in design/construction stages
- Energy Conservation Building Code Rules (ECBC) needs to be adapted by PWD, LSGD and Developers
- Demand aggregation of existing inefficient appliances and their replacement.
- Adoption of energy efficient in the

Agricultural value chain sector.

- Protocols/Policies for adoption of energy efficiency in domestic sector.
- High land costs and forest clearance issues in Small Hydro Power development.

Fight against Covid-19

- All employees were given work from home using VPN facility as a quick response to Covid-19 lock down phase.
- All the awareness programmes, panel discussions, meetings were switched to online webinar mode
- Certificate courses and training programmes launched for various target groups.
- Covid-19 Break the Chain and SMS campaigns were implemented effectively with the monitoring of internal Covid-19 cell.
- Webinar was arranged for the employees to understand guidelines as part of Break the Chain campaign at the work place. Webinar was handled by Dr. Mohammed Asheel, Executive Director, Kerala Social Security Mission
- Online competitions were arranged during lock down phase with the theme “Energy Conservation”
- Facebook live is conducted every Wednesdays on the topic “Energy Conservation in Domestic Sector”

Department of Electrical Inspectorate

The Electrical Inspectorate is functioning under the Department of Power, GoK. Safety inspections are carried out and sanction for energisation for all HT/EHT and other medium voltage installation in the State are issued by this inspectorate. The motto of Meter Testing and Standards Laboratory (MTSL) is to provide testing and calibration of various types of electrical equipment. At present, calibration facilities is available for voltage, current, resistance, frequency, power, power factor and energy. The testing facilities include pre-commissioning tests for protection relays and instrument transformers. Also, pre-

commissioning tests are conducted for power transformers, cables and circuit breakers. All calibrations and tests are conducted as per national and international standards. Enquiry into all electrical accidents occurring in the State, forwarding the reports to the State Government and taking actions against responsible person/ authority are also done by Electrical Inspectorate. The Electrical Inspectorate department implements three schemes namely; Meter Testing and Standards Laboratory, Effective Implementation of Quality Control Order and E-Safe Kerala. Revenue from the department for the last two years is ₹106.738 crore (excluding duties from KSEBL), which includes testing fees from Meter Testing and Standards Laboratory (MTSL), other Regional Testing laboratories and from other services. Through quality control inspection, the sale of non-standard electrical equipment can be controlled to some extent.

The scheme-wise outlay and expenditure of Electrical Inspectorate in 2019-20 and 2020-21 (expenditure upto September 2020) is given in **Table 11.2.14.**

Achievements of Electrical Inspectorate in 2019-20

- In 2019-20, 434 electrical accidents occurred, of which 282 fatalities happened (222 human and 60 animals affected)
- Retained SQMS “SEVOTHAM CERTIFICATION” (Service Quality Management System Certification) as per I.S. 15700: 2005 from the Bureau of Indian Standards for the department.
- Organised and successfully conducted training programmes for officers at Thiruvananthapuram, Ernakulam and Kozhikode region.
- Calibration of equipments have been undergone in regional testing laboratories at Thiruvananthapuram, Kottayam, Idukki and Ernakulam.
- NABL accreditation maintained at Meter Testing and Standards Laboratory, Thiruvananthapuram and regional testing

Table 11.2.14 Outlay and expenditure of Electrical Inspectorate in 2019-20 and 2020-21, in ₹ lakh

Sl No	Schemes	Annual Plan 2019-20			Annual Plan 2020-21		
		Outlay	Expenditure	per cent	Outlay	Expenditure upto September, 2020	per cent
1	Meter Testing and Standards Laboratory (MTSL)	470.00	47.27	10.06	245.00	1.14	0.46
2	Effective Implementation of QCO	155.00	5.24	3.38	40.00	1.38	3.45
3	E-safe Kerala	200.00	32.43	16.21	408.00	19.13	4.69
	Total	825.00	84.94	10.30	693.00	21.65	3.12

Source: Planspace

laboratories at Kottayam, Idukki, Thrissur, Palakkad, Malappuram, Kozhikode, Wayanad and Kasaragod.

- Almost 17,685 energy meters have been tested in Meter Testing and Standards Laboratories and other regional meter testing laboratories in 2019-20 and an amount of ₹2.22 crore is obtained as revenue from laboratories in 2019-20.
- National Accreditation Board for Testing and Calibration Laboratories training has been conducted for officers of the department.
- Meter Testing and Standards laboratory, Thiruvananthapuram has been renovated and testing facility is improved.
- Hired vehicles in District offices for conducting statutory inspections as well as QCO inspection.
- A total amount of 36.456 crore is obtained as revenue from the statutory inspections conducted.
- Conducted safety awareness programmes throughout the State.
- Rewired and standardised the wiring for 400 domestic consumers, at Agali, Pudur and Sholayar Panchayat in Palakkad District with four light points and plug points with ELCB.
- Telecasted electrical safety awareness messages through audio/visual/print media.
- Total revenue from the department for last financial year is ₹68.062 crore (excluding duties).

Kerala State Electricity Regulatory Commission (KSERC)

KSERC, a statutory organisation of quasi-judicial nature, was established in 2003. The Commission takes efforts to maintain a fair, transparent and objective regulatory system in the power sector of the State.

Functions of the Kerala State Electricity Regulatory Commission:-

The major functions vested with the Commission under the provisions of the Electricity Act, 2003 are as follows:-

- Determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State.
- Regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State.
- Facilitate intra-State transmission and wheeling of electricity.
- Issue licenses to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State.

- Promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee.
- Adjudicate up on the disputes between the licensees and generating companies and to refer any dispute for arbitration.
- Levy fee for the purposes of the Electricity Act, 2003
- Specify State Grid Code
- Specify or enforce standards with respect to quality, continuity and reliability of service by licensees.
- Fix the trading margin in the intra-State trading of electricity, if considered, necessary.
- Advise the State Government on all or any of the following matters, viz:- promotion of competition, efficiency and economy in activities of the electricity industry, promotion of investment in electricity industry, reorganisation and restructuring of electricity industry in the State, and the matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the State Commission by that Government.

Important Activities of the KSERC in 2019-20

The Commission held a number of routine internal meetings to transact business relating to administrative matters, framing and finalisation of regulations, admission of petitions, Annual Revenue Requirement and Expected Revenue Charges (ARR and ERC) of the licensees and other matter related to the day to day functioning of the Commission. The number of petitions received and disposed of by the commission in 2019-20 was 53 and 75 respectively.

Important Regulations notified by the Commission.

As per the provisions of the Electricity Act, the Commission has to issue Regulations with respect to the matters relating to the functions of the Commission. The Regulations are the subordinate legislations under the Electricity Act. In the current year, the Commission has issued the important Regulation in the field of Renewable Energy and also issued amendment Regulations in the Supply code and Tariff Regulations. The details are given below:

The Kerala State Electricity Regulatory Commission (Renewable Energy and Net Metering) Regulations 2020, dated 7th February 2020, published in Government Gazette no. 1345 dated 05th June 2020.

Government of India has targeted large scale expansion of energy from Renewable sources. Accordingly, a system for integration of renewables along with proper legal framework is necessary. Further, Section 86(1)(e) of the Electricity Act, 2003 mandates that the State Electricity Regulatory Commission to promote co-generation and generation of electricity from Renewable Source of Energy by providing suitable measures for connectivity with the grid and sale of electricity to any person and specify for the purchase of electricity from such sources a percentage of the total consumption of electricity within the area of the distribution licensee. However, there has been a considerable technological improvement in the renewable energy sector in the recent past. The capital cost of solar PV plants and wind energy systems has reduced drastically and the capacity utilisation has increased. All these has resulted in considerable reduction in the cost of energy generation from solar and wind sources, which is now less than electricity generated from conventional coal based power stations. Considering these changes and the targeted large scale penetration of renewable energy in to the sector, the Commission decided to enact the

Table 11.2.15 The mandated RPO of obligated entities as per the Regulation

Year	Quantum of generation/purchase of renewable energy sources as a percentage of total consumption		
	Non-solar	Solar	Total
2019-20	8.00	4.00	12.00
2020-21	9.00	5.25	14.25
2021-22	10.25	6.75	17.00

Source: KSERC

above Regulations, replacing the existing Kerala State Electricity Regulatory Commission (Grid Interactive Distribution Solar Energy System) Regulations, 2014 and Kerala State Electricity Regulatory Commission (Renewable Energy) Regulations, 2015.

In the above regulations, the Commission has determined the Renewable purchase obligation (RPO) for the obligated entities. RPO obligation mandates the 'Obligated entities' either to generate or purchase certain minimum quantity renewable energy from solar and non-solar sources in their electricity consumption portfolio. The obligated entities include the distribution licensees in the State, the open access consumers (consumers who purchase energy from sources other than the incumbent distribution licensees) and the captive energy consumers. The mandated RPO of obligated entities as per the Regulation are given in **Table 11.2.15**.

As shown above, in the year 2019-20, an obligated entity has to either generate or purchase a total of 12 per cent of the total consumption of energy from renewable sources. Out of the 12 per cent, 4 per cent is from solar energy and the balance 8 per cent can be from non-solar sources such as small hydro, wind, bio fuel generation, urban or municipal solid waste and such other sources approved by the Ministry of New and Renewable Energy, Government of India.

As per the Regulations, if there is a shortfall in meeting the RPO by any obligated entities, the said short fall can be met through the purchase of

solar or non-solar Renewable Energy Certificates as the case may be. Further the excess of solar energy consumed over the solar renewable energy purchase obligation, the same can be accounted towards non solar obligation.

There is also a provision in the Regulation, to designate a State Agency by the Commission for the monitoring the compliance of the RPO.

The regulation provides for the legal and technical framework for installing grid interactive Renewable energy systems with net metering facility at the premises of the 'prosumer'. A prosumer is a captive consumer having renewable energy system installed in their premises and injects the surplus energy into the grid using the same network. The net metering is an arrangement provided by the distribution licensee to their consumers. Under the said arrangement a prosumer can generate and use the electricity from their own renewable energy systems and supply the excess energy if any after off-setting the electricity supplied by the distribution licensee.

The control period of the Regulations is for five years from 2019-20. During the control period, the parameters used for the determination of tariff are kept unchanged so as to provide a regulatory certainty. The generic tariff also determined by the Commission for the purchase of energy by the distribution licensees as per the Regulations for various sources of renewable energy for the year 2019-10 is given in **Table 11.2.16**.

Table 11.2.16 The generic tariff for various sources of renewable energy for the year 2019-20

Various sources of renewable energy	₹ /kWh
Small Hydro Electric projects of and below 5MW	5.53
Wind energy projects of and below 25 MW (with CUF 24%)	3.75
Solar PV projects with less than 5MW at a location	3.35

Source: KSERC

Orders issued by the Commission

During the year the Commission disposed of 75 petitions. Among these important was the order on the approval of the Aggregate Revenue Requirements for KSEB Ltd and tariff for the control period from 2018-19 to 2021-22. The Order was issued after conducting the Public hearing at Kozhikode, Ernakulam, Kattappana and Thiruvananthapuram. **Table 11.2.17** provides the Revenue Gap approved for the Distribution wing of KSEB Ltd for the control period 2018-19 to 2021-22 to be recovered through revision of tariff.

Based on the above, the average cost of supply and the revenue gap per unit on which tariff is to be determined is given in **Table 11.2.18**.

KSEB Ltd in their petition, furnished tariff revision proposals for two years of the control period that is, 2018-19 and 2020-21. The proposed tariff increase was for almost all the

tariff categories including Bulk supply Tariff. After examining the provisions of the Act, Regulations and Tariff Policy, the Commission enhanced the overall tariff, (fixed/demand charge and energy charge) so as to increase the revenue to the tune of ₹ 902 crore to bridge the approved revenue gap in 2019-20. Details given in **Table 11.2.19**.

Consumer Advocacy and compliance Audit

Compliance audit wing in the Commission is in charge of monitoring the Compliance of the Electricity Act, Rules, Regulations by licensees and generating companies. The Consumer Advocacy Cell (CAC) is working towards creating awareness among the consumers about the power sector and the regulatory process thereby ensuring consumer participation in the Electricity Regulatory Process. CAC is aiming to enlighten the consumers about the Regulatory mechanism and their role in the functions of the

Table 11.2.17 ARR of SBU-D approved for the years 2018-19 to 2021-22

Particulars	SBU-D			
	2018-19	2019-20	2020-21	2021-22
ARR	13,754.02	15,501.03	15,973.31	16,487.91
Non-Tariff Income	531.55	548.10	571.23	594.36
Net ARR	13,222.47	1,4952.93	15,402.08	15,893.55
Total revenue from existing Tariff	13,190.32	14,152.38	14,457.33	14,895.02
Revenue Gap	-32.15	-800.56	-944.75	-998.53

Source: KSERC

Table 11.2.18 Average Cost of supply to be realised from consumers

Average cost of Supply	Unit	2018-19	2019-20	2020-21	2021-22
Average cost of supply to be realised	₹ /kWh	5.76	6.10	6.17	6.20
Revenue gap/unit	₹ /kWh	-0.01	-0.35	-0.39	-0.40

Source: KSERC

Table 11.2.19 Revenue at existing tariff and Approved tariff for KSEBL.

Tariff Category	Revenue expected for the FY 2019-20 at Existing tariff	Revenue expected for 2019-20 at the proposed tariff by KSEB Ltd		Revenue from Approved tariff	
		Amount	Increase (annual)	Amount	Increase (annual)
	(₹ crore)	(₹ crore)	(₹ crore)	(₹ crore)	(₹ crore)
LT Categories					
LT-I Domestic	4,744.32	5,511.29	766.97	5,283.27	538.95
LT Industries	804.75	847.11	42.36	851.01	46.27
LT-V Agriculture	88.05	101.81	13.76	101.90	13.84
LT-VI General	1,565.63	1,645.00	79.37	1,594.64	29.01
LT-VII Commercial	1,613.30	1,669.53	56.23	1,665.84	52.54
LT-VIII Public lighting	183.92	197.85	13.93	202.59	18.67
LT hoardings	4.01	4.01	0.00	4.14	0.14
HT Categories					
HT-1 Industry	1,507.51	1,620.10	112.59	1,600.14	92.63
HT-II	699.91	709.88	9.97	716.17	16.26
HT-III	5.23	5.47	0.24	5.82	0.59
HT-IV	672.57	668.44	-4.13	686.87	14.29
HT-V	13.27	12.82	-0.45	14.23	0.96
EHT Category					
EHT-66 kV	213.10	245.08	31.98	227.73	14.63
EHT-110 kV	435.74	481.76	46.02	465.63	29.89
EHT 220kV	55.80	67.01	0.02	63.60	4.72
EHT Gen	57.37	58.26	0.89	58.88	1.51
Railways	179.27	203.54	24.27	185.34	6.06
KMRL	10.01	11.34	1.33	10.20	0.19
Licensees and Bulk consumers	394.43	437.53	43.10	416.22	21.80 902.94
Addl. revenue			1,247.44		

Source: KSERC

Electricity Regulatory Commission by conducting classes at various centres and publishing newsletters and pamphlets.

Main objectives of the Consumer Advocacy Cell:-

- Promote consumer education and empower them to participate effectively in the regulatory process.
- To act as a source of information to consumers and provide them with the necessary guidance on various electricity related issues

- To arrange workshops and training programmes for unorganised consumer groups.
- To publish newsletters, pamphlets, fact sheets and other informative materials.
- To recommend to the Commission on matters relating to consumer protection.

Compliance Audit

All licensees in the State are expected to comply with the provisions of the Regulations and orders issued by the Commission. A Compliance Examiner has been functioning in the office of

the Commission. Consumers and general public can send reports on non-compliance or violation of the provisions of the Electricity Act-2003 and Regulations to the Compliance Examiner.

As part of the Compliance Audit periodic inspections of field offices of distribution licensees are arranged to determine the compliance level. The compliance wing conducts spot inspections in the distribution section offices of KSEB Ltd and other licensees in the State and corrective action are also taken up with the licensees. Discriminatory billing of consumers, realisation of higher amounts as additional deposit to consumers, discrepancies in assignment of tariff, realisation of the excess charges, non-adherence of the performance standards are few of the irregularities brought to the attention of the Commission by the Compliance Examiner and taken up with the licensee for corrective actions.

Consumer Grievance Redressal Forum (CGRF) and Electricity Ombudsman

The Electricity Act envisages protection of the interests of consumers by making it mandatory

for licensees to establish Consumer Grievance Redressal Forums (CGRFs) for redressal of grievances of consumers as per the guidelines issued by the State Commission. Consumers whose grievances are not settled by the CGRF or aggrieved by the decision of the CGRF can approach the Electricity Ombudsman appointed by the State Commission. A summary of the petitions received and disposed of by the various CGRFs under the distribution licensees in 2019-20 is given in **Table 11.2.20**.

It is to be noted that of the total number of 448 complaints disposed of, decision on 285 are in favour of the consumers.

Electricity Ombudsman is a statutory authority to settle the grievances of consumers aggrieved by non-redressal of the grievances by the Consumer Grievance Redressal Forum. The abstract of appeals received and disposed of during the year under report by the Electricity Ombudsman is given in **Table 11.12.21**.

Of the petitions disposed of during the year 56 appeals and 4 Reviews were in favour of the consumers.

Table 11.2.20 Petitions received and disposed of by the various CGRFs under the distribution licensees in 2019-20

Name of the CGRF	Complaints pending as on April 1, 2019	Complaints received in 2019-20	Complaints disposed in 2019-20	Complaints pending as on March 31, 2020
CGRF, KSEB Ltd, Kottarakkara	25	131	140	16
CGRF, KSEB Ltd Ernakulam	28	124	126	26
CGRF, KSEB Ltd, Kozhikode	37	155	175	17
CGRF, Thrissur Corporation	0	11	7	4
CGRF, Technopark, Thiruvananthapuram	1	Nil	Nil	1
CGRF, Cochin Port Trust, Kochi	Nil	Nil	Nil	Nil
CGRF, KPUPL, Kochi	Nil	Nil	Nil	Nil
CGRF, CSEZA, Kochi	Nil	Nil	Nil	Nil
CGRF, Rubber Park India (P) Ltd, Kochi	Nil	Nil	Nil	Nil
CGRF, Infopark, Kochi	Nil	Nil	Nil	Nil
CGRF, Smartcity, Kochi	Nil	Nil	Nil	Nil
CGRF, KDHPCL, Munnar	Nil	Nil	Nil	Nil

Source: KSERC

Table 11.12.21 The abstract of appeals received and disposed of during the year under report by the Electricity Ombudsman

No. of petitions pending as on March 1, 2019	15 Appeals and 1 Review.
No. of petitions received in 2019-20	102 Appeals and 3 Reviews.
No. of petitions disposed in 2019-20	100 Appeals and 4 Reviews.
No. of petitions pending as on March 31, 2020	17 Appeals.
No of sittings conducted	119

Source: KSERC

Impact of Covid-19 on the activities of the Commission

The lockdowns and restrictions imposed on account of the containment measures on account of Covid-19 has resulted in changes in the working pattern in the Commission. As per the orders issued by the Government of Kerala, attendances of employees were limited in the Office of the Commission and work-from home facility was allowed to the employees. Further as a deviation from the earlier practice, the Commission has conducted hearings through video conference mode for disposal of its petitions.

Way Forward

For the healthy growth of the power sector and to formulate agreed policies and programmes, there should be close and constant interaction and better coordination among different organisations of power industry. Better synergy between the sister concerns like KSEBL, ANERT, EMC and Electrical Inspectorate through comprehensive Plan like Oorjja Kerala Mission will develop the energy sector in the State to truly global standards by 2021.

The State of Kerala has fulfilled the objective of total electrification and State distribution grid is now capable of providing power on demand in any inhabited locality, within a matter of hours and that too at reasonable cost without power cut or load shedding. Despite of the oppressive environment, KSEBL was able to explore opportunities in power market including power exchanges. Power purchase cost of KSEBL

including internal generation is only ₹ 3.30/unit for year 2019-20. Adequate power is tied up by KSEB Ltd. to meet the base demand. For shortages during evening peak hours during summer KSEBL has successfully utilised banking of power from other utilities. Adequate arrangements are planned for next summer.

KSEBL is considering all option to harness renewable power and to be competitive in this field. Besides development of solar power through Soura projects, all other sources are expedited. The target is to meet 40 per cent of energy requirements from Renewables by 2022. It is planned to enhance renewable capacity by 1,829 MW and another 700 MW through contracts by 2021-22. 780 MW Idukki extension scheme is also on the anvil. This will enable KSEBL to be flexible in planning a suitable mix to meet load requirement. Through Transgrid 2.0, transmission lines are designed in such a way that, they requiring minimum or even no additional land/RoW. Modern Gas Insulated Substations were adopted to minimise land requirement of Substations. The new 400 kV Tirunelveli – Kochi – Trichur –Udumalpet power high way and ongoing extension of Raigargh-Pugalur HVDS to Trichur is expected to improve the power import capabilities of the State by 2,800 MW.

The flood of 2019 together with Covid-19 pandemic onslaught has widened the ACS-ARR gap in 2019-20. The ACS-ARR gap is ₹ 0.197 per Unit. KSEBL was able to increase its revenue in the past years and flattened the expenditure curve. On calculating the loss as the percentage of revenue it may be noted that operational loss

is within tolerable limits. Sufficient cash flow is ensured for the operation of KSEBL. Also KSEBL never required external support to meet losses. The State of Kerala is one among the first in India, which declared its e-mobility Policy. Considering the preparedness of KSEB in this regard, the State Government has designated KSEB as the State Nodal Agency to ensure deployment of e-Vehicle charging stations across the State. KSEBL is moving in the right track to meet the challenge. With completion of the 62 charging stations targeted this year and another 181 stations proposed for coming years, a State wide base network for vehicle charging will be created.

By replacing all filament lamps and fluorescent lamps and tubes in domestic sector and street lights by its variant, energy efficient, long lasting LED lamp and tubes through Filament free Kerala programme, State envisages a reduction in evening peak demand and reduced CO₂ emissions and capturing Hg from going to earth. The State has already ventured into energy efficiency lighting by distributing over 1.35 crore LED lights in Domestic Efficient Lighting Programme as part of Demand Side Management. All these measures stress the commitment of utility to a clean environment for sustainable development.

KSEBL as a public utility gave first priority to the aspiration of lakhs of consumers under lock down. For many, when their long-term savings was eroded during the lock down and had no income to spend, KSEBL lent a helping hand to support those who are in need by announcing relief measures for consumers to alleviate miseries of lockdown. The utility has normalised its operations post lockdown. Despite losses, the utility is under transformation to coexist with Covid-19 pandemic by modernising its services for maintaining Covid-19 protocol and reaching out to customers at their door steps. As described above KSEBL is prepared to meet the challenges and issues in power sector by improving its operational efficiency without privatisation and is set to achieve global standards through Oorjja Kerala Mission. The successful experience of

Kerala model of restructuring emphasises the importance of existence as an integrated utility for effectiveness of services and on the other hand attaining efficiency and more financial control by vertical unbundling into strategic business units. As a public utility KSEBL achieved equitable distribution of electricity everywhere in the State at affordable cost and has evolved as a sustainable model.

ANERT has to re-orient by laying more emphasis on awareness creation in renewable energy sections and developing an eco-system suitable for the sustained use of renewable energy devices. For improving the conditions of the power sector in the State, it is proposed to complete all hydel plants that have already been started. Priority has to be given to construct mini-micro hydel plants to the extent possible.

The Government's top most priority is to increase power generation to ensure availability of power to match the increasing demand. At the same time, quality of power is also of equal importance. The non-conventional sources of energy should be utilised to the maximum extent possible in meeting our energy requirements. Electricity generation from wind, solar photovoltaic, small and medium hydro projects should be tapped to its full potential. To ensure adequate economic and social growth in any country, it is indispensable that all available energy sources be used in the most effective and economical manner, particularly for the generation of electricity.

Regarding energy efficiency, policies, protocols, rules and regulations on energy efficiency, management and version updation, financing energy efficiency projects highlighting benchmarks, persistence and compliance through energy audits, linking outcomes, evolving right balance between standard and skilled human power, regulators initiatives and appliance's market approaches may be considered.

11.3 COMMUNICATION

Postal Network of India and Kerala

Indian postal system is the largest in the world with a network of 1, 55,531 Post Offices, of which 1,39,882 (89.94 per cent) are in rural areas and 15,649 (10.26 per cent) are in urban areas of the country. On an average, 8,770 people are served by a post office in the country. In rural areas, a post office serves 6,455 people and in urban areas, a post office serves 29,458 people. Average area served by a post office is 21.14 square km. The postal network consists of four categories of Post Offices namely, Head Post Offices, Sub Post Offices, Extra departmental Sub Post Offices and Extra departmental Branch Post Offices.

Kerala Postal Circle includes the entire State of Kerala, the Union Territory of Lakshadweep islands, and Mahe under the Union Territory of Puducherry. In Kerala, every village has at least one post office. As on 30.09.2020, there are 5,063 post offices in the Circle, of which 1509 are Departmental post offices and the remaining 3,554 are Extra Departmental post offices, (Branch Post Offices). On an average, each post office in the State serves an area of 7.7 square km and a population of 6,613 as against the national average of 21.21 square km and a population of 7,175 people. 82.2 per cent of these post offices are in the rural areas.

The District-wise distribution of the post offices in Kerala as on September 30, 2020 is given in **Table 11.3.1**.

Given the vast reach of the network in the State, continuous efforts are being made to increase access to postal facilities in newly developed urban/rural areas by opening new post offices or by upgrading existing Extra Departmental Post Offices (EDBOs) to full time post offices.

All Post Offices in Kerala have improved their functioning as a citizen hub. Every citizen now has access to this hub close to his/her doorstep. Details are shown in **Appendix 11.3.1, 11.3.2, 11.3.3 and 11.3.4**.

Mail network in the State has been revamped with 14 speed post processing centres under 5 national hubs to facilitate technology induction for the purpose of monitoring and to provide track and trace facilities from the point of booking to delivery thereby increasing the quality of service. In the category of registered mails too, track and trace facility is now offered to customers. As part of a national policy, the Circle has also revamped the network for processing ordinary mails to ensure better quality of service in this sector.

Technology induction into the network

- All the 1509 departmental post offices in the Circle are computerised.
- Daily monitoring of the performance of core areas of post offices by Circle office in the core areas of delivery, money remittance, savings bank, and counter services.

Table 11.3.1 District-wise distribution of post offices as on September 30, 2020

Sl. No	Name of District/Union Territory	Number of Post Offices
1	Kasaragod	231
2	Kannur	382
3	Wayanad	163
4	UT of Puducherry (Mahe only)	4
5	Kozhikode	407
6	Malappuram	438
7	Palakkad	455
8	Thrissur	484
9	UT of Lakshadweep	10
10	Ernakulam	391
11	Idukki	296
12	Kottayam	409
13	Alappuzha	300
14	Pathanamthitta	312
15	Kollam	367
16	Thiruvananthapuram	414
TOTAL		5063

Source: Chief Post Master General, Kerala Circle, Thiruvananthapuram

Table 11.3.2 e- based and value added services of Kerala Postal Circle

Sl. No.	Type of Service	Functions
1	'e post'	Service to send a communication speedily to the destination avoiding physical transmission but retaining the last mile reach through the Postman. As on March 31, 2020, 1334 post offices have been provided with this facility.
2	Many to One	This facilitates sending of same ePost message from many senders to one recipient on recipient's email box
3	One to Many	It facilitates sending of same ePost message from a sender to multiple recipients on recipient's email inbox
4	eMO	This service was introduced in the year 2008 for remitting money to and from addressees within the country. Today, 98 per cent of the entire money order traffic is handled electronically. Today the number of post offices offering this service in Kerala is 1508.
5	iMO	Discontinued in January 2020
6	e-payment	The service enables collection of bills including utility bills on behalf of various service providers from all the computerised post offices and payment centrally to the client organisation as per the periodicity desired by them. This service is available in all 1508 (Head Post Offices and Sub Post Offices) Post offices in Kerala Postal Circle.
7	International Speed Post or EMS	This is a facility that is available from India to 99 countries.

Source: Chief Post Master General, Kerala Circle, Thiruvananthapuram

- Facility to register complaints on the web and track the progress till the final settlement of complaints.
- The provision of track and trace facility for registered, insured, speed post, eMO and foreign accountable articles through the web www.indiapost.gov.in.

The new e- based and value added services of Kerala postal Circle is give in **Table 11.3.2**.

The following business initiatives are being undertaken by the Circle recently:

1. Tie-up with the Commissioner for Entrance Examinations for the Collection of application fee and fee through e-Payment from the candidates who have got allotment in various Professional courses and other examinations conducted by the Commissioner for Entrance Examinations.
2. Tie-up with Kerala Water Authority (KWA) for the Collection of water bills under e-Payment.
3. Tie up with Adharva Associates (3 ePayment billers – Adharva Prepaid, Adharva Postpaid, KPAY) for recharging of prepaid mobile connections in Post offices through e-Payment service.
4. Tie-up with Kerala State Council for Open and Lifelong Education (SCOLE-Kerala) for the collection of various fees from the students registered under SCOLE, Kerala through ePayment service.
5. Tie-up with APJ Abdul Kalam Technological University for the collection, booking and delivery of sensitive examination materials of the university to 152 engineering colleges throughout Kerala.
6. Tie-up with Controller of Technical Examinations, Kerala for the booking and dispatch of Sensitive Examination materials from 73 Polytechnic colleges, 11 Technical High Schools and 17 Government Commercial Institutes.
7. Tie up with Kerala State Government for Corporate e-post to acknowledge complaints/letters from the public and e-post messages.
8. Booking of Railway Reservation ticket through PRS facility
9. Post Office Passport Seva Kendra's have been established at Pathanamthitta, Kavarati, Kasargod, Chengannur, Kattappana, Olavakkode, Attingal and Nenmara to facilitate the process of getting passport to the customers.
10. In collaboration with UIDAI, Aadhaar Enrollment cum Updation Centres has been started.
11. Sale of Ganga Jal sourced at Gangotri is being done.
12. Kerala Postal Circle has entered into an agreement with M/s Energy Efficiency Services Ltd. for sale of LED bulbs, Tube lights and Energy Efficient fans distributed under UJALA.
13. Tie up with CBSE for booking dispatch and delivery of sensitive examination materials of CBSE.
14. Special bookings for NDA, State PSC, UPSC, SSC are done by arranging special speed post booking counters at the post offices of choice of the organisations.
15. DoP has undertaken the project of distribution of Census material of Registrar General of India for Census 2021 to the administrative authorities up to Tehsil/Taluk level addresses throughout India.

Philately

As part of the efforts to promote philately as a hobby, various measures are being adopted by the Kerala Postal Circle, four philatelic bureaus have been set up for this purpose at Trivandrum GPO, Ernakulum H.O, Thrissur H.O, and Kozhikode H.O. These items of philately are also being made available through all the Head Post Offices in Kerala as well as 25 philately extension counters located across the State. These bureaus provide all the philately material brought out by India Post each year, to all the philatelists who have accounts with them as well as to any customer who wishes to purchase them within the first six months of their issue.

KERAPEX 2019

Kerala Circle Philatelic Exhibition (KERAPEX) 2019 was held at Thiruvananthapuram from 26.11.2019 to 29.11.2019. Seven Special covers including one carried cover, one satin cover on KERAPEX theme, and one Khadi cover on Gandhiji's visit to Kerala were released during the exhibition. Pictorial Postcard pack of Kerala Circle containing all the Pictorial Cancellations of Kerala Circle and a pack of 15 Picture Postcards on important event in Gandhiji's life containing original cancellation of the place of event were also released during KERAPEX 2019.

Telecommunications

Telecommunication is one of the prime support services needed for rapid growth and modernisation of the economy. The telecommunication service in India has improved significantly since independence.

Telephone subscriber data

India is currently the world's second largest telecommunications market with a total telephone subscriber base of 1,167.81 million as on August 31, 2020, of which 1,147.92 million constitutes wireless subscribers and 19.89 million wire-line subscribers.

The overall tele-density in India is 86.23 per cent (Wireless: 84.77 per cent and wire line: 1.47 per cent). In Kerala, the overall tele-density is well

above the national average and is at 128.93 per cent and the telephone subscriber base is 45.72 million (44.28 wireless and 14.39 wired).

Telephone subscriber base in Kerala: Service provider-wise

The wireless telephone subscriber base of Kerala is given in **Table 11.3.3**.

In Kerala, total number of wireless subscribers is 4,42,86,150. Vodafone has largest wireless connectivity with 1,77,19,606 numbers, followed by BSNL 1,09,50,711 subscribers. Reliance communications has only 709 subscribers.

The wireless market share of service providers is given in **Figure 11.3.1**.

The Wire-line telephone subscriber base of Kerala is given in **Table 11.3.4**.

The Wire-line telephone subscriber base of Kerala is given in **Figure 11.3.2**.

Department of Telecommunications Single Emergency Number is given in the **Box 11.3.1**.

Internet subscriber data

The total number of internet subscribers in India stands at 749.07 million by the end of June 30, 2020. The number of subscribers accessing Wireless internet connection constitutes the major chunk with over 726.01

Table 11.3.3 Wireless Telephone Subscriber Base of Kerala

BSNL	Bharti Airtel	Vodafone Idea	Reliance Jio	Reliance communications	Total
1,09,50,711	59,44,643	1,77,19,606	96,70,481	709	4,42,86,150

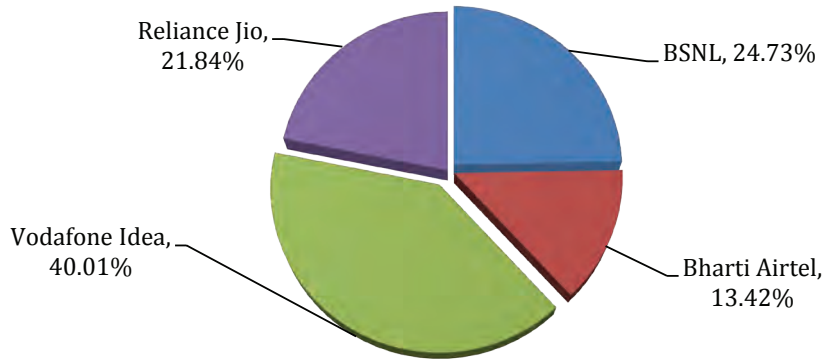
Source: BSNL

Table 11.3.4 Wire-line telephone subscriber base of Kerala

BSNL	Bharti Airtel	Vodafone Idea	Reliance Jio	Reliance communications	Tata Telephones	Total
13,16,646	60,245	6,090	28,238	8,295	19,620	14,39,134

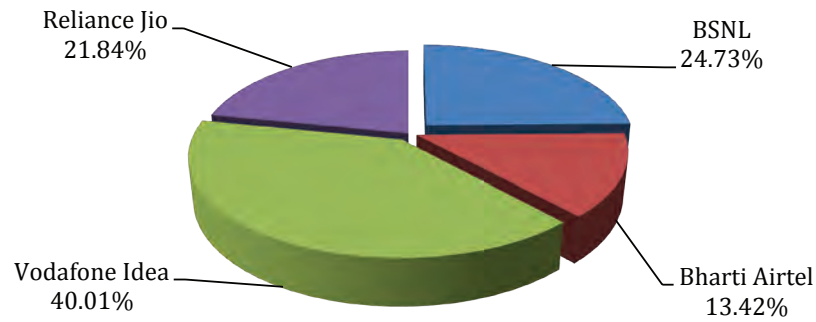
Source: BSNL

Figure 11.3.1 Cargo Wireless market share of service providers



Source: BSNL

Figure 11.3.2 Wire-line telephone subscriber base of Kerala



Source: BSNL

Box 11.3.1 Single number '112'

Department of Telecommunications (DoT) has instructed Telecommunication Service Priorities (TSPs) to map Single Emergency Number '112' with existing Emergency Number '100' in all States /UTs in August 2016. At present Single Emergency Number 112 is operational and mapped on existing emergency number '100' in all States/UTs except Delhi. 112 is designed to be used to replace the multiplicity of Emergency Numbers operations in India such as 100, 101, 102 and 108. The project is to be made operational by all States/UTs under the supervision of Ministry of Home Affairs through PSAP (Public Safety Answering Point). When an emergency call is received at the PSAP, it would be answered by a specially trained officer/call taker/operator of respective State/UT that will transfer the call on the type of emergency, dispatchers to police, fire medical and other response mechanisms.

million subscribers contributing to 96.95 per cent of internet subscribers while the wired internet subscriber base stood at 23.06 million contributing to 3.07 per cent of the internet subscribers.

In Kerala the total internet subscriber base is at 27.44 million.

The number of mobile towers in Kerala by service provider-wise is given in **Table 11.3.5**.

The percentage share of mobile towers in Kerala is given in **Figure 11.3.3**.

Kerala Telecom circles serve the whole of Kerala State, the Union Territory of Lakshadweep and

part of Union Territory of Puducherry (Mahe). The circle has 11 major Secondary Switching Areas (SSAs) and one minor SSA of Lakshadweep. The status of telecom sector in Kerala as on June 30, 2020 is given in **Box 11.3.2**. More details are given in **Appendix 11.3.5**.

Communication Infrastructure

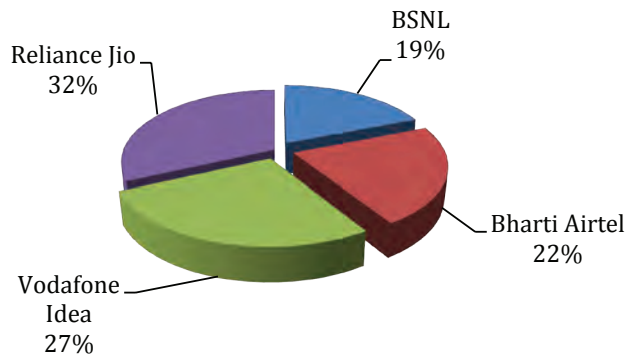
Government has taken some major projects capable of creating new employment and increasing the IT exports from the State. The focus was on expansion of the IT space in the IT parks, building roads and ramp; surface connectivity – especially to the IT hubs, power availability, promoting private projects in IT infrastructure, building social Infrastructure in

Table 11.3.5 Service provider-wise Telephone towers

BSNL	Bharti Airtel	Vodafone Idea	Reliance Jio	Total
6,012	7,007	8,593	10,101	31,713

Source: BSNL

Figure 11.3.3 Percentage share of mobile towers in Kerala



Source: BSNL

Box 11.3.2 Status of telecom sector in Kerala

- No. of Telephone Exchanges: 1407
- Equipped Capacity: 27,08,568
- Working Connections: 1,26,51,432 {1,09,09,530 (Mobile) + 1,74,19,02 (Landline) }
- Average No. of Telephone per square km: 320
- Telephone Density: 378 per 1000 population

Source: Office of the Chief General Manager, BSNL, Kerala Circle

IT hubs to ensure safety and air connectivity with major cities in India and abroad for better business connects, free WiFi in public places and IOT enabling.

Digital public services will provide services which are easier, quicker and more convenient for people to use, and at a lower cost than other methods. This will bring about public sector efficiencies and savings. The Government's vision is to bridge the digital divide by 2020, create a digitally empowered society, and achieve sustainable economic growth.

Core infrastructure for e-governance in the State consists of Kerala State Wide Area Network (KSWAN), Secretariat Wide Area Network, State Data Centre, State Service Delivery Gateway and public WiFi project. KSWAN is the backbone of the State Information Infrastructure (SII), connecting Thiruvananthapuram, Kochi and Kozhikode and extending to 14 districts and 152 block Panchayats of the State. The network will also connect 3,500 offices of Government departments through wireless and a large number through leased lines and Local Area Network. KSWAN is seamlessly integrated with two State Data Centres which enable the network to provide large number of Government to Government, Government to citizens' services hosted in State Data Centres to the Government institutions through a secure intranet.

Kerala Fiber Optic Network (KFON)

The Government of Kerala has embarked on an ambitious journey to build a statewide optical fibre network – Kerala Fiber Optic Network (KFON), with a vision to “transform Kerala into an intelligent, innovative and inclusive society” paving way for digital life for all the residents of Kerala.

KFON network will function as a strong foundation for Digital Kerala architecture consisting of platforms for G2G, G2C, B2C interactions, enabling deployment of advanced applications for content delivery, smart cities,

smart traffic management, video surveillance, financial inclusion, smart metering solutions and digital commerce which is expected to provide a wide array of opportunities for product and service incubators, a boost to the startup ecosystem in Kerala.

The Government of Kerala aims to build a dedicated Optic Fiber Network (Kerala State Fiber Network) connecting the State Head Quarters, Districts, the Block and Gram Panchayats in the State. A highly scalable network infrastructure has been envisioned for KFON which shall be accessible on a non-discriminatory basis, to provide on-demand, affordable broadband connectivity of 2 Mbps up to 100 Mbps for all households. The OFC shall be drawn with the association of the KSEB through the existing poles.

The proposed KFON network will be a forerunner to the digital transformation of Kerala by planning and implementing the mega infrastructure project to establish fibre optic connectivity across the State connecting all urban and rural areas to address the digital divide. BPL families will be provided free limited internet bandwidth up to 2 Mbps.

11.4 DRINKING WATER

Access to safe, adequate water and sanitation are basic human rights, as they are inevitable to healthy livelihoods and to maintain the dignity of all human beings. International human rights law compels all countries to work without discrimination for achieving universal access to water and sanitation for all. Providing reliable water supply to everyone is a big challenge in many parts of the world as well as in India. As per WHO/UNICEF 2019 data, 220 crore people around the world lack safe drinking water and 420 crore people lack safe sanitation. 20.7 crore people spend over 30 minutes per round trip to collect water from an improved source and 200 crore people use a drinking water source contaminated with faeces. Some 2,97,000 children – more than 800 every day – under five die annually from diarrhoeal diseases due to poor sanitation and unsafe drinking water.

The United Nations World Water Development Report, 'Leaving no one behind', was launched on March 19, 2019 during the 40th session of the United Nations Human Rights Council (UNHRC). It demonstrates in relation to the World Water Day the importance of improvements in water resources management and access to water supply and sanitation services. 'Leaving no one behind' is at the heart of the commitment of the 2030 Agenda for Sustainable Development, which aims to enable all people in all countries to benefit from socio-economic development and to achieve the full realisation of human rights. As per the report 'Global water demand is expected

to continue increasing at a similar rate until 2050, accounting for an increase of 20 to 30 per cent above the current level of water use, mainly due to rising demand in the industrial and domestic sectors. Over 200 crore people live in countries experiencing high water stress, and about 400 crore people experience severe water scarcity during at least one month of the year. Stress levels will continue to increase as demand for water grows and the effects of climate change intensify'.

The National Institution for Transforming India (NITI) Aayog has developed the Composite Water Management Index (CWMI) to enable effective water management in Indian states. As per the CWMI States are displaying progress in water management, but the overall performance remains well-below of what is required to adequately tackle India's water challenges. It was a first ever attempt in India to measure different dimensions of water management and use across the lifecycle of water in the States. NITI Aayog has ranked all states in the index on the composite water management, comprising 9 broad sectors with 28 different indicators. In both 2018 and 2019 CWMI reports, Kerala was ranked 12th. On an average, 80 per cent of the States including Kerala have improved their water management scores over the last three years.

The National Statistical Office (NSO), Ministry of Statistics and Programme Implementation has conducted a survey on Drinking Water, Hygiene,

Sanitation and Housing Condition as a part of 76th round of National Sample Survey (NSS). The survey shows that about 87.6 per cent of the households in the rural areas and about 90.9 per cent of the households in the urban areas had sufficient drinking water throughout the year from the principal source. About 42.9 per cent of the households in the rural areas used hand pump as the principal source of drinking water and about 40.9 per cent of the households in the urban areas used piped water into dwellings as the principal source of drinking water.

In Kerala the approach to 13th Five-Year Plan is to assure drinking water supply to the entire population, give special focus on drinking water supply to scarce urban area, pay special attention to protect wells and take appropriate measures to diminish distributional loss. In Kerala, Kerala Water Authority (KWA) and Kerala Rural Water and Sanitation Agency (KRWSA) are the major implementing agencies in drinking water sector. Local Governments also play an important role in this.

Kerala Water Authority (KWA)

KWA was established to provide for the development and regulation of water supply and waste water collection and disposal in Kerala. Its major functional units are operation and maintenance, projects, planning and development, quality control and consultancy.

Sewerage

KWA has minimal coverage of sewerage in the State. Thiruvananthapuram city has about 602.5 km drainage coverage and for Ernakulam it was 28 km. Although sewerage projects were taken up in Kollam and Kozhikode under KSUDP, both could not be implemented because of issues including public protest and non-availability of land. Many projects are in progress in Thiruvananthapuram City under AMRUT. Thiruvananthapuram Sewerage Division maintains the sewerage network of Thiruvananthapuram Corporation in addition

to the maintenance work. In Guruvayoor, it is expected that the sewerage scheme will be commissioned in this financial year itself. In 2019-20, 914m of new sewer pipe lines were laid and 362 manholes were constructed/raised. The total expenditure for the financial year 2019-20 was ₹28.52 lakh.

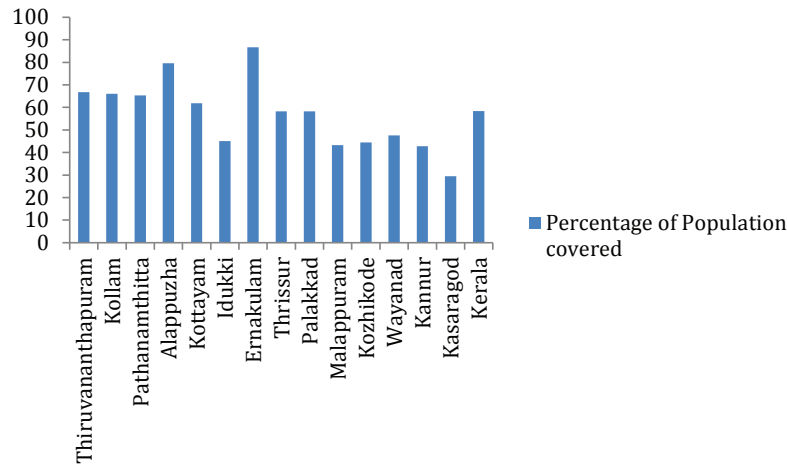
A Sewerage Vertical was formed on July 7, 2020 for preparing project reports for establishing sewerage system throughout Kerala, utilising existing officers of PPD Wing of KWA. However, issues related to funds, public protest against sewage plants / pump houses, delay in getting land and sanctions for road cutting have to be looked into before taking up sewerage projects.

Water Supply Coverage

There are 1020 water supply schemes in operation as on August 31, 2020, benefiting a population of 2.09 crore. The average per capita availability of piped water is 84.76 litres per day (the lpcd is varying in different habitations in all the Districts). In 2019-20, 27 schemes were commissioned thereby increasing coverage. Many new projects were sanctioned under KIIFB, State plan, RKI and NABARD to cover the uncovered areas. As on August 31, 2020, 58.42 per cent population of Kerala has been covered with piped water supply from the existing KWA schemes (54.11 per cent rural and 75.60 per cent urban).

District-wise population covered by water supply schemes as on August 31, 2020 is shown in **Figure 11.4.1**. Ernakulam District with coverage of 86.67 per cent population shows highest coverage among 14 Districts of Kerala, followed by Alappuzha District (79.53 per cent). In Kasaragod District the coverage is the least (29.51 per cent). Total coverage of population is 58.42 per cent. Details are given in **Appendix 11.4.1**. District-wise and category-wise analysis shows that Thiruvananthapuram has the highest number of water supply schemes (101) and Wayanad has the least (24). Kozhikode has the highest number of urban water supply schemes (17) while Wayanad has

Figure 11.4.1 District wise Proportion of Households covered by Water Supply Schemes as on August 31, 2020



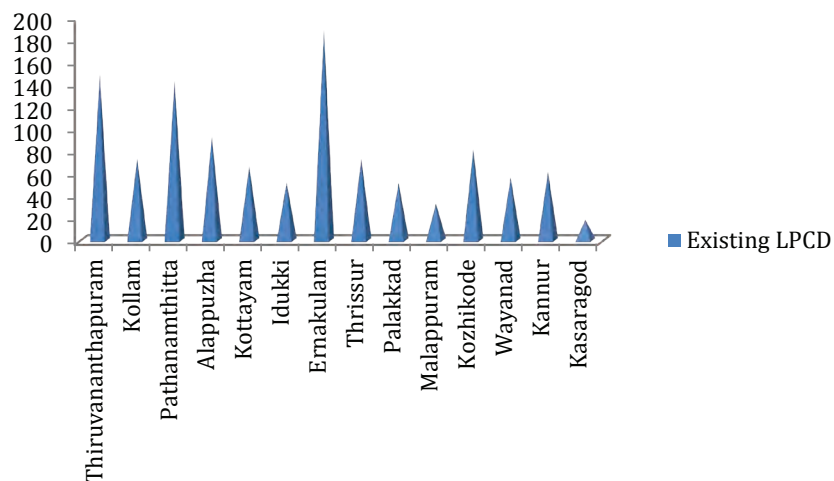
Source: KWA

the lowest number (1) as on August 31, 2020
Appendix 11.4.2.

KWA distributes water through House Service Connections (HSC) and street taps. The total number of domestic, non-domestic, and industrial connections is 24,88,361, 1,8,6567 and 2,177 respectively. Out of the total 198603 street tap connections, 1,49,776 are in Panchayats, 18,972 in Corporations, and 29,855 in Municipalities (**Appendix 11.4.3**) as on August 31, 2020. Number of rural water supply schemes of KWA transferred

to Local Bodies as on August 31, 2020 is 501 and the total population coverage in the 14 Districts is 11,01,160. District-wise details of water supply schemes transferred to Local Governments are given in **Appendix 11.4.4**. As per District-wise water availability data as on August 31, 2020 shown in **Figure 11.4.2**, Ernakulam District has the highest availability (188.18 lpcd) and Kasaragod has the lowest availability (18.19 lpcd) which is same as the last year
Appendix 11.4.5.

Figure 11.4.2 District-wise per capita water availability as on August 31, 2020



Source: KWA

Revenue

The major income for KWA is from the sale of water and Kerala is the only State in the country with 100 per cent metered water connections. The water tariff is uniform across the State with block tariff structure (increasing rate with increasing consumption). The last revision in water tariff was on October 1, 2014. The total revenue collected in 2019-20 was ₹722.98 crore. The major sources of income of KWA are Revenue from sale of water, Non Plan Grant from GoK, Plan fund from GoK, NABARD, NRDWP/JJM funds from GoI.

In 2019-20 and 2020-21 (upto August 31, 2020) income from water charges of domestic, non domestic and industrial schemes, was ₹48,357 lakh and ₹13, 427 lakh respectively and that from street taps was ₹23, 941 lakh and ₹3,501 lakh
Appendix 11.4.6.

State Plan Schemes

Survey and investigation

The aim of KWA is to supply water to all parts of Kerala. For this detailed surveys are to be conducted for preparing the shelf of projects. In 2019-20, 21 DER (Detailed Engineering Report) / PER (Preliminary Engineering Report) were prepared and a total expenditure of ₹132.8 lakh has been booked.

NABARD Assisted Rural Water Supply Schemes- Rural Infrastructure Development Fund

With the loan assistance from NABARD, KWA implements water supply schemes in the rural areas of Kerala. Out of the total 25 projects sanctioned, only 3 projects are completed and 4 projects are dropped. It is expected that nine projects will be commissioned in this financial year (Balance work of tranche XX and XXII). Some important works such as WSS Konni Medical College in Pathanamthitta District, Comprehensive Water Supply Scheme (CWSS)

to Agali and adjoining Panchayats in Palakkad and WSS to Seethathode Panchayat and Nilakkal Plappally area in Perunad Panchayat were sanctioned under NABARD. WSS to Poovar Panchayat, WSS to Kulakada and WSS to Vithura Tholicode are the three major sanctioned schemes during the last year under Tranche XXV.

Manufacturing units for bottled water

The aim of this project is to set up a bottled water plant at Thiruvananthapuram for providing good quality packaged/ bottled water through KWA at reasonable price to public. The civil and mechanical works are completed. The bottled water plant has been handed over to Kerala Irrigation Infrastructure Development Corporation Limited (KIIDC). The total expenditure for 2019-20 was ₹133.12 lakh.

Renovation of Existing Civil Structures owned by KWA

The major aim of this scheme is to renovate the structures which are in dilapidated condition because of lack of timely repair, protection and renovation. Annual maintenance of various civil structures like office buildings, treatment plants, intake, water tanks, pump houses and staff quarters are not being done for the past several years throughout the State due to lack of sufficient funds. So the maintenance of the civil structures is proposed to be done in a phased manner for protecting the assets created and to improve the quality of service.

With this budget allocation, 48 works including maintenance of some office buildings, guest houses, tanks, staff quarters and pump houses located in various Districts have been completed.

Innovative technologies and modern management practices

The major aim of this scheme is to improve the services delivery and quality by adoption of new technologies and modern management practices. Some issues which cannot be solved or optimised

can be resolved or improved by practicing innovative ideas. For example, water treatment units by adopting appropriate technology could solve problems like salinity, iron, fluoride, organic pollution. By installation of automated networks, installing flow meters and smart meters, measures to reduce Non Revenue Water (NRW) (loss) could be taken up. With the works sanctioned under this scheme 2 works which include the installation of solar panels on the roof top of KWA building has been completed; 2 works include the installation of Bulk flow meter.

Human Resource Development, Research and Development and Quality Control

The engineers and other staff need to be updated and equipped with modern project management practices and tools for the timely execution of these large projects and subsequently maintain new high-tech systems. KWA is planning ahead with plans for NRW management, 24x7 water supply in three cities and automation. A major achievement in the financial year 2019-20 is that 88 training courses were conducted in which 2,196 participants participated. The total expenditure for the financial year 2019-20 was ₹36.98 lakh.

Rehabilitation / Improvement works of urban water supply scheme

The major aim of this scheme is repair/replacement of pump sets or connected accessories, replacement of worn out and aged pipelines including pumping mains, gravity mains, distribution lines and execute important works in urban schemes. Also under this head it is targeted to complete all ongoing UWSS taken up under SAARK (Special Assistance Against Recession in Kerala). In 2019-20 one major urban scheme was completed namely, CWSS to Chittoor-Thathamangalam Municipality and Vadavannoor Panchayat in Palakkad District. Three works/improvements to urban water supply schemes are also completed. The total expenditure for the financial year 2019-20 was ₹295.96 lakh.

Rural Water Supply Schemes

At present many Grama Panchayats still do not have treated water supply. Only about 34 per cent of rural households have piped water supply presently. More emphasis has been given in this sector with the launch of Jal Jeevan Mission which aims to provide piped water supply to all households by 2024. Completion of ongoing rural schemes is also proposed under this head. In 2019-20, 11 schemes were completed. One major scheme namely ARWSS to Kumarakom/Thiruvappu in Kottayam District and 10 minor work for improvement of water supply to rural population has been completed. The total expenditure made with allotted fund for the financial year 2019-20 was ₹1985.89 lakh.

Water Supply Scheme to Specified institutions/locations

This scheme is intended for providing uninterrupted water supply to some specified institutions / locations such as medical colleges (by improving the water supply schemes) and also to provide sufficient quantity of drinking water to pilgrims to visiting centres such as Sabarimala. In 2019-20, five schemes for supplying water to Government hospitals, Medical colleges and other Government institutions were completed.

Modernisation of Aruvikkara pumping station

The major aim of this scheme is to modernise the old schemes functioning according to traditional methods and to improve water supply and reduce power charges to KWA. Modernisation of Aruvikkara pumping station taken up under this head is in progress and 70 per cent physical progress has been made.

Optimisation of Production and Transmission

The main objective of the works taken up under this scheme is to optimise the output in the existing schemes. It is intended to ensure

uninterrupted water supply, reduction of water loss from leakage and breakage and energy conservation. In 2019-20, 182 No. of works were completed, which includes renovation of 29 No. of old water treatment plants, 250.97 km of old pipes of existing WSS were replaced and some were extended and 68 obsolete pumps of motors were replaced. The total expenditure for 2019-20 is ₹2054.41 lakh.

Source improvement and water conservation

The objective of works undertaken in this scheme is to ensure that sufficient water is available in the source in summer/drought season. During the period many works for strengthening the source and increasing the storage capacity were done which mainly included construction of check dams and regulators. By this activity water stress in this summer could be mitigated to a large extent.

Drinking water - Drought mitigation

Drought relief activities and unforeseen emergency interventions are undertaken in this head. 1226 works have been carried out for improving the water supply during drought. The total expenditure for 2019-20 is ₹918.98 lakh.

Enterprise Resource Planning (ERP), E-governance, GIS and Information Management

The main activities under this head are listed below:

eAbacus- the Enterprise Billing Application having Online Transaction Processing System used for Consumer Management of Kerala Water Authority has been rolled out to almost all Subdivisions and currently covering a consumer population of 26 lakh consumers. 29 Divisions, 74 Subdivisions and 135 Sections have been covered so far. 98 per cent consumers of KWA are brought under the system. It is a remarkable milestone. As a part of revamping the existing Billing

Application, a URS, has been prepared after collecting feedbacks, requirements from all levels of staff from field staff up to Chief Engineers.

98 per cent of connections were mapped in the list of schemes. This enables the analysis of production Vs. distribution, quantum of losses in schemes, calculation of Non-Revenue Loss, Break Even Analysis and Costing based on water supply schemes. Total expenditure for the financial year 2019-20 is ₹100.6 lakh.

NITI Aayog

NITI Aayog has allotted ₹19.73 crore to Kerala for providing interim water supply to 73 Fluoride affected habitations in the State as One Time Additional (OTA) central assistance. It is envisaged to ensure 8 to 10 lpcd safe drinking water by installing Community Water Purification Plants (CWPP) in the Fluoride / Arsenic affected habitations as an interim measure. In Kerala there are no Arsenic affected habitations.

Kerala Water Authority has proposed R.O Plants and feasible pipeline extension from nearby safe sources in the affected habitations utilising NITI Aayog allocation. Accordingly Kerala Water Authority has provided safe water on a permanent basis in 55 Fluoride affected habitations by providing pipeline extension from treated sources. As per the status as on March 31, 2020, 18 Fluoride affected habitations are remaining to be covered. Now NITI Aayog accorded permission for laying pipe line extension to the fluoride affected habitations remaining to be covered. Based on the above, action is being taken to implement proposals to cover remaining habitations.

Capital Works

KWA undertakes projects under various heads. In 2019-20, 27 projects were commissioned thereby increasing the coverage and population benefited with safe drinking water. New projects have been sanctioned under KIIFB, RKI in addition to projects being taken up under State plan and

NABARD. In 2019-20, no new projects were sanctioned under NRDWP/JJM and AMRUT.

KIIFB

Government of Kerala had accorded In-principle Sanction for 72 drinking water projects of KWA and KIIFB had so far accorded Sanction and Approval for funding of 70 projects for an amount of ₹4428.76 crore. Under KIIFB funding 2016-17, a total of 23 water supply projects for an amount of ₹1257.1 crore are being implemented in 66 packages. Out of these 66 packages, 57 packages have been tendered, 51 packages are under various stages of execution and 20 packages have already been completed. In addition to this, there are 11 projects under 'Replacement of old Transmission mains in 11 circles' out of which 10 projects have been approved by KIIFB for an amount of ₹382.64 crore and the works in 10 circles are under various stages of execution.

Under KIIFB 2017-18, GoK had accorded in-principle sanction for 35 projects and KIIFB had accorded Sanction and Approval for funding for 35 projects amounting to ₹2468.62 crore and remaining 1 project is under KIIFB appraisal. These projects are being implemented in 94 packages. Out of these 94 packages, 48 packages have been tendered, 41 packages are under various stages of execution and 2 packages have already been completed. The remaining packages require land acquisition. Under KIIFB 2018-19, GoK had accorded in-principle sanction for two projects and KIIFB had accorded approval for funding of 2 projects amounting to ₹320.41 crore. These projects are being implemented in 10 packages. Out of these 10 packages, 2 packages have been tendered and agreement has been executed for these 2 packages.

AMRUT (Atal Mission for Rejuvenation and Urban Transformation):

Under Atal Mission for Rejuvenation and Urban Transformation (AMRUT) Kerala Water Authority is the implementing agency for water supply and sewerage works. Ministry of Urban Development

(MoUD) GoI, has selected 9 (nine) cities in Kerala. Water supply projects of KWA spread across 6 Corporations, namely, Thiruvananthapuram, Kollam, Kochi, Thrissur, Kozhikode, Kannur and 3 Municipalities, namely, Alappuzha, Guruvayoor, Palakkad. The project period is five years from the financial year 2015-16 to 2019-20 and it has been extended upto March 31, 2021. An administrative sanction of ₹1,332.56 crore has been accorded to KWA for executing 168 water supply works and 115 sewerage projects in the above cities. The funding pattern is such that the total project fund is divided among Central, State and respective ULBs, as 50: 30: 20 share respectively. KWA has tendered works for ₹1326.56 crore from which works of ₹1290.95 crore has been arranged. Out of this the works for ₹183.27 crore has been completed so far and the balance are in different stages of execution.

Rebuild Kerala Initiative (RKI)

Under Rebuild Kerala Initiative (RKI) seven new projects have been sanctioned this year for an AS amount of ₹182.6 crore. They include the improvement of WSS to Cheranalloor Panchayat, distribution network for RWSS to Thiruvananthapuram Panchayat, WSS to Kaduthuruthy and adjoining villages, WSS to Erumely zone distribution system, WSS to Pavaratty and Mullasheri Panchayats in Chavakkad Taluk phase 2, CWSS to Sulthanbathery municipality, Noolpuzha and Muttill Grama Panchayat in Wayanad District, WSS to Erumely Panchayat laying distribution system in zone in Kanakapallam.

Jalanidhi

Kerala State Rural Water Supply and Sanitation Agency (KRWSA), was constituted as a special purpose vehicle to implement Jalanidhi, a World Bank Aided project. KRWSA has successfully implemented two phases of Jalanidhi project, i.e, Jalanidhi Phase-1 during 2000-2008 and Phase-2 during 2012-2019. The Gram Panchayats have a pivotal role in implementing community based water supply projects under Jalanidhi. KRWSA has also established a wide network of NGOs in

Box 11.4.1 JalJeevan Mission (JJM)

Jal Jeevan Mission (JJM) is a project of Government of India to provide safe and adequate drinking water through functional household tap connections by 2024 to all households in rural India. The mission aims to ensure that every rural household has drinking water supply in adequate quantity of prescribed quality on regular and long-term basis at affordable service delivery charges leading to improvement in living standards of rural communities. This Mission will focus on integrated demand and supply side management of water at the local level, including creation of local infrastructure for source sustainability like rainwater harvesting, groundwater recharge and management of household wastewater for reuse in agriculture. The Mission will converge with other Central and State Government Schemes to achieve its objectives of sustainable water supply management across the country. This Project is being implemented on 50:50 cost sharing basis between the centre and state.

Implementation of JJM in Kerala

Total number of rural households in Kerala State is 67.15 lakh and the no. of rural FHTC –Functional Household Tap Connections-(as on April 1, 2020) is 17.5 lakh. So 49.65 lakh FHTCs are to be provided by 2024 under this mission.

The Government order for the implementation of Jal Jeevan Mission through the 3 tier Panchayati Raj system was issued on June, 2020. For 2020-21, Annual Action Plan (AAP) for providing 21.42 lakh household connections has been approved by Government. As per 2020-2021 plan, 100 per cent households of 586 villages, 380 Panchayats and 23 block Panchayats are targeted. SC-ST dominated villages have been covered to a greater extent in this year's plan. Out of 18 targeted villages, 12 numbers are targeted to be covered this year. The left out villages will be covered in the subsequent years. Out of 114 quality affected habitations, with contaminants like fluoride, salinity, iron etc, 104 habitations will be covered in 2020-21. For the remaining habitations 10 Community Water Purification Plants (CWPP) are proposed as an interim measure in this year's plan.

Parallel activities of campaigning/community mobilisation/publicity through visual media/other social media are also taken ahead in a Mission mode. For implementation of the project, all institutional arrangements at State/District and Panchayat level are in place. As per Annual Action Plan for 2020-21, DERs for providing 21.42 lakh connections as per 2020-21 plan has been prepared and submitted to 791 Panchayats. State Water and Sanitation Mission (SWSM) meeting held on 5/8/2020 approved proposal for providing 16.48 lakh FHTCs in 716 Panchayats as first phase. (State Level Scheme Sanctioning Committee (SLSSC) held on 13/8/2020 approved projects for providing 16.48 lakh FHTCs in 716 Panchayats.) Government accorded Administrative Sanction on August 21, 2020 amounting to ₹4343.89 crore for providing 16.48 lakh FHTCs in 716 Panchayats. KWA has tendered 799 works for giving 15.39 lakh FHTCs in 692 Panchayats till date (as on October 20, 2020). Work order has been given for 415 works for giving 4.47 lakh FHTCs in 411 Panchayats covering 114 Assembly constituencies till date (as on October 20, 2020).Kerala Government is taking every step to provide household water connection to all rural households by 2024 to improve the living standards of rural public.

mobilising communities towards implementing the participatory, community driven water supply and sanitation facilities owned and managed by them. This model of scheme implementation under JALANIDHI has demonstrated successfully

an equitable, inclusive and decentralised delivery system mainly benefiting the SC, ST and BPL category of rural households in Kerala. KRWSA is the nodal Agency of the State Government for the implementation of Rain Water Harvesting

Programme in the State. For this the Rain Centre, a separate cell for monitoring the activities, was set up under KRWSA. Further KRWSA is appointed as WSSO of Government of Kerala to coordinate water related activities in the State. District-wise details of Water Supply Connections and Street taps of Jalanidhi as on August 31, 2020 are given in **Table 11.4.1**.

Project Achievements

In Jalanidhi phase-1, 3694 small water supply schemes and 16 large water supply schemes were commissioned benefiting 10.56 lakh population. In addition to water supply schemes other components like ground water recharge activities, latrines, environmental sanitation measures, Rain Water Harvesting etc. were also undertaken and successfully completed under the project. The project was implemented in 112 GPs and expended ₹411 crore.

Jalanidhi Phase-II Project was implemented in 115 Grama Panchayat. 2173 water supply schemes were commissioned and transferred to beneficiary group for operation and maintenance

after imparting necessary capacity building. The water woes of 11.57 lakh people have been addressed by the project. ₹1360 crore has been spent for the project.

Now, Kerala is having 22 lakh Jalanidhi beneficiaries in 227 Grama Panchayats, both Jalanidhi Phase-1 and 2 put together. Jalanidhi model has successfully demonstrated that communities, including the poorest and the vulnerable groups, can demand, plan, design, implement and manage water supply and sanitation schemes, contribute to partial capital investment and bear total cost of operation and maintenance. Jalanidhi schemes are no more a burden on the public exchequer as 100 per cent Operation and Maintenance cost are borne by the communities. Jalanidhi demonstrated efficient and sustainable water management for the last 18 years. Recent studies by Planning Board and AG confirms that 70 per cent of schemes started in Phase I (2002-08 period) are still running successfully by the community.

Considering the District-wise rural population covered by the water supply schemes of Jalanidhi,

Table 11.4.1 District-wise details of Water Supply Connections and Street taps of Jalanidhi as on August 31, 2020

Sl.No.	District	Domestic Connections	Street Taps (Panchayat)
1	Thiruvananthapuram	4572	
2	Kollam	20285	
3	Pathanamthitta	5977	
4	Alappuzha	0	
5	Kottayam	46220	
6	Idukki	37002	
7	Ernakulam	2173	
8	Thrissur	63265	
9	Palakkad	50351	
10	Malappuram	85355	
11	Kozhikode	50632	307
12	Wayanad	34739	
13	Kannur	22157	
14	Kasaragod	21447	
	TOTAL	444175	307

Source: KWA

Wayanad has the highest (24.41 per cent). Kozhikode has the highest number of schemes (1052) while Alappuzha has no scheme. A total of 2,18,598 rural population are covered by 5,883 scheme of Jananidhi as on August 31, 2020. Out of the total 4,44,175 water supply domestic connections as on August 31, 2020 Malappuram has the highest number (85,355) and Thrissur has the second highest connections (63,265). As per Jananidhi project guidelines, after commissioning of schemes, 100 per cent Operations and Maintenance management has to be done by beneficiary groups. So water rates vary from scheme to scheme, as decided by the respective scheme management committee. The average cost per household per month charged for 10,000 litres is ₹100 in most of the schemes. The lpcd water availability of water supply schemes of Jananidhi of all the Districts is 70 lpcd.

District-wise achievements of sanitation activities of Phase 1 and 2 shows that Malappuram District has 26,385 meters drainage coverage which is the highest among 14 Districts and Kottaym has the highest number of Biogas plants (557) as on August 31, 2020 (**Appendix 11.4.7**). Total number of Ground Water Recharge (GWR) structures as on August 31, 2020 is 2,912. Most numbers of GWR structures are in Kottayam (988). Similarly, total number of Rain Water Harvesting (RWH) tanks installed by KRWSA in the State is 32,031 as on August 31, 2020. The highest number is in Idukki (9,828) and the lowest is in Wayanad (196) (**Appendix 11.4.8**). As per KRWSA data, as on August 31, 2020, out of 5,883 schemes, 5001 small water supply schemes and 41 large/bulk water supply schemes are functional from which 4,45,710 households are covered (**Appendix 11.4.9**).

11.5 HOUSING

Shelter is one of the basic requirements of human beings and housing is a human right to live safely and with dignity. It is the responsibility of a society to ensure that the housing needs of all are satisfied. Providing adequate and affordable housing is an ever-growing challenge. As per the 74th session Annual Report 2019 of the UN General Assembly, adequate housing is 'a component of the right to an adequate standard of living, and the right to non-discrimination in this context'.

As per the OECD (Organisation for Economic Cooperation and Development) economic survey in 2019 -India Housing for all, in urban areas the housing market is seen as excess demand of affordable houses, a small rental market and an oversupply of high-end housing. Even though the quality of housing stock is increasing in recent years housing shortage among low-income groups is large. It is very hard to get housing credit as the house prices are high relative to incomes. The survey says 'prices are high because of structural rigidities in the market, stemming from stringent zoning and land regulations, restrictive floor indices and high transaction costs, in the context of high population density'. According to the report, urbanisation especially rural-urban migration will strengthen the demand of affordable housing at the low end of the market. The lowering of stamp duties like transaction taxes, simplifying land use rules and

enhancing contract enforcement would support mobility and increase housing supply. The OECD looks at Housing for All programme, which aims at providing affordable housing to all Indians by the year 2022, as a good way forward in reducing the housing shortage as it promotes ownership. According to OECD more schemes are needed to develop rental housing and the Tenancy Act 2019 is a step in the right direction.¹

Both the Central and State Governments have been trying to eradicate houselessness by implementing several housing schemes. In Kerala average housing standards and quality are far better than the rest of the Indian States. According to the Census 2011 there were 336 houses for every 1000 persons in Kerala while it was 273 houses in India as a whole. The average size, quality and per capita floor area of the residential houses of Kerala are also higher than that of the other States in India.

The Government of Kerala has initiated the LIFE Mission in the year 2016 as a flagship programme for addressing the issues of homelessness in the State. It is envisioned as a time-bound programme through a multi-pronged approach of addressing the ground level real issues. The Mission provides housing for the landless-houseless-poor along with a comprehensive rehabilitation programme aimed at a sustainable

¹ While there is general agreement that the Model Tenancy Act 2019 is a step forward from the archaic laws governing rent control in the country, there is some debate regarding whether it is more in favour of landlords or tenants. See N Chakravarty, Is Model Tenancy Act More in Favour of Landlords or Tenants?, Livemint July 29, 2020.

livelihood through skill development, leading to financial self-reliance and ensuring inclusive development. Apart from the completion of incomplete houses, the Mission is addressing restoration of existing dilapidated houses, financial support for constructing houses for those having own land, the landless-homeless beneficiaries of the state by rehabilitating them into apartment complexes. The survey analysis for LIFE Mission shows a total of 5, 04,967 homeless households in Kerala where Thiruvananthapuram District is in the top most place, having 79,225 number of homeless people both landless and having land. Pathanamthitta has the least number of homeless both landless and with land. Further details are given along with the LSGD section.

Agencies in the Housing Sector

The State Government implements housing schemes through different departments. More than 20 agencies are implementing housing schemes in the State as per the data received from the Housing Commissioner. The important agencies include Local Self Government Department (LSGD), Kudumbasree, Kerala State Housing Board (KSHB), Kerala State Nirmithi Kendra (KESNIK), and Kerala State Development Corporation for SC/ST, SC/ST Development Departments, Non-Governmental agencies such as COSTFORD and Habitat Technology group, Co-operative societies and Corporations like Kerala State Co-operative Housing Federation Ltd are also involved in the activity

of constructing houses. Several NGOs are also contributing significantly. Other departments like Labour, Fisheries, Sainik Welfare, Urban Affairs and Minority Welfare also implement various affordable housing schemes for the poor labourers (including migrants) and economically weaker sections. These agencies/departments have provided assistance to construct around 1, 23,807 houses during the period 2019-20 to 2020-21 (upto August 31, 2020). Details are given in **Table 11.5.1**. The proportion of achievements by each agency is given in **Figure 11.5.1**. Majority of the houses (95 per cent) were constructed by local bodies.

Kerala State Housing Board

Kerala State Housing Board (KSHB), the major implementing agency in the housing sector under Government has been providing residential facilities to prospective beneficiaries through its public housing schemes apart from cash loan assistance for house construction.

Grihasree Housing Scheme

Grihasree Housing Scheme is being implemented by the Board from the year 2013-14 onwards with budgetary support by providing Government subsidy at the rate of ₹2 lakh per house for the construction of house with participation of NGO/voluntary agencies/philanthropic individuals in 2 cent/3 cents of land owned by EWS/LIG beneficiaries. 107 houses in 2019-20 and 7 houses upto August

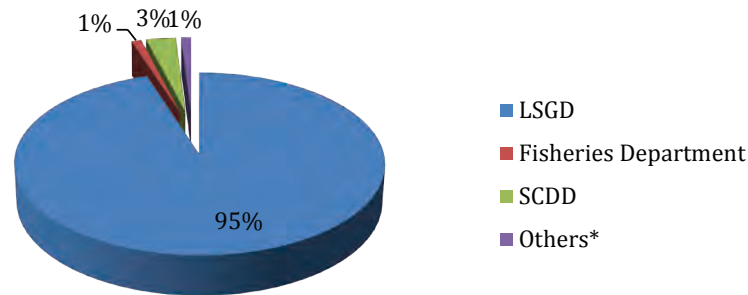
Table 11.5.1 Houses constructed by various agencies from 2019-20 to 2020-21 (upto August 31, 2020)

Year	KSHB	LSGD	Labour Dept.	Fisheries Dept	SCDD	Kerala State Development Corporation for Christians Converts from Scheduled Castes and Other Recommended Communities
2019-20	107	108504	5	1093	3081	199
2020-21 upto August 31, 2020	7	9592	359	251	574	35
Total	114	118096	364	1344	3655	234
Grand Total					123807	

Source: Housing Commissionerate

Note: Details of houses constructed in the previous years are given in the Economic Review 2019

Figure 11.5.1 Proportionate Share of Agencies in the Construction of Houses in 2019-20 and 2020-21 (upto August 31, 2020)



Source: Housing Commissionerate

* Others include KSHB, Labour Department, Kerala State Development Corporation for Christians Converts

31, 2020 were built under this scheme. A total of 2225 houses have been constructed from 2016-17 to 2020-21 (upto August 31, 2020) under this scheme.

Housing Scheme for Government Employees in Government Land-Phase V

The scheme is intended for constructing residential flats as quarters to Government employees in Government land. After completion, the flats will be handed over to the respective district collectors for allotment. Due to difficulties in fund releases under this scheme, not much work could be undertaken; however currently construction of flats is in progress.

Working Women's Hostel projects

Kerala State Housing Board is implementing Working Women's Hostel (WWH) scheme to provide better accommodation facilities to women employees at a cheap rate so as to encourage them to take up work outside their homes. Board is constructing Working Women's Hostels utilising Central Government Grant (60 per cent of construction cost) and State Government share (40 per cent of construction cost).

KSHB has constructed 11 WWHs since 2016-17 and one is nearing completion and one more project will be implemented soon. The project at Madhur, Kasaragod has been sanctioned by the GoI and the construction works have been tendered and awarded.

Housing Commissionerate (Housing Technical Cell)

The Housing Commissionerate was formed in the year 1980 with the objective of planning and co-ordination of the housing sector. This office is engaged in policy formulation and technical assistance to various agencies in the housing sector, creating awareness about emerging housing technologies, and also actively involved in data collection on housing, its interpretation, and facilitating decision making in the housing sector.

Kerala Climate Responsive Building Design Promotion Program

In 2019-20, the scheme was envisaged to conduct seminars/workshops in 5 districts and to give cash award of ₹50,000 to each of the 4 best project reports (regarding this area) of final year M.Tech/M.Arch/Ph.D students.

Kerala Housing Policy 2020

Housing Commissionerate has initiated the preparation of Kerala Housing Policy. Two committees were formed by the Government for revising the Kerala Housing Policy, 2011 and to prepare a new draft policy. Housing Commissioner is the Convenor of the Sub-Committee. First committee meeting was convened on January 22, 2020. A drafting committee was also formed and a draft policy has been prepared. The draft is expected to be submitted to Government after receiving the comments and suggestions from the members of the drafting committee.

Kerala State Nirmithi Kendra

Kerala State Nirmithi Kendra (KESNIK) is an accredited agency under Housing department, Government of Kerala. It is involved in the activities related to the housing sector like undertaking construction projects, conducting trainings in construction related trades for unemployed youths, general public and technocrats, production of cost effective and environment friendly building materials, sale of building materials at subsidised rates, providing facilities for building material testing through its testing labs for assurance of quality in the construction works. Kesnik is constructing a model sustainable village comprising of 30 dwelling units with livelihood options at Kattakkada village.

Kesnik has undertaken and completed projects worth ₹200 crore in the last year including CEEF (Cost Effective and Environment Friendly) construction. Kesnik and UNDP had jointly organised skill upgradation trainings for youths and masons in construction and allied fields. KESNIK has also organised trainings for engineering colleges. More than 500 students have benefited from the trainings. It has always strived to adapt newer technologies in its construction. At present the demand for the Pre-Fab construction is increasing. For the implementation of the Pre-Fab construction

projects, KESNIK has signed a MoU with Hindustan Pre-Fab Limited, a Public Sector undertaking of Government of India. A CAT LaBISHaS Design Lab (CLDL) was setup in LaBISHaS of KESNIK to develop detailed architectural designs and to provide guidance for building constructions. CLDL has completed designs of projects worth ₹ 25 crore.

Local Self Government Department (LSGD)-Livelihood, Inclusion and Financial Empowerment (LIFE) Mission

LSGD is the single largest agency which has played a significant role in bridging the gap of housing needs of the people. In Kerala, 95 per cent of the total houses constructed by Government agencies from 2019-20 to 2020-21 (upto August 31, 2020) has been contributed by LSGD. It includes major agencies involved in housing activities like LIFE Mission, Kudumbasree, Commissionerate of Rural Development, Directorate of Urban Affairs and Directorate of Panchayats.

The activities of the LIFE Mission are structured in three phases. In the first phase, the Mission addressed the issue of incomplete houses. Out of the 54,123 incomplete houses 52,422 houses (96.86 per cent) have been successfully completed as on December 1, 2020. Phase I would be completed before the end of December 2020.

The second phase of the Mission provides financial assistance for constructing houses for those who have own land. After verification of all documents, 1,03,976 beneficiaries were found eligible and 98,482 beneficiaries signed agreement with the LGs, and they are provided with a financial assistance of ₹4.00 lakh based on the progress of construction of their houses (in 4 stages). ST beneficiaries who are living in remote ST hamlets would be provided ₹6 lakh (in 5 stages). As on December 1, 2020, 86,548 (87.88 per cent) beneficiaries completed the construction of houses and the remaining are in progress. In addition to this, since all the housing

schemes in Kerala are brought under LIFE Mission, under PMAY (U)-LIFE 58,971 houses were completed and under LIFE – PMAY (R) 17,125 houses were completed. Through various schemes of LIFE Mission under Scheduled Castes, Scheduled Tribes and Fisheries departments has completed construction of 19,377 houses, 2,095 houses and 4,212 houses respectively. The Mission is targeting to complete 25,000 more houses as part of the 100 days' programme of the Government.

The third phase of the Mission is the rehabilitation of landless homeless beneficiaries of the State. As per the survey conducted by LIFE Mission around 3.37 lakh beneficiaries have been identified as landless homeless. A thorough verification of these beneficiaries was conducted through a software for which 2,29,310 beneficiaries appeared and 1,35,769 beneficiaries were found eligible as on October 31, 2020. The Mission is planning to rehabilitate these beneficiaries into housing complexes. Besides, assistance will be given to those beneficiaries who are able to purchase land and construct house on their own. All the housing complexes

progressing under third phase of LIFE Mission would be constructed using Prefab technology to save time and labour. Housing complex constructed by Bhavanam Foundation at Adimali Grama Panchayat in Idukki District was taken up by LIFE Mission for a cost of ₹24.82 crore. This is a seven-storey building and has 217 independent apartments of which 163 are already occupied. Each apartment is of 460 square feet size and has common facilities like lift, washing area, compost plant, health sub-centre, Kudumbasree counselling centre, youth club, gender club, and crèche. The beneficiaries will also be provided with various livelihood training programmes. Under Phase III of LIFE Mission 2,772 houses were completed. Thus under LIFE Mission, as on December 1, 2020, a total of 2,43,522 houses were completed in the State. District-wise details of the completed houses under LIFE as on December 1, 2020 is given in **Table 11.5.2**.

As part of the 100 days' programme of the Government, LIFE Mission has initiated the construction of 29 apartment complexes in all the 14 districts of Kerala.

Table 11.5.2 LIFE Mission Report – Completed Houses as on December 1, 2020

District	Phase 1	Phase 2	Phase 3	PMAY (U)	PMAY (R)	SC Dept.	ST Dept	Fisheries Dept	Total
Thiruvananthapuram	6045	13875	74	9798	3001	2300	2	1,296	36,391
Kollam	3616	7804	222	4655	1,407	1,907	3	769	20383
Pathanamthitta	1171	1853	146	1213	711	1,114	544	10	6,762
Alappuzha	2727	8781	62	3269	730	1,210	10	548	17337
Kottayam	1101	4058	233	1714	603	901	13	78	8701
Idukki	3013	9444	666	1559	759	804	114	15	16374
Ernakulam	1057	5231	181	7438	778	1,910	9	314	16918
Thrissur	2996	4760	291	5915	1,532	2,178	22	101	17,795
Palakkad	7596	11533	293	4601	1,925	2,575	115	13	28651
Malappuram	2726	5856	168	7137	2,384	2,080	29	480	20860
Kozhikode	6469	4621	172	4211	1118	1,257	12	311	18171
Wayanad	8433	3325	159	2222	913	255	918	-	16225
Kannur	2643	2338	73	3771	693	482	279	197	10,476
Kasaragod	2829	3069	32	1468	571	404	25	80	8,478
Total	52,422	86,548	2,772	58,971	17,125	19,377	2,095	4,212	2,43,522

Source: Life Mission

Construction of apartment complexes using prefab technology is steadily progressing in 8 locations of the State which would be completed by the end of January 2021. Another 14 apartment complexes too would be constructed soon across the State under Care Home project of Cooperative Department. The Government aims to complete the construction of all the apartment complexes not later than the month of May 2021.

When houses are constructed under LIFE Mission, 90 person days under Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) in rural areas and Ayyankali Urban Employment Creation Scheme (AUECS) in urban areas is spared for construction of houses for LIFE Mission and Kudumbashree started women construction units for the beneficiaries of LIFE Mission.

In the backdrop of the recurring floods and landslides, the Mission is poised to fast track the housing for homeless through the sustainable and environment friendly construction. Over one lakh homeless are to be provided homes by 2021. This enormous task calls for huge quantum of building material and delivery of homes in a time bound manner. Sustainability, speed and safety without compromising structural performance will be the hallmark of the technologies introduced by the Mission.

High cost of construction materials is one of the most important issues faced by the LIFE beneficiaries. LIFE Mission discussed this with various vendors and made arrangements for the distribution of materials at a rate as low as 20 to 60 per cent of their MRP. Electrical fittings, wiring material, paint, ceramic material, tap fittings, water tanks, cement are distributed to LIFE beneficiaries at this low rate. This venture has benefitted LIFE beneficiaries by helping them to save ₹50,000 to ₹1,00,000 per house.

Kudumbasree

Under LSGD, Kudumbasree also plays a significant role in satisfying the housing needs

of the poor, especially the urban poor. It is the State level nodal agency for the implementation of major centrally sponsored urban poverty reduction programmes. The monitoring and formulation of projects under these programmes are taken up by Kudumbasree under the administrative control of LSGD. Kudumbasree is the State level nodal agency for implementation of PMAY (Urban).

PMAY Urban

Prime Minister Awas Yojana (Urban), the major housing scheme, implemented by the department is a centrally sponsored scheme jointly implemented by State Government and Urban Local Bodies. The scheme intends to address the housing requirement of urban poor including slum dwellers with mandate of providing housing for all by 2022 through its programme verticals like (1) Slum rehabilitation of Slum dwellers with participation of private developers using land as resource, (2) Promotion of Affordable Housing for weaker sections through credit linked subsidy, (3) Affordable Housing in Partnership with Public and Private Sectors and (4) Subsidy for beneficiary-led individual house construction. The scheme aims to provide houses for all houseless Economically Weaker Sections (EWS) families by 2022.

Under 'in-situ' Slum Development Scheme, Central share is ₹1 lakh and under Affordable Housing Project, the Central share is ₹1.5 lakh. Under Beneficiary Led Construction (New) -BLC(N), the Central share is ₹1.5 lakh per dwelling unit and State and Urban Local Body share is ₹2.50 lakh. Under Credit Linked Subsidy Scheme (CLSS) the entire subsidy component will be met by Central Government. From 2017, January onwards Middle Income Group (MIG) has also been included under CLSS.

The scheme was officially launched in the State by Chief Minister on December 8, 2015 and is being implemented in all 93 Urban Local Government institutions through Kudumbasree.

Under the different components, 493 Detailed Project Reports for Beneficiary Led Construction (New) of 93 Urban Local Bodies and Development Authorities (3,668 dwelling units of GCDA, GIDA and TRIDA), for the construction of 1,02,229 (after data cleaning) dwelling units to the tune of ₹3,512.53 crore and 6 Detailed Project Reports (DPR) consisting of 774 units under Affordable Housing in Partnership at a total project cost of ₹86.35 crore have been approved by the Ministry of Housing and Urban Affairs. Fund will be released by Central Government in three installments (40 per cent, 40 per cent, and 20 per cent). Construction of 77,541 houses has been started and 48,445 houses have been completed.

In 2019-20, an amount of ₹60.38 crore was received as Central share and an amount of ₹41.46 crore received as State share; an amount of ₹107.07 crore was expended including balance available from the previous year.

Haritha Bhavanam

“Haritha Bhavanam” competition was conducted to recognise the “Green Home” in each ULB. Green home is selected based on parameters such as energy efficiency, waste management, maintenance of green space. The competition intended to spread the messages of rain water harvesting, kitchen garden, waste disposal mechanisms and green energy among PMAY beneficiaries. A cash prize of ₹10,000 has been given to the best home in CDS level. Along with the competition urban local area-wise competition and quiz competitions were held. The campaign instilled a competitive spirit to maintain the house and premises clean and beautiful.

Commissionerate of Rural Development

The Rural Development Department is primarily concerned with addressing the needs of the rural people in matters of sustainable economic activity, shelter and hygiene concerns, rural

infrastructure and connectivity. The major housing scheme implemented by the department is the Pradhan Mantri Awas Yojana-Gramin (PMAY-G).

Under PMAY-G—the identification and selection of the beneficiaries is done through the Gram Sabha from SECC 2011 list, based on the housing deficiency and other social deprivation parameters. An amount of ₹1.2 lakh is given as central and state assistance for one beneficiary. The cost of unit (house) assistance is to be shared between central and state in the ratio 60:40.

The amount will be disbursed in following phases

- For the construction of the basement, ₹48,000 will be disbursed as the first phase.
- On completion of basement ₹48,000 will be disbursed for superstructure upto lintel level.
- On completion remaining ₹24,000 will be disbursed.

The immediate objective is to cover 1 crore households living in kutcha house/dilapidated houses in three years from 2016-17 to 2018-19 and enable construction of quality houses by the beneficiaries using locally available materials, designs and masons specially trained in quality workmanship. Houses numbering 1364 were completed in 2019-20 and 306 in 2020-21 and a total of 1670 houses have been constructed for the period from 2019-20 to 2020-21 (upto September 30, 2020). Details of the completed houses under PMAY (G) are given in **Table 11.5.3**.

Labour Department

Bhavanam Foundation Kerala (BFK) is a public sector not-for-profit company fully owned by the Government of Kerala under the Department of Labour and Skills. The purpose of the company is to provide, promote, develop and establish residential accommodation, other associated infrastructure and services, including education for children of plantation workers and healthcare to labourers, workers and low-waged employees in Kerala.

Table 11.5.3 Physical achievement of Pradhan Mantri Awaas Yojana - Gramin (PMAY-G) in 2019-20 and 2020-21 (upto September 30, 2020)

Year	Sanctioned				Completed(in number)			
	SC	ST	Others	Total	SC	ST	Others	Total
2019-20	266	58	335	659	507	146	711	1364*
2020-21	85	1	438	524	119	31	156	306
Total	351	59	773	1183	626	177	867	1670*

Source: Commissionerate of Rural Development

Note:* Carry over of past years

I. Bhavanam Project – Own Your Own Housing Scheme – For Houseless-Munnar

BFK is implementing the project where 10 prospective beneficiaries are selected and houses constructed at a cost of ₹4.88 lakh. An amount of ₹4 lakh is being funded by BFK and Federation of Kerala Association in North America (FOKANA) has agreed to fund the cost gap of the Bhavanam Project – Own Your Own Housing Scheme to the tune of ₹75,000 per house for 100 houses. 9 houses have been completed upto October 31, 2020 under the scheme Own Your Own Housing Scheme, Munnar.

2. Bhavanam Project – Own Your Own Housing Scheme – For Landless and Houseless

RPL-Punalur: Government sanction to include the repatriated plantation workers employed with Rehabilitation Plantation Limited (RPL) since 1970s, under the Bhavanam Project – Own Your Own housing scheme was obtained and BFK is implementing the Bhavanam project for the repatriated plantation workers, with priority for retired plantation workers of Kulathupuzha Estate. Accordingly, BFK prepared the detailed project report for 40 houses in Phase I as twin house models with individual unit costing ₹5.37 lakh with an area of 412 square feet at a total construction cost of ₹2.31 crore in the 5 acres land allotted by RPL. The stone laying function was held on February 19, 2020 and the project will be completed in March 2021.

Janani Project – This project is envisaged to provide good quality affordable housing of about 600 square feet to the unorganised poor

urban labourers and low waged workers. The project is being implemented on a Public Private Partnership Model with apartments being sold at cost.

Janani Project – Adimali Scheme (Idukki District). The project was completed and handed over to the Adimali Grama Panchayat through Life Mission on February 25, 2019.

Janani Project – Ponjassery Scheme (Ernakulam District) having 246, 2 BHK apartments in 4 towers with 74 apartments per tower at 715 square feet each is being constructed. 74 apartments of tower 1 have been completed.

The Apna Khar Project- The project in Palakkad can accommodate 620 male guest workers in a ground –plus three floor hostel complex of approximately 47000 square feet plinth area at KINFRA integrated Industrial and Textile Park, Kanjikode, Palakkad. The hostel provides 64 numbers of shared residential rooms of approximately 300 square feet each.

Scheduled Caste Development Department

Houses to Houseless Scheme, development programme for vulnerable communities, Bhavana Nirmana Dhanasahaya Padhathi are some of the major housing schemes of this Department. Under the scheme, Bhavana Nirmana Dhanasahaya Padhathi, ₹4 lakh is sanctioned to the scheduled caste families. The beneficiaries should have their own land and their annual income must be below ₹50,000. The houses

proposed for the scheme is 323 square feet as minimum and 750 square feet as maximum area. In 2019-20 and 2020-21 (upto August 31), 3081 and 574 houses have been constructed respectively under the Department.

Kerala State Development Corporation for Christian Converts from Scheduled Castes and the Recommended Communities Limited, Kottayam

Kerala State Development Corporation for Christian Converts from Scheduled Castes and the Recommended Communities Limited, Kottayam was formed with the main objective to promote the social, educational, cultural and economic upliftment of the Converted Christians from Scheduled Castes and the Recommended Communities in a comprehensive manner for ameliorating their living conditions. House construction Scheme, Landless houseless scheme, house revamping scheme are the housing schemes of the Corporation. 137 houses have been constructed in 2019-20 and 25 houses in 2020 (upto August 31) under the house construction scheme. Under this scheme ₹3, 00,000 is sanctioned as loan to construct a new house. The loan is repayable in 144 instalments with 6 per cent interest. 62 houses have been constructed in 2019-20 and 10 in 2020 (upto August 31) under the house revamping scheme. Under this scheme an amount of ₹1, 00,000 is given for revamping the existing house. The amount has to be repaid in 120 monthly instalments. The rate of interest is 6 per cent. The fund is disbursed in a single instalment. The beneficiaries should be in the age group of 18-55 and have income limit below ₹81,000 (in rural area) and ₹1, 03,000 (in urban area).

Kerala State Co-operative Housing Federation (HOUSEFED)

This agency provides financing facilities to the affiliated primary co-operative housing societies (PCHS) for the construction of houses and repair/extension. In 2019-20, an amount of

₹7558.6 lakh has been disbursed among EWS, LIG, MIG and others for constructing houses and sanctioned 1622 housing loans. The details of home loans sanctioned and the amount disbursed by Kerala State Co-operative Housing Federation, Kerala State Co-operative Agricultural and Rural Development Bank Ltd (KSCARDB) and other banks are given in **Appendix 11.5.1**.

Financial Institutions

The major sources of housing finance in Kerala is own money, loans from banks or other financial institutions and Government grants. A large number of financial institutions have been providing assistance for house construction along with the Government agencies in the State. The financial institutions in this respect are Nationalised Banks, Kerala Gramin Bank, Private Sector Commercial Banks, Kerala State Co-operative Bank, Kerala State Co-operative Agricultural and Rural Development Bank Ltd (KSCARD), Small Finance Banks Like ESAF, Ujjivan, HOUSEFED, HUDCO, HDFC, LIC Housing Finance Ltd, GIC Housing Finance, Canfin Homes. The interest rates of housing loans are also changing according to the announcements by the GoI and the Reserve Bank of India. The interest rates on housing loans of various financial institutions as on August 31, 2020 are given in **Appendix 11.5.2**.

11.6 REBUILD KERALA INITIATIVE

The State of Kerala experienced devastating floods in the month of August, 2018. The quantum of rainfall in the single month of August was of an unprecedented scale, which has been recorded only once before in the State during the floods of 1924. The succeeding year of 2019 also experienced floods of a higher magnitude but lesser spread, in comparison with the floods of August, 2018. The State also experienced two consecutive landslides in 2018 and 2019. Nearly 341 landslides were reported from 10 Districts. The two successive floods and landslides caused widespread damage to the physical infrastructure of the State and also led to large scale loss of livelihood opportunities. Both public and private infrastructure suffered irreversible damage.

This unprecedented calamity necessitated the state to rethink about the developmental model and disaster readiness. Without viewing it as an isolated case of natural calamity, the Government of Kerala (GoK) decided to seize the opportunity to transform the State's infrastructure, rather than a temporary fix through the conventional method of recovery and reconstruction. From this thought process, the Government established the Rebuild Kerala Initiative (RKI) to bring about a perceptible change in the lives and livelihoods of its citizens by adopting higher standards of infrastructure for recovery and reconstruction, and to build ecological and technical safeguards so that the restructured assets could better withstand floods in the future.

The RKI is the dedicated State-level institution mandated with the responsibility of formulating and coordinating the implementation of a resilient Kerala. By establishing the RKI, the GoK has put in place a streamlined and transparent process of decision making for the comprehensive and sustainable rebuilding from the 2018 floods. With support from UN and World Bank Agencies, RKI has developed a holistic plan to rebuild Kerala through the Rebuild Kerala Development Programme (RKDP). The RKI mandate is to develop, coordinate, facilitate and monitor the RKDP through a participatory and inclusive process, with extensive consultation with all stakeholders.

Action Plan for a resilient, risk-informed development and recovery

Within the vision set out for Nava Keralam, the RKI and the RKDP are guided by the goal of zero mortality due to disasters with minimum economic losses and disruption of services. Therefore, the principles of risk-informed programming have been embedded across all RKDP sector recovery plans with additional investments for disaster preparedness and response. Additionally, many proposed schemes of the State Planning Board's Annual Plan 2017-2018 are supported or further developed in the RKDP, such as instituting special agriculture zones, flood management of the wetland and coastal zone ecosystems, supporting village and small enterprise sectors, strengthening the bus system, road improvements through scientific

development, capacity building and service delivery improvements in urban development.

Key sectors covered by RKI are Integrated Water Resource Management, Water Supply, Sanitation, Urban, Roads and Bridges, Transportation, Forestry, Agriculture, Animal Husbandry and Dairy Development, Fisheries, Livelihoods and Land. Apart from these key sectors, there are four cross-cutting sectors namely, disaster risk management and resilience, environment and climate change, strengthening institutional efficiency and resilience and open data.

Policy Framework for a Nava Keralam (New Kerala)

As the Government embarks on the recovery with the participation of other stakeholders, a broad policy framework is required which provides a coherent narrative and binds all the sectors to a common vision of Nava Keralam. To achieve that vision, the policy framework for recovery has been built on the following four broad pillars of work:

- Pillar 1: Integrated Water Resources Management (IWRM) - Creating 'Room for the River' and 'Living with Water'
- Pillar 2: Eco-sensitive and Risk-informed Land Use and Settlements Approach
- Pillar 3: Inclusive and People-centered Approach - 'Leaving No One Behind'
- Pillar 4: Promoting Knowledge, Innovation, and Technology

Financing of RKDP

The RKDP estimated an overall Budget requirement to the tune of ₹36,500 crore for the development period from 2019 to 2027. To meet these requirements, it is necessary to have a strategic fund-raising plan. Accordingly, a 'Development Partner's Conclave' was organised on July 15, 2019 at Thiruvananthapuram to present the Government's priorities under the RKDP to potential development partners to seek their financial support. Potential development

partners including World Bank, ADB, JICA, KfW, AFD, NABARD, HUDCO, UNICEF, Bill and Melinda Gates Foundation, Tata Trusts, NDB and AIIB participated in the event, besides key officials of the State Government.

The World Bank declared Kerala State as its Development Partner in the conclave and provided a Development Policy Loan (DPL) of US \$250 million (₹1,779.58 crore) as its first tranche for the project. The German State-owned Development Bank, KfW also entered into an agreement with the State, as per which, a total assistance of €170 million (or USD 187 M) will be provided by the Bank for the resilient reconstruction of road infrastructure in Kerala under Kerala State Transport Project (KSTP), PWD.

The State has earmarked ₹1,000.00 crore for RKI for each of the financial years, 2019-20 and 2020-21 to facilitate the smooth and timely implementation of the projects under RKI. Funds are being released based on the requirement specified by various Departments and/or their implementing agencies.

World Bank's Development Policy Loan (DPL)

The World Bank offered financial assistance initially through Development Policy Loan (DPL) for Kerala's resilient recovery from the devastating floods. The Bank support was planned and implemented through two Development Policy Operations (DPO).

Development Policy Loan (DPL)-1

The first Resilient Kerala Programme DPO financed by the World Bank was closely aligned with the vision, priorities and programmes of the RKDP and driven through the RKI institutional framework. As a part of the loan the State was required to complete certain Prior Actions (PAs) for availing the first tranche of Loan, i.e., DPL-1. The PAs for availing first tranche of loan under DPO-1 were completed by various departments

and accordingly, the WB Board approved DPL-1 in June, 2019. The first tranche of DPL, US\$250 Million was released in August, 2019.

Development Policy Loan (DPL)-2 and its status

The proposed US\$250 million Resilient Kerala under DPO-2 was aimed at deepening policy work that will drive impacts in strategic sectors initiated under DPO-1. Majority of the Prior Actions under DPO-2 were achieved and Preliminary Project Report (PPR) for DPO-2 was submitted to Department of Economic Affairs for approval. But due to Single Borrower Limit (SBL) constraints during COVID-19, the DPO-2 was dropped in March, 2020.

Engagement with KfW on DPL-2

In the first phase of discussions of DPL-2, a joint World Bank-KfW team visited the State in November, 2019. The mission had detailed discussions with the Government of Kerala (GoK) on (i) reflections of DPO-1 and State Partnership; (ii) review of DPO-2 prior actions including emerging priorities, roadmap, and timeline; and (iii) priority areas for technical assistance.

KfW initially intended to co-finance or parallel finance to DPO-2 of World Bank using the same Policy Matrix as disbursement trigger. Based on the focal cooperation areas agreed upon between the Governments of India and Germany, KfW focuses particularly on climate-resilient urban development, water supply and sanitation, and Disaster Risk Financing Insurance (DRFI). The Ministry of Economic Cooperation (BMZ) gave an in-principle go ahead for the same and other approval processes were undertaken.

The proposed assistance is in the following pattern.

1. €100 million loan: Kerala Climate Resilience Programme under RKDP
2. €2 million: Kerala Climate Resilience Programme under RKDP - Accompanying Measures-Grants.

However, in the event that the DPO-2 got cancelled, the KfW has agreed to co-finance the RKDP with the DPO-1 which is already operational. The revised PPRs for the loan and grant portions were approved in principle during the 109th Screening Committee Meeting (SCM) of the DEA on August 18, 2020, subject to the incorporation of comments shared by the Ministry of Health, Government of India. The DEA is expected to pose the PPR for KfW assistance in next SCM.

Transitioning to Program for Results (PFR) financing in DPL-2

In the scenario of DPL-2 being not approved, WB proposed to go back on the earlier DPL which was Policy linked and, in its place, they have suggested an innovative financial instrument P for R, introduced as part of the State Partnership Framework, disbursement of which is Result/ outcome linked and comes in instalments.

The key features of PFR are as follows:

- i. Unlike DPL1, DPL2 will adopt a PFR lending modality wherein the RKDP should demonstrate results before disbursement of loan
- ii. Disbursement Linked Indicators (DLIs) will be established, and the performance against these DLIs should be demonstrated to facilitate loan disbursement

Key Themes for the DPL-2 in PFR Format are as listed below:

- i. Effective COVID-19 response, relief and recovery
- ii. Strengthening State-wide disaster and climate resilience including preparedness for pandemics
- iii. Embedding disaster and pandemic preparedness in key economic sectors.

The PPR for PFR has been prepared and submitted to the DEA for approval. During the 110th meeting of the Screening Committee of DEA, held on September 15, 2020, the Committee

observed that the World Bank has proposed that the project could be financed jointly by the WB and AIIB on a 50:50 basis. The Committee approved to pose the project for funding of \$125 million by the AIIB. As part of a World Bank Mission during September to October 2020, discussions on PFR were conducted with the participation of the Departments to identify projects amenable for PFR and decide on the Result Areas and DLIs.

Disbursement Linked Indicators (DLIs)

PFR can support a range of DLIs depending on the Programme. DLIs can include service delivery indicators, outputs and/or outcomes, institutional indicators including technical, fiduciary and environmental and social issues. Each DLI has a specified verification protocol before disbursement, Independent Verification Agent (IVA). Achievement of DLIs triggers Bank disbursements to the Programme. In exceptional circumstances, a portion of the financing is given as an advance for disbursement-linked indicators that have not yet been achieved.

Institutional mechanism for RKDP

The Rebuild Kerala Initiative (RKI) is a multi-sector, collaborative programme involving several Government departments and agencies over a period of two to three years. Hence, appropriate institutional framework and decision-making structure are crucial for the success of RKI. Given the multi-disciplinary and often complex nature of the packages that must be bundled into RKI, it is essential that the stakeholders' perspectives are brought into these institutional arrangements at all levels. The scale of the disaster, planning required, implementation complexities, financial management and service delivery calls for a dedicated institutional framework. The outline of the proposed institutional framework decision-making structure is shown below.

1. Council of Ministers
2. Advisory Council
3. High Level Empowered Committee
4. RKI Implementation Committee (RKI-IC)

5. RKI Secretariat
6. Institutional Support – Departmental Project monitoring Committees to be constituted.

Operational guidelines have been framed to ensure the eligible projects are selected for funding and smooth implementation of the projects funded under RKI.

Implementation of RKDP

As on October 10, 2020, Administrative Sanction (AS) has been issued for ₹7023.31 crore for projects under 11 Departments. Details are given in **Table 11.6.1**.

The Department-wise project features are detailed below.

1. Public Works Department (PWD)

The details of the road projects (including bridges) that are undertaken by RKI are the following:

A total of 31 flood damaged State Highways and Major District Roads has been identified by the Public Works Department for its Rehabilitation/Upgradation incorporating the core principles of RKDP. The reconstruction and rehabilitation of 29 roads will be taken up by the Kerala State Transport Project (KSTP), and among the rest 2 projects, 1 road project will be undertaken by PWD-Roads section and 1 bridge by PWD-Bridges. KSTP will take up the rehabilitation of 733.816 Km of road in the State under four Packages with the funding agencies World Bank (WB) and KfW.

2. Local Self Government Department (LSGD)

A. LSGD -Roads

The rehabilitation/reconstruction of the flood damaged LSG Roads are being implemented by the 2 wings of LSGD: LSGD – Project Management Unit (PMU) and LSGD – Roads. An amount of ₹440.34 crore worth projects has been accorded in-principle

Table 11.6.1 Details of Administrative Sanction issued till October 10, 2020, in ₹ crore

No.	Sectors	Department	Implementing Unit	AS Amount (₹ crore)
1	Roads and Bridges	PWD	PWD Roads	5137.99
2. A.	Roads and Bridges	LSGD	Rural Roads	440.34
2. B.	Livelihoods	LSGD	Kudumbashree	250.00
2.C.	Sanitation	LSGD	Suchitwa Mission	12.7
3.A	IWRM	WRD	Irrigation	139.68
3.B	Water Supply	WRD	KWA	182.6
3.C	Sanitation	WRD	KWA	8.00
4	Forestry	Forest and Wildlife	Forest and Wildlife	130.41
5	Agriculture	Agriculture Development and Farmer Welfare	Agriculture	493.08
6	AHD	Animal Husbandry	Animal Husbandry	163.12
7	Fisheries	Fisheries	Fisheries	6.24
8	Cross-cutting – DRM/ Open Data	Electronics and IT	Electronics and Information Technology	4.24
9	Cross-cutting-Environment and CC	Environment	Kerala State Biodiversity Board	5.00
10	Cross-cutting - DRM	Power	KSEB	42.6
11	Cross-cutting-DRM	Revenue and Disaster Management	KSDMA, KILA and CDIT (Nammal Namukkayi)	7.3
Total (₹ crore)				7023.31

approval. The rural road network has been planned, developed and managed following four globally accepted mobility attributes i.e., Equitable, Efficient, Safe and Climate responsive with the help of supportive policy, regulations, institutional and governance structures and reforms within an overall aim to achieve economic efficiency with lower ecological footprint for a Greener Kerala under RKI.

B. LSGD-Kudumbashree

The State Kudumbashree Mission is a partner in the Rebuild Kerala Initiative. ₹250.00 crore worth projects have been issued Administrative Sanction. Under the RKI programme, Kudumbashree is mandated to provide disaster relief to 2,00,000 beneficiaries and to create livelihood opportunities to 1,60,000 beneficiaries. The

Kudumbashree has devised two programmes to aid their members, who were affected by floods, namely, providing Disaster Relief Fund for immediate relief for an outlay of ₹45.00 crore and Livelihood Programmes to provide a helping hand to those who lost their livelihood for an outlay of ₹205.00 crore. AS was accorded for ₹250.00 crore.

Under Disaster Relief Fund (DRF), there are two projects, namely Vulnerability Reduction Fund (VRF) and Crisis Management Fund (CMF). In VRF, Kudumbashree has aimed to provide immediate relief in the form of financial assistance to the 25,000 flood-affected Neighborhood Groups (NHGs) at the rate of ₹10,000.00 per Group. So far, Kudumbashree has covered 28,105 NHGs and ₹26.00 crore was spent under VRF. The project is now completed.

Under livelihood programmes, Kudumbashree is implementing seven projects, namely, Yuvakeralam – skill training for wage employment, Skilling to Connect to work, ARISE – Skill training for self-Employment, Kerala Chicken Project, Egg Value Chain Project, Start-up Village Enterprise Project, and Community Enterprise Fund for Community Development Society.

C. LSGD – Sanitation

The sanitation projects of the LSGD are being implemented by the Clean Kerala Company Ltd. (CKCL). The Projects worth ₹12.7 crore has been accorded in-principle approval.

The key features of the projects for which AS has been issued is briefly described below:

1. Land development and construction of compound wall around Clean Kerala Company Ltd.'s plant in KINFRA park at Kuttipuram
2. Setting up of Material Collection Facility (MCF) in all Government Offices: This project involves the construction of MCF in 25 locations of Government offices for collection and temporary storages before sending to processing unit.
3. Setting up of District Level Sorting and Segregation Facility at Muttathara in Thiruvananthapuram.
4. Integrated Plastic Waste Management Facility: This project involves the construction of Plastic Waste Management-Material Recovery Facility of 5 MTPD capacity in Kuttipuram, Malappuram District in Kerala for the LSGIs of Palakkad, Malappuram and Kozhikode Districts.

3. Water Resources Department (WRD) (Sectors: Water Supply, IWRM, Sanitation)

The details of the various projects under this department are provided below:

A. WRD – Irrigation Department (Sector: IWRM)

Projects worth ₹139.68 crore were accorded AS. The key features of the projects under irrigation are briefly described below:

Post Flood Repair and Maintenance of Dams/Regulators/ Canals/ Irrigation Structures: This involves the repair and maintenance of 95 irrigation structures including Regulators, Lift Irrigation structures, VCBs, Check Dams, Canal networks, ponds/tanks, canal networks, and water discharge channels.

Micro Irrigation projects: This involves the implementation of five community micro irrigation systems in the command areas of three Lift Irrigation Schemes and two other places in Chittur taluk. This project is implemented by Kerala Irrigation Infrastructure Development Corporation Ltd. (KIIDC) and the targeted number of beneficiaries is 283 numbers.

Kerala Water Resources Information System (K-WRIS) is a comprehensive, dynamic and well-structured Information and Management System to facilitate and ensure judicious, equitable and sustainable management, allocation and utilisation of water resources. Once implemented, integrated management and operations of dams, river basin management and planning based on informed decisions can be carried out based on Real Time data.

DPR for the Room for River Project: The basic premise of the Room for the River project is to provide more space for the water body so that it can manage extraordinary high-water levels during floods. The pilot project planned is envisioned to address flood protection, master landscaping and the improvement of environmental conditions in the areas surrounding Kuttanad by ensuring perennial flow of major Rivers in the Kuttanad area to Arabian Sea, through Thottappally Spillway (Pozhy).

B. WRD- Kerala Water Authority Projects (Sector: Water Supply)

Completion of nearly completed KWA schemes:
This project, costing ₹182.60 crore involves the completion of 7 schemes in severely flooded districts in Kerala targeting 30,700 new connections benefiting about 1.25 lakh flood affected people.

C. WRD- Kerala Water Authority Projects (Sector: Sanitation)

As the Sewage Treatment Plant (STP) in Thiruvananthapuram is already operational and underutilised, it was decided to prepare the Detailed Engineering Report for laying the sewerage network across Thiruvananthapuram, utilising funds of RKI. AS was issued for an amount of ₹8.00 crore for the preparation of DPR for Sewage and Septage management in Thiruvananthapuram.

4. Department of Forest and Wildlife (Sector: Forestry)

The Forest Department is implementing the 4 projects, namely, relocation of private settlements from forests, acquisition of private estates from within forest areas, consolidation of mangroves, feasibility study and scoping studies. The Administrative Sanction was sanctioned for an amount of ₹130.41 crore.

5. Department of Agriculture and Farmer's Welfare (Sectors: Agriculture/Livelihoods)

Projects worth ₹493.08 crore have been issued Administrative Sanction and the various projects proposed under the department mainly focuses on livelihood enhancement. In addition to this, other major objectives include, ensuring food self-sufficiency, safety and security for the state and sustainability of the project to support the existing farmers and for creating livelihood opportunities to return migrants. The projects include

- Integrated Farm Management for Holistic

Development of District Agricultural Farm (DAF), in Neriya Mangalam;

- Infrastructural Development works for extensive paddy cultivation in Chengannur Constituency;
- Support to Zone-wise Service Delivery by Strengthening Agro Service Centres and Karshika Karma Sena Units;
- Rejuvenation of fertility by eco restoration of flood affected areas through soil and water conservation measures,
- Enhancing Livelihood through Integrated Farming with special focus to Idukki and Wayanad districts,
- Sustainable Development of Kuttanad
- Rice Ecosystem, Development of Kaippad Organic Tidal wetlands of Northern Kerala through Mechanised farming,
- Rice Germplasm Conservation and Biodiversity based farming; Study on agricultural insurance penetration in Kerala;
- Human Resource diagnostics in Agriculture Development; Comprehensive study of the current Technical Gaps and specific infrastructural requirements for promoting exports from the State;
- Enhancement of the Livelihood Security of Tribal Minority Groups at Athirappilly through Sustainable Farming, Value addition and Market linkage; Strengthening Market Network in Kerala;
- Infrastructure development works of Pampoorichal Padasekharam in Ramamangalam Panchayath, Ernakulam; Setting up of Centre of Excellence (CoE) in vegetables and flowers at Ambalavayal, Wayanad;
- Comprehensive and Sustainable Agricultural Development Programme for Attappady Tribes; and Strengthening of e- Governance in Agriculture Department.

6. Department of Animal Husbandry (Sector: Animal Husbandry and Dairy Development)

Under the RKI programme, AHD has devised four projects for addressing the livestock as

well as livelihood issues to the people who were affected by floods. The Department had selected 4 projects for an amount of ₹163.12 crore for implementation under Rebuild Kerala Initiative (RKI).

i. Kerala Chicken- Project

It is a multi-stakeholder project being implemented by Animal Husbandry Department (AHD) along with Kudumbashree Mission, Kerala State Poultry Development Corporation (KSPDC), Meat Products of India Ltd. (MPI), Kerala Veterinary and Animal Sciences University (KVASU), LSGD and Brahmagiri Development Society (BDS). The project envisages to produce broiler commercial chicks at reasonable price, to give assistance to budding broiler farmers, to create a fair and stable market price through distress relief fund and finally to achieve 100 per cent market share of broiler chicken in the State in a phased manner.

ii. Livelihood Support Package

The Animal Husbandry Department will implement the schemes under the livelihood support package in consultation with Local Self Government Institutions. The project envisages to create viable livelihood opportunities in the 11 sectors and the project components include Cattle rearing, Heifer rearing, Assistance for establishing hygienic cattle shed, Cattle feed subsidy programme, Mechanisation support programme for commercial dairy farms, Fodder plot development, Goat rearing, Backyard poultry rearing, Pig rearing, Duck rearing and Scientific calf rearing programme.

iii. Geographic Information System (GIS) and Radio Frequency Identification Device (RFID) technology adoption

The scheme was envisaged for tagging the animals with microchip for identification. The objective of the project are identification

and geo-mapping of farmers engaged in Animal Husbandry activities and generate a resourceful data base of animals and farmers.

iv. Mobile tele-veterinary unit on regional basis

Two Tele-Veterinary Units are being established, one at Ernakulam District and another one at Kannur District.

7. Department of Fisheries (Sector: Fisheries/Livelihoods)

In a state like Kerala, with the immense resource of inland water bodies, resorting to cage culture, instead of exploring land-based options, would be the natural choice to augment the fish production. Accordingly, the RKI has accorded Administrative Sanction for 5 projects for a total outlay of ₹6.24 crore.

8. Department of Electronics and IT (Sector/Cross-cutting Themes: Open Data and DRM)

i. **Mapathon: Kerala State IT Mission**

Under Rebuild Kerala Initiative, Information Technology Department implementing a Mapathon project which is envisaged for participative development of the detailed and localised Map of Kerala. The Mapathon, with its target of mapping Kerala down to the local assets and resources on to the Open Street Map platform that enables easy public access, thus could form the baseline activity under Kerala Spatial Data Infrastructure (KSDI). The maps created and made available through Mapathon could subsequently be enriched with datasets from various sources and made an enabling tool for planning and implementing projects and programmes efficiently for improving the disaster resilience of the State. Administrative Sanction for the project was accorded for an amount of ₹4.24 crore.

9. Department of Environment (Sector/Cross-cutting Theme: Environmental Resilience and Climate Change)

The Kerala State Biodiversity Board (KSBB) has proposed to implement 3 projects, namely Developing a database of Tradable/Commercially potential bioresources and their economic valuation, Riverine Biodiversity Rejuvenation, Conservation of Agro Biodiversity with an outlay of ₹5.00 crore.

10. Department of Power -KSEB (Sector/Cross-cutting Theme: Disaster Resilience Management- DRM)

The KSEB Limited devised a project on Kuttanad Flood Resilience Package under RKI, to strengthen the transmission system of Kuttanad Region. A total amount of ₹ 42.60 crore was sanctioned for the project. The project will bring about improvement in voltage profile in distribution side in and around Kuttanad area.

11. Department of Revenue and Disaster Management (Sector/ Cross-cutting Theme: DRM)

Nammal Namukkayi Campaign - KSDMA, KILA and C-DIT

The Nammal Namukkayi programme was conceptualised to gather inputs and insights from people - across geographies, sectors and professions - on key themes which influence the approach to be adopted by the Government towards enhancement of the State's resilience to natural calamities and climate change. The programme was intended to entail physical as well as virtual consultations with the people, including large campaigns for the preparation of local-level Disaster Management Plans. The consultations and deliberations were planned on 5 themes - (i) Land Utilisation - comprising sub-themes of Land Management, Agriculture, Settlements,

Mining, Susceptible Zones, (ii) Water Management, (iii) Local Community and Resilience, (iv) Forest Management, and (v) Transport, Communications and Technology. Administrative sanction was issued for a cost of ₹7.30 crore for running the Nammal Namukkayi campaign.

The Nammal Namukkayi web portal was established as a platform to gather insights, ideas and suggestions on rebuilding Kerala with resilience and resistance to future shocks.

- Consultations with the business community were facilitated during the business conclave ASCEND held at Kochi in January, 2020
- Inputs were gathered from students during the Student Leaders Conclave held at Kozhikode in January, 2020
- A two-day workshop was conducted in January, 2020 to gather theme-specific insights from technical experts and/or officials from technical agencies.
- Training of facilitators from Kerala Institute of Local Administration (KILA) was conducted to facilitate consultations at Gram Sabhas. Disaster Management Plans have been prepared by the Gram Sabhas.

Establishment of Management Information System (MIS)

For management of project implementation and to ensure a transparent workflow for monitoring the projects, Management Information System (MIS) was established. The RKI engaged IIITM-K for design, development and implementation of online project monitoring and MIS dashboard in similar lines of the CM Project Monitoring System, with suitable customisation. The high-level functionalities of the proposed online project monitoring and MIS dashboard shall include; Proposal Management, Project Definition and Project Creation, Project Allocation, Project Employee/ Team Management, Project Tracking, Field Level Physical Progress Mapping (Through

Mobile App), Project Alerts and Notifications, Issues Reporting and Complaints Management, Organisational Calendar, MIS Dashboard for Projects and Monitoring of the RKI policy interventions.

11.7 KERALA INFRASTRUCTURE INVESTMENT FUND BOARD (KIIFB)

Kerala Infrastructure Investment Fund Board (KIIFB), the principal funding arm established by Government of Kerala, came into existence on November 11, 1999 under the Kerala Infrastructure Investment Fund Act 1999 (Act 4 of 2000). The main objective of KIIFB is to provide fund for critical and large infrastructure projects in the State of Kerala. Comprehensive modifications to the Act have been made through an amendment Ordinance in August, 2016. With the expanded scope and structure, KIIFB dynamically mobilises funds for the infrastructure development of Kerala. This also includes major land acquisition needs for infrastructure development. KIIFB resorts to the advanced financial instruments approved by Securities and Exchange Board of India (SEBI) and Reserve Bank of India (RBI) and ensures sustainable infrastructure development in Kerala.

Financial Activities in 2019-20

In 2019-20, 147 projects amounting to ₹11,741.65 crore has been approved by KIIFB.

The total outlay of projects approved by KIIFB as of March 31, 2020 is given in **Table 11.7.1**.

Infrastructure

Sector-wise number of Infrastructure projects approved and their cumulative approved cost is given in **Table 11.7.2**.

Industrial Infrastructure

Beside the Infrastructure Projects, KIIFB has also approved the following Projects related to Industrial Infrastructure. The Projects are conceived as revenue generating and the revenue generated will be utilised to repay the funding provided by KIIFB. The details are given in **Table 11.7.3**.

The projects (Table 11.7.3) approved by KIIFB are now under various stages of development such as land acquisition, being tendered and under construction. Most of the projects under this category are completed and has started functioning.

Table 11.7.1 KIIFB Approved Projects

Approved Projects	No.	Amount (in ₹ crore)
Infrastructure Projects	675	35,028.59
Industrial Infra / NHAI Land Acquisition	4	19,362.63
Total	679	54,391.22

Source: KIIFB

Table 11.7.2 Status of KIIFB Approved projects – Department-wise

Department	KIIFB Approved Projects		KIIFB Tendered Projects		KIIFB Started/Awarded Projects	
	No. of Projects Approved	Approved Amount (in ₹ crore)	No. of Projects Tendered	Tendered Amount (in ₹ crore)	No. of Projects Started/Awarded	Work Contract Amount (in ₹ crore)
PWD	327	14,699.78	129	4,579.35	116	3,702.82
Agriculture	1	21.43				
Ayush	1	69.05				
Coastal Shipping and Inland Navigation	1	566.51				
Culture	13	317.33	8	181.14	1	9.15
Devaswom	1	141.75	1	27.00	1	27.00
Fisheries and Ports	17	373.65	3	159.31	2	39.94
Forest	4	451.68	4	277.07	4	140.72
General Education	76	2,037.91	76	1,881.77	52	1,460.84
Health and Family Welfare	26	2,265.56	18	1,016.83	13	653.38
Higher Education	35	728.94	10	211.02	7	152.83
Home	1	50.14				
Information Technology	3	1,412.86	3	1,718.12	3	1,704.99
Labour and Skills	5	82.50				
Local Self Government	7	96.06				
Power	15	5,200.00	13	1,639.53	9	1,453.79
Registration	6	89.88	5	49.18	5	43.63
Revenue	2	32.62	2	27.17	1	8.38
SC/ST Development	10	183.14	6	108.43	4	72.54
Sports and Youth Affairs	36	748.11	24	375.79	21	279.67
Tourism	5	149.99	2	7.91	2	5.00
Transport	3	556.49	2	44.96	2	46.69
Water Resources	80	4,753.21	41	1,311.50	26	780.41
Total	675	35,028.59	347	13,616.09	269	10,581.78

Source: KIIFB

Table 11.7.3 Projects under Industrial Infra/NHAI Land Acquisition category

Land Acquisition category	No	Amount (₹ in crore)
PWD-NHAI	1	5,374.00
Industrial Parks	3	13,988.63
Total	4	19,362.63

Source: KIIFB

Project Implementation, monitoring and Disbursement to Projects

KIIFB has introduced an online platform for dealing with all the stages of infrastructure project implementation, called Project and Finance Management System (PFMS) through which the Special Purpose Vehicles (SPVs) being assigned as the implementation agency of the projects can reach out to KIIFB at all stages of the work. The SPVs can upload all the project related documents through PFMS platform itself and all the necessary approvals for the same are being accorded online.

The SPVs can upload the bills submitted by the contractors through PFMS platform itself in which a definite workflow has been established to process the bill files. The amounts payable to the contractors are being released directly to their bank accounts. In order to ensure smooth

cash flow, the KIIFB has accorded approval for releasing 75 per cent of the net amount of the contractor immediately once the SPV is requested the same. KIIFB has also introduced an online platform "Project Monitoring and Alert System (PMAS)" through which the SPVs are required to upload the physical progress of each project by updating various tasks. This platform enables KIIFB, SPVs and Departments to track the progress of each project and timely intervention in the execution level can be made, if required. The updation of PMAS is made mandatory for processing the project bills also. Using the Bill tracking facility of KIIFB contractors can track the bill processing of their bill on real time basis.

The Administrative Inspection Wing and Technical Inspection Wing carry out periodic inspection using advanced quality testing equipment and interfere in project implementation if necessary.

Table 11.7.4 Department-wise details of disbursement to projects

Department	Disbursement in 2019-20	Overall Disbursement (till March 31, 2020)
(in ₹ crore)		
Agriculture	1.13	1.13
Cultural Affairs	0.50	0.50
Forest	23.99	35.32
Fisheries	0.71	0.71
General Education	528.01	887.42
Higher Education	7.72	7.72
Health and Family Welfare	109.67	189.71
Industries	980.47	1281.64
Information Technology	82.29	113.24
Power	262.46	303.53
Public Works	1160.24	1514.11
Registration	10.89	10.89
Scheduled Caste	25.49	26.23
Sports and Youth Affairs	48.67	53.33
Transport	2.02	2.02
Tourism	0.99	0.99
Water Resources	257.27	585.70
TOTAL	3,502.50	5,014.17

Source: KIIFB

In 2019-20, KIIFB has disbursed amount worth ₹3,502.50 crore to various projects. The department-wise detail of disbursement to projects is given in **Table 11.7.4**.

Fund Raising Activities

The major sources of revenue to KIIFB are the funds KIIFB intends to mobilise for its infrastructure projects through various sources. This includes term loans, domestic bond issues, and offshore bond issues, Bonds issued to KSFE in connection with Pravasi chitty scheme and Loan from NORKA Welfare Board (NORKWB) in connection with their Dividend scheme for Pravasi community.

As on March 31, 2020, KIIFB has mobilised an amount of ₹3,015.0 crore through term loans from various public sector banks. In addition to this, an amount of ₹115.08 crore was mobilised through exclusive bonds issued to KSFE Ltd. till that date. The NORKWB Dividend scheme introduced in December, 2019 showed overwhelming response from the NRI Diaspora and an amount of ₹56.58 crore was mobilised through that channel in just four months. The fund mobilisation through various schemes for NRI community showed consistent growth despite the pandemic situation experienced across the globe.

In 2019-20, two International credit rating agencies, S and P Ratings and Fitch Ratings credit rated Kerala Infrastructure Investment Fund Board and its guarantor the State of Kerala. In the year 2019, both the agencies have reaffirmed KIIFB's rating as 'BB' long-term and 'B' short-term with Stable Outlook. The stable outlook was considered on the Agencies' expectation that KIIFB's strategic role as a policy instrument of the Government of Kerala to promote infrastructure financing will prevail in the medium term. The stable outlook on KIIFB reflected the outlook on the Government of Kerala. The ratings and outlook on KIIFB move in tandem with the rating on the Government of Kerala.

The successful issue of the Masala Bond of KIIFB was commemorated through the Market Opening Ceremony on May 17, 2019 on Paternoster Square in London, where the London Stock Exchange (LSE) is located. As the Chief Minister and Chairperson of KIIFB placed the opening plaque into position on the pedestal, the UK financial markets were opened for business. To witness this historic occasion, Hon. Finance Minister and Vice Chairperson of KIIFB, Chief Executive Officer KIIFB were also present. KIIFB is the first ever State Government agency in India to access the offshore debt market by closing the issue of Masala Bonds of ₹2,150.0 crore at 9.72 per cent per annum. The amount raised by KIIFB is the second largest mobilisation ever done in the masala market by any public sector company from India and is the third largest masala issue done by any Indian entity in the history of masala bonds after this instrument was approved by RBI in 2016.

As per the provision in the KIIF Act all receivables due from the State Government are transferred to KIIFB on or before the last working day of December every year and that a percentage share of motor vehicles tax receipts ("Motor Vehicles Tax") and cess levied on petroleum products under the Kerala General Sales Tax Act, 1963 ("Cess") will be provided to KIIFB each year. In this manner, in 2019-20, KIIFB had received an amount of ₹2,200.0 crore from Government which includes MVT share of ₹ 1,650.0 crore and Petroleum Cess share of ₹ 550.0 crore.

Activities of KIIFB during the COVID-19 pandemic

Though the activities of KIIFB and its projects were affected due to the lockdown restriction imposed during the period of COVID-19 pandemic, it returned to normal very quickly. Most of the ongoing projects could resume work after 2 to 3 months when the lockdown restrictions were released. The online systems of KIIFB played a crucial role in minimising the impact of lockdown to KIIFB as most of the activities like project appraisal, review meetings

and bill processing were carried out through these dedicated online systems. During April to September 2020, 56 projects amounting to ₹3,052.15 crore has been approved by KIIFB. From April to October, 2020 KIIFB has released an amount of ₹1,334.57 crore towards projects. KIIFB had played a key role in capital investment segment of the State during the pandemic period.

11.8 KASARAGOD DEVELOPMENT PACKAGE

Kasaragod Development Package

Dr P Prabhakaran Commission was appointed by Government of Kerala to prepare an integrated developmental plan for Kasaragod District. The Commission identified various backward sectors and areas and put forth a package for the comprehensive development of the District. The Package envisages a total outlay of ₹11,123.07 crore covering various sectors of which ₹2,524.56 crore is proposed as share of Government of Kerala, ₹756.19 crore as share of Government of India, ₹543.00 crore as share of external agencies, ₹7264.16 crore as share of central PSUs and ₹35.16 crore as share from other sources.

The Projects mentioned in the Kasaragod Development Package were commenced in 2013-14. An amount of ₹62363 lakh was allocated in the state budget for the implementation of Kasaragod Development Package upto

2020-21. From 2013-14 to September 30, 2020, a total number of 420 projects with an outlay of ₹61793.03 lakh were sanctioned under the package of which 222 projects have been completed and 188 projects are in the various stages of completion.

The major projects undertaken in the agriculture and allied sectors are irrigation and water conservation for ensuring the availability of water in the summer season and for agricultural activities. *Thirumumb*, a centre for studies of farming culture has also opened. The total value of the projects for the sector is ₹7158.76 lakh. In the education sector, infrastructure development of schools and colleges were given prime importance with sectoral allocation of ₹4790.21 lakh. In health sector, projects like construction of Kasaragod Medical College and related infrastructure developments, upgradation PHCs and CHCs under Aardram standard, sewage

Table 11.8.1 Financial Progress of Kasaragod Development Package as on September 30, 2020, ₹ in lakh

Financial Year	Budgeted Outlay	AS Amount	Expenditure
2013-14	2500.00	2790.67	2309.55
2014-15	7500.00	9332.94	5167.40
2015-16	8500.00	9751.49	4676.00
2016-17	8798.00	14299.84	5123.96
2017-18	9000.00	7629.72	2053.07
2018-19	9500.00	7882.00	275.27
2019-20	9065.00	8958.70	2102.91
2020-21	7500.00	1147.45	3373.95
Total	62363.00	61793.03	25081.62

Table 11.8.2 The physical progress of Kasaragod Development Package as on September 30, 2020

Financial Year	Projects Sanctioned	Projects Completed	Ongoing Projects
2013-14	28	28	0
2014-15	25	20	5
2015-16	80	70	10
2016-17	81	62	19
2017-18	64	37	27
2018-19	82	4	78
2019-20	50	1	49
Total	410	222	188

treatment plant in hospitals, lab upgradation are being implemented with a total outlay of ₹9944.17 lakh.

The Government has recently constituted a District level committee of 16 members under the chairmanship of District Collector for granting Administrative Sanction (AS) for projects below ₹5 crore under Kasaragod Development Package. At the state level, the State Level Empowered Committee (SLEC) under the chairmanship of Chief Secretary and the State Planning Board reviews the implementation progress under Kasaragod Development Package regularly. The financial progress of Kasaragod Development Package is given in **Table 11.8.1**.

The physical progress of Kasaragod Development Package is given in **Table 11.8.2**.

CHAPTER

12

LOCAL GOVERNMENTS AND DECENTRALISED PLANNING

LOCAL GOVERNMENTS AND DECENTRALISED PLANNING

Decentralisation provides closer correspondence between the actual needs of people and the provision that is made by Governments to meet those needs. "Planning from below" and contextualised resource allocation for basic services would be more cost effective and produce better outcomes. Yet the quality of basic services provided to local communities is directly proportional to the degree of community control and supervision. Responsiveness and accountability to the community on the part of service providers can be improved by giving local governance institutions authority to monitor performance and impose sanctions. Given India's diverse and segmented social structure, rights of vulnerable sections can be best assured by giving voice to the least advantaged. People's sensitisation to their rights, including knowledge of procedures and the responsibilities incumbent on local governance authorities, requires information dissemination to the public at large. (Decentralisation in India, Challenges and Opportunities, UNDP Discussion Paper)

The decentralisation experience of Kerala, popularly known as People's Plan, is of unique significance in the history of India. It is the first State-led concerted effort for transferring powers, functions and institutions at one go to the third tier of governance – the Local Governments - accompanied by a simultaneous bottom up initiative for local-level planning and development through the People's Plan Campaign.

Devolution of resources on a formula based, non-discretionary and equitable manner to the Local Governments is the hallmark where they now get a portion of the State's Plan Outlay (about 25 per cent) as Development Funds for implementing projects formulated at local-level. Besides, the State transfers 3.5 per cent of its State Own Tax Revenue (SOTR) as General Purpose Fund for meeting the expenditure on traditional functions and establishment expenses and 6.0 per cent of SOTR as Maintenance Fund for the maintenance of assets of Local Governments including those transferred as part of decentralisation.

The Local Governments have absolute freedom in formulating and implementing projects based on their priorities subject to Plan guidelines issued by the State Government from time to time. It is now widely recognised that decentralisation, as practised in Kerala, has not only put it on a better development trajectory but also has had significant impact on quality, efficacy and inclusiveness of that development.

While the first phase of People's Plan was initiated in Kerala in the 9th Five-Year Plan, the launching of the second phase coincides with the 13th Five Year Plan. It emphasises deepening people's planning through Local Governments as an important strategy for achieving higher economic growth indicating the crucial role of the Local Governments. The second phase of People's

Plan focuses on empowering and enabling Local Governments in achieving the objectives outlined in the 13th Plan.

The first four years of the 13th Plan bear testimony to the fact that the scope and role of Local Governments have increased like never before and so has their efforts to achieve better and effective rendering of their functions and responsibilities. This is reflected in the timely preparation of Plans by the Local Governments, integration of Plan and Budget, timely implementation and better utilisation of funds, formulation of innovative projects, increasing allocation of funds to the productive sector, preparation of District Plans and planning with District as the focus, efficient disaster preparedness in the wake of natural disasters, and the key role played in Covid-19 management.

New initiatives and major policy changes introduced in the 13th Plan

Kerala has nearly two and a half decades of experience in the field of people's planning and there have been many studies in this regard. In the light of these studies and discussions, some changes were initiated in the 13th Plan aimed at revitalisation of the system of decentralised democratic governance. Important among them are summarised below.

a. Modification of Plan Guidelines and Timely preparation of Local Plans

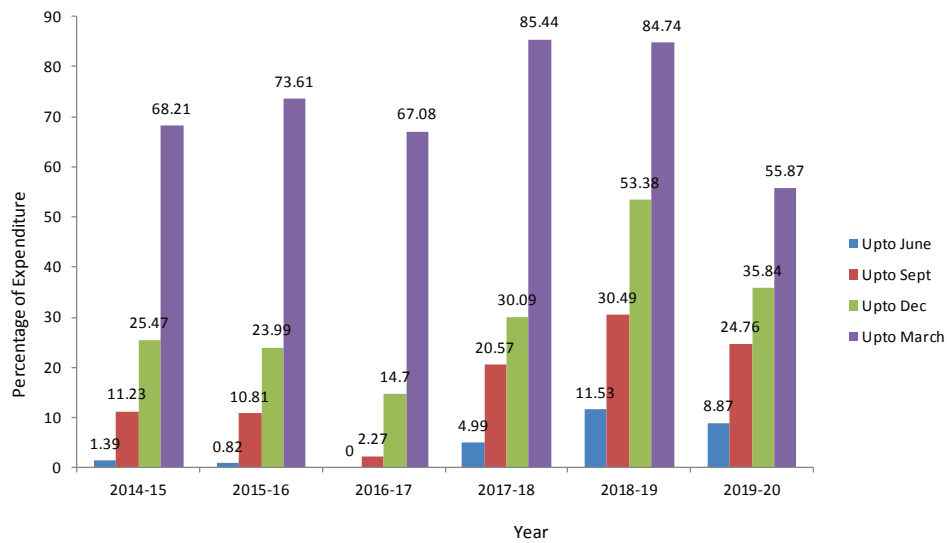
In the very first year of the 13th Plan some major changes were introduced in the guidelines for formulation and implementation of the Local Government Plans. An important objective of the new guidelines was to simplify the procedures so that delays can be avoided. On account of the cumbersome procedures that existed until then, the Plan formulation and its approval took more time than the time left for implementation forcing the Local Governments to rush through the process of implementation during the terminal months of the financial year. It was also responsible for the bunching of payments during the month of March.

The introduction of new guidelines, which ensure simplified procedures and rationalised the stages of planning, resulted in early submission of Plans. During the first year (2017-18) all Local Governments in the State could complete the process of formulation of their Annual Plans by June 15, 2017. This is an unprecedented achievement in the history of local-level planning in the State. Accordingly, the year also witnessed early beginning of the implementation process; there by getting around 10 months' time for Plan implementation.

Based on the experience of the first year of the 13th Five-Year Plan, the Plan guidelines as well as the subsidy guidelines were modified for the remaining four years. Modification of the guidelines became necessary to incorporate the experience gathered from the first year and to address issues raised by Local Governments. Modified guidelines were issued sufficiently early so as to enable the Local Governments to get the Annual Plan 2018-19 approved well before the beginning of the financial year. Accordingly, 1,147 Local Governments in the State could complete the process of formulation of Annual Plans for the year 2018-19 before April 1, 2018 leaving a full year for Plan implementation.

The process of formulation of the local Plans for 2019-20 began on October 2, 2018. The process was initiated early so as to finalise the Plan proposals well before the issuance of notification for the general election to the 17th Lok Sabha. Most of the Local Governments (1,181 Nos) submitted Plans before the notification was issued. Whereas in the year 2020-21, even in the midst of Covid-19 pandemic, 818 Local Governments were able to submit their Plans by March 31. Of the remaining LGs, all but four have submitted Plans by April 21st. The experience of the last four years reveals that the Local Governments have now realised the importance of timely preparation of Plans.

Figure 12.1.1 Quarter-end Plan Expenditure of Local Governments, 2014-15 to 2019-20



Source: Information Kerala Mission

Early start of the Plan implementation resulted in higher expenditure also. In the past, the money could be spent only in the last months of the financial year as Plans were approved only at the end of the year. Now from the first month onwards, Plan expenditure is recorded and the Plan activity has become a year-round process. (Figure 12.1.1)

Another important achievement of timely preparation of Plan is that the Annual Plan of the Local Governments could be integrated with the Budget presented and passed in March. Until the beginning of the Thirteenth Plan, the practice existed in Local Governments was to integrate the Annual Plan with the Budget in the middle of the financial year. By integrating it with the Budget in March itself, the relevance and sanctity of Budget has also increased.

b. More focus on urban issues

The 13th Five-Year Plan of the State places special emphasis on the issues arising due to rapid urbanisation in Kerala. It recognises the importance of developing appropriate strategies and programmes for coping up

with challenges and opportunities thrown up by the process of urban growth. Keeping this in view, the Government had issued, in 13th Plan, for the first time a separate set of guidelines for Plan formulation in urban Local Governments.

c. Preparation of District Plans

Another notable initiative introduced in 2017-18 is preparation of District Plans by District Planning Committees (DPCs). It is a constitutional mandate (Article 243 ZD) that the DPCs make District Plans aimed at designing an integrated approach for the development of the District. All the DPCs in Kerala could complete this task, following the detailed guidelines issued by the State Government and thereby ensure that the suggestions in the District Plans are incorporated in the Annual Plans of Local Governments. DPCs have been instructed to issue District specific guidelines every year based on the District Plans before the process of preparation of local Plans starts. Preparation of District Plans is a major achievement in the history of decentralised planning in Kerala.

After fulfilling the constitutional mandate, the DPCs in the State had undertaken the task of converting some of the ideas on large scale projects that emerged in the District Plans into implementable projects so that it can be jointly implemented by Local Governments and other agencies. Government had introduced a scheme, viz: Incentivising District Plans, for promoting such integrated projects in the District Plans.

d. Change brought in Approval system – First Plan approval and then project appraisal

In the past, the Annual Plan was submitted to the District Planning Committee for its approval, after the projects were scrutinised by the vetting officers concerned. The Annual Plan could only be submitted once the approval process for all projects had been completed. Since there was a pressure to submit the Annual Plan, often the vetting officers faced a situation where it was not possible to rectify the proposals addressing the shortcomings of the projects and the proposals were approved in haste. To avoid this, it was decided to submit the Annual Plan to the DPC first and then conduct appraisal of projects. This change helped to avoid delays in the approval of Annual Plans and hasty project vetting. Vetting officers now get enough time to scrutinise the projects in detail and rectify the deficiencies. This has resulted in improving the quality of projects significantly.

e. Provided more Vetting Officers and Implementing Officers

One factor that hindered the smooth implementation of projects, especially in construction projects, was the lack of facilities to scrutinise and approve projects in the respective Local Governments. Normally, appraisal (vetting) of a project is done by an officer who is senior to the Implementing Officer of the project. In the

past, only the senior most officer among the officers transferred in a sector, was allowed to be engaged as the Implementing officer of projects in that sector. Because of this barrier, Local Governments were forced to send projects to another office for vetting, which resulted in much delay. For instance, construction projects of District Panchayats and Corporations had to be scrutinised in the offices of the Superintendent Engineer or Chief Engineer. This barrier was removed by allowing more Implementing Officers and vetting officers.

f. Restructured the Appeal committee system

One criticism that arose in the Twelfth Plan was that the District-level appeal committee for projects rejected by vetting officers was bureaucratic in approach. The committee was reconstituted under the chairmanship of the Chairperson, District Planning Committee.

g. Productive sector outlay enhanced

From the beginning of the People's Plan, it was stipulated that a fixed percentage of Normal share under General sector fund should be set apart for productive sector. However, in the beginning of 12th Five-Year Plan this was done away with. The experience in the first four years of the 12th Plan was reviewed by the present Government when it assumed office in May 2016 and a decision was taken to restore the mandatory minimum allocation with 20 per cent under productive sector, for the Annual Plan 2016-17. This was again revised in the beginning of the 13th Plan and the mandatory minimum ceiling in the productive sector was enhanced to 30 per cent in the case of Grama Panchayats, Block Panchayats and District Panchayats whereas in the case of Urban Local Governments it was fixed at 10 per cent. This facilitated or encouraged the Local Governments in allocating and taking up more projects in the productive sector who were until then

Table 12.1.1 Share of Productive sector expenditure in the total expenditure under normal share of general sector funds of Local Governments (2015-16 to 2019-20), in ₹ crore

Year	Productive sector expenditure under normal share of General sector Funds	Total Expenditure in Normal share of general sector funds	Percentage share of productive sector expenditure in normal share under general sector expenditure (%)
2015-16	242.43	2,400.98	10.10
2016-17	373.42	2,040.85	18.30
2017-18	660.46	2,750.19	24.02
2018-19	674.26	3,330.11	20.25
2019-20	454.92	2,445.03	18.61

Source: Information Kerala Mission

concentrating on infrastructure sector. This signifies the emphasis given to enhance production as outlined in the Approach Paper to the 13th Plan. Details are given in **Table 12.1.1**.

h. More focus and higher outlay for Plans for Special Groups

Till the 12th Plan, it was stipulated that LGs should set aside 5 per cent of the Development Fund for the development of children, the elderly and persons with physical and intellectual disabilities. In order to give higher priority to the development of special needs groups it was decided, in the beginning of the 13th Plan, to increase the allocation to 10 per cent and to include the transgender community under special groups. Now, Local Governments have to earmark 5 per cent for the development of children, persons with disabilities and transgender, and another 5 per cent for the welfare of the elderly and the palliative care projects.

i. Broadening the Scope of subsidies

A notable change in the 13th Plan is that the subsidy norms have been comprehensively revised. Scope of subsidies that can be disbursed through Local Government Plans has been broadened by including more items. Further, subsidy rates have been increased and unified with the Department rates.

Local Governments are permitted to take up those schemes which are not in the subsidy guidelines but existing in the Departments, in accordance with the Department guidelines. Besides, income ceiling of beneficiaries has been enhanced substantially. In the agricultural sector, benefits can be given to marginal and small farmers. For paddy cultivation benefits can be given to farmers who have more than five acres of land also. For animal husbandry, dairy and fisheries sectors the income limit has been raised to ₹5 lakh. Whereas, the income limit for housing has been raised to ₹3 lakh. For other schemes income ceiling has been enhanced to ₹2 lakh for general category and ₹3 lakh for SC category. In the case of Scheduled Tribes income limit has been waived.

j. Special window for Innovative programmes

Another feature of 13th Plan was the introduction of 'Special Window of Innovative Programmes' for designing schemes that are innovative and relevant but cannot be taken up by the LGs as per the subsidy guidelines. One of the key objectives of decentralised planning is to analyse the specifics of local development problems and formulate appropriate solutions based on the resource potential of that area. However, many of the projects thus emerged may not be implemented in accordance with the existing

subsidy norms. A District-Level Expert Committee chaired by the District Collector was constituted to examine and approve such projects. This committee is to examine the innovative projects of the Local Governments at all-levels and decide on the approval.

k. More investment through tender savings

There were widespread complaints in the construction works being carried out by the Beneficiary Committees. In order to address this issue and to ensure transparency in the system, in the beginning of 13th Plan, competitive tendering was introduced in the execution of public works in the place of Beneficiary Committees. The financial ceiling of projects that can be implemented through the Beneficiary Committee has been reduced from ₹5 lakh to ₹50,000. However, this does not apply to Approved Agencies such as the Parent Teachers' Associations. Permission was granted to entrust works upto ₹25 lakh to such committees.

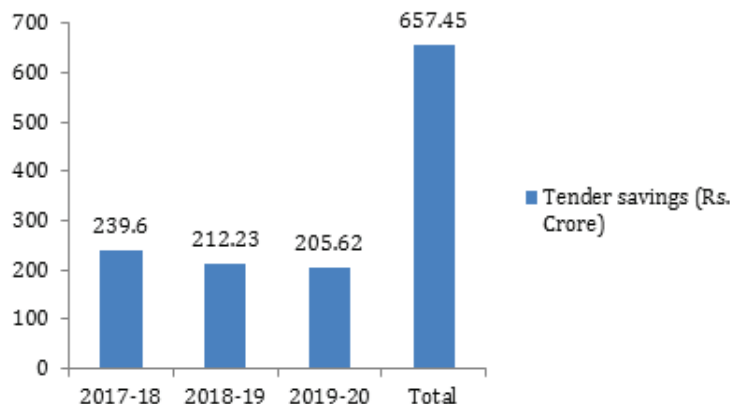
As a result of introducing competitive tendering, there has been substantial increase in tender savings to the tune of ₹657.45 crore in the first three years of the 13th Plan, which helped the Local Governments to take up new projects. Details are given in **Figure 12.1.2**.

l. Initiatives for enhancing people's participation and providing technical support

Enhanced public participation in local Plans is one of the main objectives of the 13th Plan. With this objective, some reforms have been initiated. Important among them are the decisions to increase the participation of experts and use the services of volunteers. Planning committees were formed in all the LGs to help them in Plan formulation, implementation, and monitoring. The participation of volunteers and experts has been ensured in this committee. It was also suggested to use the services of a volunteer expert to assist the Local Governments. Permission was also given to Local Governments to give an honorarium of ₹5000 per month to the resource persons so appointed. LGs were given complete freedom in selecting resource persons.

In order to make the planning process more participatory, a Gramasabha portal was developed to receive the views of public, including expatriate Malayalees. Another initiative introduced for enhancing participation and for improving the knowledge content of the Plans prepared by the Local Governments is the formation of District Resource Centres. In September, 2019

Figure 12.1.2 Tender savings out of Plan and Maintenance Fund of various tiers of LGs in 2017-18, 2018-19 and 2019-20, ₹ in crore



Source: LSGD Engineering Wing

Government directed all DPCs to form District Resource Centres consisting of professionals from development, research, and technical institutes as well as retired experts from Government departments. The main functions of DRC are: a) to conduct studies in areas and topics required by the DPC as well as the Local Governments b) give technical advice so as to improve the knowledge content of the Local Government Plans, c) to prepare DPRs on projects as required by the Local Governments, d) to scrutinise the Plans prepared by Local Governments and point out the weaknesses and suggest measures to improve it e) to study the model projects and bring it to the attention of the State and f) revision of the District Plan every year. It is expected this will help in improving the quality of Plans of the Local Governments and in turn give emphasis to areas that require core attention.

m. Enhanced outlay given to LGs

Plan outlay for the Local Governments has been gradually increased. The Government has implemented the decision in the Action Taken Report (ATR) on the Recommendations of the 5th SFC that the Plan outlay should be enhanced by 0.50 per cent every year from 2017-18. The decision in the ATR to increase gradually the Maintenance Fund allocation from 5.5 per cent to 6 per cent of the State's own tax revenue has also been implemented. In addition 3.5 per cent of State's Own Tax Revenue was given as General Purpose Fund. Details on devolution of untied funds are shown **Table 12.1.2** and **Table 12.1.3**.

Other initiatives in the 13th Plan

a) Making audit of accounts up to date

The audit arrears of Local Governments for the years upto 2015-16 had been cleared

Table 12.1.2 Plan Outlay (Development Fund) to Local Governments, in ₹ crore (2016-17 to 2020-21)

Year	State Plan Outlay	Allocation to LGs					Percentage to State Plan Outlay
		General Sector		Scheduled Caste Sub Plan	Tribal Sub Plan	Total	
		Normal share	Central Finance Commission Award				
2016-17	24,000	2,995.04	1,310.06	1,038.90	156.00	5,500.00	22.92
2017-18	26,500	3,371.57	1,507.88	1,172.05	176.00	6,227.50	23.50
2018-19	29,150	3,777.58	1,739.56	1,289.26	193.60	7,000.00	24.01
2019-20	30,610	3,604.62	2,338.55	1,353.84	202.99	7,500.00	24.50
2020-21	27,610	3,534.60	1,964.15	1,221.15	183.10	7,158.00*	25.92

* Includes ₹255 crore for the World Bank aided project of Kerala Solid Waste Management Project (KSWMP) in Municipalities
Source: Budget Documents, various years

Table 12.1.3 Devolution of Maintenance Fund and General Purpose Fund to Local Governments, in ₹ crore

Year	Maintenance Fund			General Purpose Fund
	Non-Road	Road	Total	
2016-17	645.93	1,291.86	1,937.79	1,233.14
2017-18	655.03	1,528.41	2,183.44	1,364.66
2018-19	703.16	1,640.72	2,343.88	1,426.71
2019-20	822.34	1,918.78	2,741.12	1,626.09
2020-21	883.15	2,060.68	2,943.83	1,717.23

Source: Budget Documents, various years

through a special drive initiated by the State Audit Department in 2016-17 and now audit of accounts is up to date. This was a mandatory condition to seek performance grant suggested by 14th FC. As per the scheme guidelines for receiving Performance Grant the LGs will have to submit audited accounts that relate to year not earlier than two years preceding the year in which the LGs seeks to claim the performance grant.

b) Preparation of Disaster Management Plans

In light of the frequent natural disasters and climatic variations affecting the State, calamities like flood, coastal erosion, drought and landslides are posing serious challenges to the State as well as its economy. To mitigate the impact of such disasters and to improve the disaster preparedness, for the first time in the country, all Grama Panchayats and Urban Local Governments in the State had prepared local Disaster Management Plans in 2019-20. The Disaster Management Plan of the Local Government consist of the following components, a) LG profile b) Hazard and Vulnerability profile c) Capacity and Resources of the Local Government, d) Response Plan and e) Preparedness, mitigation and community resilience Plan. The Local Governments have to include projects of disaster management and mitigation in their Annual Plans considering the susceptibility of the respective Local Governments to natural disasters as well as their existing capacity to tackle it. Considering the intensity, frequency, and uncertainty of natural disasters ravaging the State, the Disaster Management Plan is a novel and pertinent measure taken by the Government worth emulating all over the country.

c) Decentralisation round survey

Even though almost two and a half decades have passed since the launching of decentralisation in Kerala, we have not succeeded in developing a data collection and dissemination system capable of supporting the local-level planning in

Kerala. Information Kerala Mission collects data on Plan schemes while the Local Governments themselves collect data on development sectors and uses it for local-level planning. However, there is a huge data gap with respect to the achievements as well as effectiveness of local Plans.

Considering that this is the most appropriate time for initiating such a data collection round when the period of the incumbent elected representatives will end and new representatives will assume office, the Government has initiated in 2020-21 to conduct a data collection round called the 'Decentralisation round' survey; where data regarding the achievements of Local Governments with respect to subjects dealt by them will be collected based on a questionnaire. This data collection will not only help in assessing the functioning of the Local Governments that were in office till November 11, 2020, but also help the elected representatives assuming office after the general election scheduled in December 2020, to plan future programmes and priorities. It will help in identifying model projects, learn from the functioning of exemplary Local Governments; learn from past experiences, and acquire new knowledge. The data collection and compilation responsibilities have been handed over to the Directorate of Economics and Statistics personnel. It is planned to conduct this round every five years. This will be a rich source of information for all the researchers and planners in future.

d) Good Governance initiatives

Some of the reforms initiated aimed at good governance are outlined below.

1. Common Service for the Local Self Government Department

The Integrated Local Self Government Department has been formed, unifying five Departments of LSGD, with a view to strengthen Local Government system and

better service delivery. It is expected that the functioning of various Local Governments now coming under different Departments can be better coordinated. The existing Departments of Panchayats, Urban Affairs, Rural Development, Town Planning and Engineering Departments will come under the new umbrella.

2. Integrated Local Governance Management System

Integrated Local Governance Management System (ILGMS), a comprehensive software developed by the Information Kerala Mission, has been deployed across 150 Grama Panchayats in October 2020, to ensure greater transparency, accountability, accuracy, punctuality and technical supervision in providing various services to the citizens. Since 1998, IKM have developed several software applications for Panchayats, Municipalities and Corporations. As time evolved these individual software applications were found inadequate to meet the concurrent challenges. These circumstances invariably demanded the development of a comprehensive technologically advanced software system. This forced the Government to rethink about the existing software systems which led to the evolution of Integrated Local Governance Management System. It is a vision for typical governance management with a suite of satellite software applications integrated to a stem software application (workflow platform.)

The project was piloted in Chemmaruthi Grama Panchayat in Thiruvananthapuram District. At present, only applications for marriage registration and name registration in the case of Birth certificate are possible for e-filing through the Sevana software intended for birth, death and marriage registrations. Documents need to be produced even if they are e-filed. However, with the introduction of the new software, all services such as birth, death, marriage registration, name

addition and correction can be applied for without having to go directly to the Local Governments and the services will be available online in a timely manner.

3. Rise of Local Governments in Kerala to ISO standards

The Approach paper for the 13th Plan States that all Local Governments in Kerala would be raised at par to the ISO standards. This has now been almost accomplished and the Local Governments in Kerala are in the forefront in delivering quality service to the people in a time bound manner. Of the 941 Grama Panchayats in Kerala, 939 GPs and all Block Panchayats have achieved international quality certification ISO 9001: 2015. Remaining Grama Panchayats, Corporations, Municipalities, and District Panchayats are expected to adopt the ISO for the current fiscal year.

ISO 9001: 2015 is an international certification for quality management system. Local Governments have strived for this international recognition because they have a clear understanding that only with a high-quality system, they can provide timely services to the people. The ISO certification is given only if the system is designed such that people receive uninterrupted services and the local bodies provide a people-friendly and accurate front office system, a computerised record keeping system that can arrange and keep records in a very short time, and an orderly office system. The work done by Local Governments to achieve international certification is a major step towards the goal of providing a quality service to the people and being a people- friendly organisation.

Floods and Local Governments

The Local Governments were at the forefront in the aftermath of floods of 2018 and 2019 in rehabilitating people as well as coordinating the relief efforts. All Local Government staff from

Grama Panchayats to Municipal Corporations - were instructed to work in rescue and relief operations and, most importantly, start using their funds as they deemed fit. This helped in avoiding unnecessary confusion and responding quickly to situations. It also paved a smooth way for the teams for disaster mitigation to carry out their mission effectively.

Of the two floods that ravaged the State in two successive years, 2018 flood was the worst. The Local Governments were permitted in August 2018 to reorient and rearrange their 2018-19 Plan so as to address the critical problems that require immediate attention. Relaxation in sectoral norms was allowed. The provision given for liberal rearrangement of the local Plan helped the Local Governments to mobilise enough money for repairing and renovating public assets such as roads, bridges, drinking water schemes, and public buildings.

In the backdrop of the natural disasters, especially the devastating floods, Local Governments were instructed to form a new working group for 'Biodiversity Management, Climate Change, Environmental Protection and Disaster Management'. The Working Group, to be chaired by respective Local Government heads, should have experts in the aforementioned fields as members. The group that should include members from the Biodiversity Management Committee and Disaster Management Committee, should also draw members from the public, including volunteers who were part of rescue and relief operations in floods. The respective Local Government secretary is convenor of the Group.

The Government also directed all Local Governments to form four Emergency Response Teams (ERTs) in each Local Government to lead the rescue and relief operations and give first aid in the wake of a disaster. They also have to find out possible community centres that can be converted into relief camps and ensure maintenance of such centres by having toilets, lights and sanitation measures.

In the Annual Plan 2019-20, ₹250 crore was allocated for giving assistance to the Local Governments seriously affected by the floods of 2018. A committee was constituted to select the Local Governments eligible for assistance and decide on the criteria to distribute this fund among the selected Local Governments. As per the recommendation of the Committee, the funds were distributed to the eligible Local Governments and guidelines issued for the utilisation of funds wherein it was stipulated that the fund should be primarily used for livelihood generation projects benefiting mainly those who have lost their livelihood due to the floods of 2018. It also permitted that the fund can be used for restoration of public assets lost in the floods and also for repair and maintenance of rescue shelters in the wake of floods.

Role played by the Local Governments in tackling Covid-19

Among the Indian States, Kerala was the first State affected by Covid-19. The State Government's prompt response to the pandemic in rallying Local Governments along with the Health Department has been noticed globally. Social investments in rural health care, universal education, decentralisation of powers and resources and women empowerment are cited widely as the reasons that helped Kerala to fight against the coronavirus.

Local Governments played a key role in containing as well as tackling this pandemic. Important among them are 1. Setting up and managing community kitchens during lock down, 2. Cleaning and disinfection activities, 3. Organising and running "break the chain" social distance campaign and awareness programmes, 4. Providing accommodation, food and other essential support to guest workers (migrant labourers), 5. Managing the coordination of home quarantine, counselling and isolation, 6. Setting up institutional quarantine to manage those who returned to the State from other States and abroad, 7. Setting up and managing Covid First Line Treatment Centres,

8. Engaging of personnel in Health institutions managed by Local Governments, 9. Purchase of medicines and other equipment to the hospitals run by the Local Governments, 10. Distribution of free medicines, 11. Implementing local economic Plans to help the people who lost jobs and plans for increasing food production and self-sufficiency in the field of agriculture under the banner “Subhiksha Keralam”, 12. Providing arrangement for local dissemination of online schooling internet connectivity.

Subhiksha Keralam

Subhiksha Keralam is an ambitious scheme started by the State Government in 2020-21 to combat food scarcity against the backdrop of Covid-19 outbreak. It aims at large scale production of paddy, fruits, vegetables, tubers, grains, and to promote livelihood by providing assistance to raise cows, goats, rabbits, pigs, and fish as part of achieving self-reliance in food production within the next five years with the joint action of Local Governments, various departments and agencies like Kudumbashree, HarithaKeralam Mission; including public sector undertakings and NGOs. The convergence of various employment schemes such as Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), Ayyankali Urban Employment Guarantee Scheme (AUEGS) are also ensured. Local Governments have been entrusted with the key role of formulating Plans and converging activities at the Local Government-level.

Fallow land cultivation is one of the main components of the scheme, where interested land owners, farmers, self-help groups, voluntary organisations, Kudumbashree units, youth organisations, expatriates and institutions in both public and private sector can participate. One of the noteworthy features of this scheme is introduction of base prices designed to protect farmers from adverse price fluctuations in the market. The base prices (a kg) that came into force in the State from 1st November 2020, are as follows: tapioca (₹12), Nendran banana/

Wayanadan Nendran (₹30/₹24), pineapple (₹15), ash gourd (₹9), cucumber (₹8), bitter gourd (₹30), snake gourd (₹30), string beans (₹34), tomato (₹8), ladies’ finger (₹20), cabbage (₹11), carrot (₹21), potato (₹20), beans (₹28), beet root (₹21) and garlic (₹139). The produce will be procured through the outlets of the Agriculture Department, VFPCK and HortiCorp, and the Primary Agricultural Credit Cooperative Societies.

Twelve Point Programme

Government had announced a 12 point programme to be executed with the support of Local Governments in the Annual Plan 2020-21. ‘Hunger-free Kerala’ and “Take a Break Refreshment Centres” are the two major projects under the package. Hunger-free Kerala project’ is aimed to set up 1,000 restaurants (Janakeeya hotels) providing meals at a subsidised rate of ₹20. One such restaurant each would be set up in all Grama Panchayats/small Municipalities and a restaurant each would cater to 10 wards in each Corporations limits. As on 7th December, 843 Janakeeya hotels had been started. Low rates and home delivery service have contributed to its popularity especially during lunch hours. The rent, electricity and water charges for the hotels are borne by the Local Governments.

The objective of “Take a Break Refreshment Centres’ is to set up quality community sanitary complexes across the State and thereby to address the long-standing demand for good toilet complexes. These Take a Break facilities would offer quality amenities including refreshment options for the public and travellers. The remaining 10 projects under the “Twelve Point Programme’ are 1. Vayo Clubs’ (Recreation Clubs for Elderly People), 2. SuchithwaKeralam – (Comprehensive sanitation status for all LSGIs), 3. Cleaning of Streams, 4. Planting and Maintenance of One Crore Saplings of Fruit Trees, 5. Promoting Organic Vegetable Cultivation, 6. Local Employment Assurance Programme (LEAP), 7. Public Education Rejuvenation Mission, 8. Palliative Care projects in all LSGIs,

9. Development of Scheduled Caste/Scheduled Tribes and 10. Comprehensive Disaster Management Plan (*Nammal Namukkayī*).

Reorientation of Local Government Plans (2020-21) in accordance with the Award of 15th Fifteenth Central Finance Commission

The 15th Central Finance Commission (15th CFC) has made significant departures from the previous Central Finance Commissions in its recommendations particularly in urban areas. In the rural areas the Commission has recommended to give grants to all tiers of Panchayats including Intermediate and District Panchayats; whereas 14th FC provided grants to Village Panchayats only. In the case of Urban Local Governments the Commission recommended to provide grants to cities under two categories for the first time: (a) fifty Million-Plus urban agglomerations¹/cities and (b) all other cities and towns with less than one million population.

At the time of preparation of State Budget for the year 2020-21, the details of 15thCFC award to Local Governments were not known. Therefore the Local Governments were provided with a tentative allocation in the Budget and directed to prepare Annual Plans well before the start of the financial year on the basis of this tentative allocation and as per the 14thFC guidelines. After the 15th FC Report came, in June 2020, the Development Fund allocation to Local Governments was modified incorporating the 15th FC allocation. Subsequently Local Governments were directed to reorient their Plan in accordance with the revised allocation and as per the 15th FC guidelines.

The guidelines issued by the Kerala Government for the utilisation of 15th FC Award, stipulate preparation of a CFC Sub Plan by the Local Governments. It was quite a challenge to prepare Plans for an Urban Agglomeration Area instead of the usual practice of preparing separate Plan for

each Local Government that comes under an UA. For the purpose of preparation of Plan for the UA area, Kerala Government has asked the District Planning Committees concerned to constitute a Joint Planning Committee (JPC) with the elected head of the Principal LSG as the Chairperson of JPC and the Chairpersons of other Local Governments within the UA area and Secretaries of all LGs concerned being the members of the JPC. The guidelines issued by the Government stipulate mandatory spending of a portion of the allocation in areas other than the principal LG of UA.

There is increase in the allocation to Kerala for the first year (2020-21) of the 15th FC Award period from the last year (2019-10) of the 14th FC Award period. However, flexibility in spending is reduced to a considerable extent. In a major departure from the 14th FC, that gave bulk of the funds as “Basic Grant” and allowed all expenses related to basic civic services including maintenance of community assets and roads in the case of both rural and urban Local Governments under Basic grants, the 15thFC has made all the grants to the million-plus cities as conditional (Tied grants), and 50 per cent of the grants to other cities and rural Local Governments as conditional (Tied Grants). Further, only two critical services, water and sanitation, are allowed under tied grants. All these will affect the functional freedom of Local Governments in Kerala in a big way.

Kerala tops in successive years - Mission Antyodaya Survey

Ministry of Rural Development, GoI, as a precursor to the preparation of annual Grama Panchayat Development Plan (GPDP) has directed all the States to undertake the Mission Antyodaya Survey every year - a survey by which the Grama Panchayats all over the country are ranked based on three indicators i.e. Basic infrastructure, human development and economic activity. By this the development gaps needing specific intervention are identified and the Grama Panchayats prepare the GPDP

¹An urban agglomeration is a continuous urban spread comprising of a town and its adjoining outgrowths (OGs), or two or more physically contiguous census towns/statutory towns together with or without outgrowths of such towns

Table 12.1.4 Distribution of Development Fund for different tiers of Local Governments 2019-20, in ₹ lakh

Local Governments	General Sector			Scheduled Caste Sub Plan (SCSP)	Tribal Sub Plan (TSP)	Total
	Normal share	14th FC Award				
		Basic Grant	Performance Grant			
1. Grama Panchayats	1,63,517.52	1,08,473.00	13,257.00	69,932.51	11,446.40	3,66,626.43
2. Block Panchayats	68,011.52	0.00	0.00	21,775.83	3,585.14	93,372.49
3. District Panchayats	68,011.52	0.00	0.00	21,775.83	3,585.14	93,372.49
4. Municipalities	32,664.61	49,502.55	13,612.61	13,396.71	1,271.99	1,10,448.47
5. Corporations	28,256.83	38,439.45	10,570.39	8,503.12	410.33	86,180.12
Total	3,60,462.00	1,96,415.00	37,440.00	1,35,384.00	20,299.00	7,50,000.00

Source: Appendix IV, State Budget, 2019-20

devising projects and Plans to address these gaps following a convergence mode by which the funds from central and State schemes are converged with local resources to fund such projects. In first phase 2017, the survey was done in 195 GPs (with Kudumsree as the nodal agency) in the State. In 2018, 939 GPs out of 941 GPs had completed the survey, where as in 2019 all GPs completed the survey.

At the national level, in 2019 the Mission Antyodaya Survey was conducted in 2,66,417 Grama Panchayats all over the country. 85 per cent of the Grama Panchayats surveyed all over the country scored in the range of below 41 and about 1 per cent of the Grama Panchayats scored above 71. While in Kerala, out of the 941 Grama Panchayats that have uploaded the status, 27 Grama Panchayats scored in the range of 81 to 90 while 844 Grama Panchayats (89.69 per cent) scored in the range above 61. Details are given in **Appendix 12.1.1**. This shows that Kerala is far ahead of other States and the nation as a whole with respect to the parametres measured in MA survey.

Financing of Local Government Plans - 2019-20

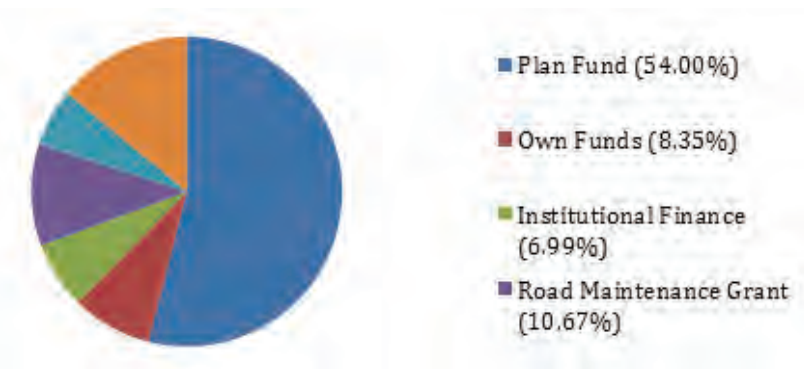
Plan allocation is devolved to Local Governments in two streams – the first stream consists of the untied Plan grant (Development Fund) and the other stream consists of Plan assistance for

specific sponsored schemes. For Plan Grant, Local Governments have full autonomy in deciding their priorities, formulating the projects and implementing them subject to Plan guidelines issued by the State Government.

As already mentioned, the Plan allocation for Development Fund for Local Governments is fixed in accordance with the Action Taken Report (ATR) on the recommendations of State Finance Commission (SFC) and as per the 5th SFC, the Plan allocation for Local Governments is to be fixed as a per cent of State Plan outlay. Thus, 24.50 per cent (₹7,500 crore) of the State Plan outlay was earmarked as Development Fund (Plan Grant) for the year 2019-20. The inter-se distribution of funds is worked out on the basis of the ATR on the Fifth SFC Report. The distribution of Development Fund to different tiers of Local Governments under each category is given in **Table 12.1.4**.

The Local Governments have in addition to the Development Fund (fixed percentage of the State Plan), Own fund, Maintenance fund, as well as other funds to finance the projects undertaken. The total outlay of the Plans of all Local Governments together in 2019-20 was ₹19,889.68crore; whereas the expenditure for the same was ₹7,473.25 crore. A break up of the expenditure pattern of the Local Governments reveals that of the total expenditure incurred largest expenditure was incurred out of

Figure 12.1.3 Share of various sources in the total expenditure of Local Governments (2019-20)



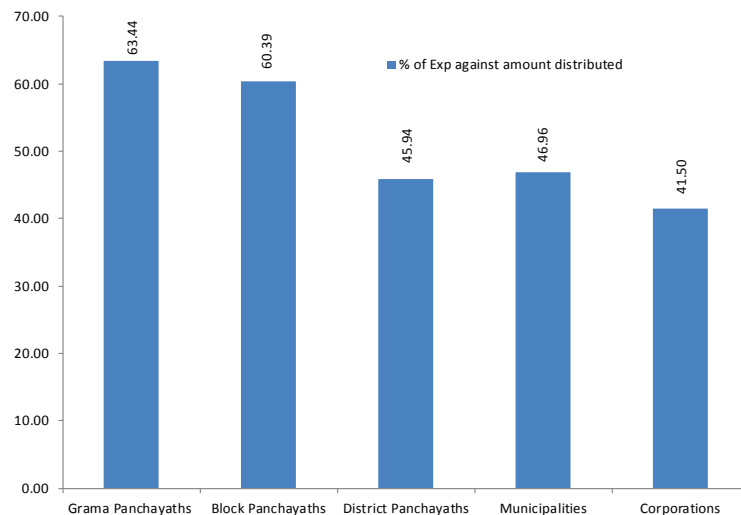
Source: Information Kerala Mission, 2020

Development fund (54.00 per cent) followed by Maintenance Fund (16.65 cent) and Own Fund (8.35 per cent). Other sources of fund like CSS, loan from co-operatives, beneficiary contribution etc. contribute 21.00 per cent of the expenditure of the Local Governments. Development Fund expenditure absorbed the predominant share implying that Local Governments are largely dependent on this fund to finance their projects. A considerable amount of the total expenditure (16.65 per cent) is also expended on the maintenance of roads as well as other transferred assets. Details are given in **Figure 12.1.3** and **Appendix 12.1.2**.

Performance of Local Governments: Development Fund

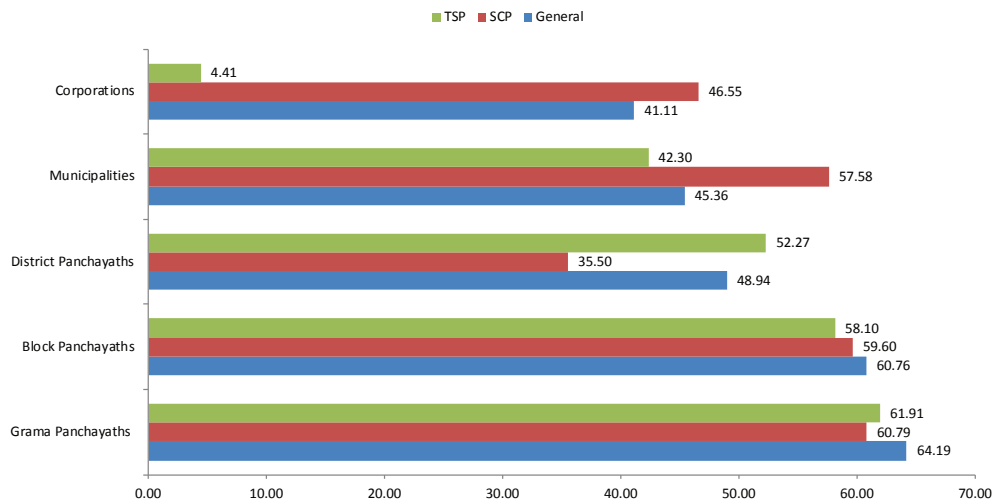
As already mentioned, Development Fund is the main source of funding for the Local Governments. In 2019-20, the total budgeted outlay under Development Fund for Local Governments was ₹7,500 crore and of this, ₹7,209.10 crore released. The expenditure was ₹4,035.57crore, which was 55.98 per cent of the amount released as development fund. The low expenditure in 2019-20 as compared to the previous two years was because of the restrictions imposed in the treasury in the

Figure 12.1.4 Expenditure performance of various Local Governments against release in Development Fund (2019-20)



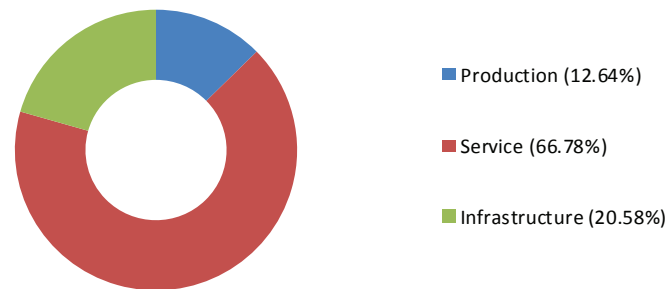
Source: Information Kerala Mission, 2020

Figure 12.1.5 Category-wise expenditure of Local Governments against release in Development Fund in 2019-20



Source: Information Kerala Mission, 2020

Figure 12.1.6 The share of various sectors in the total expenditure under Development Fund incurred by the Local Governments in 2019-20



Source: Information Kerala Mission, 2020

terminal months consequent to the economic crisis triggered by the Covid-19 pandemic. Had the pending bills in the treasury (₹1,636.97 crore) been cleared as on 31st March the percentage of expenditure would have been 78.69 per cent.

The overall expenditure performance with regard to Grama Panchayats and Block Panchayats has been above 60 per cent; whereas that of District Panchayats and Urban Local Governments is less than 50 per cent. The tier-wise expenditure details are given in **Figure 12.1.4**.

Category wise expenditure: Development fund

The allocation of Development Fund to Local Governments falls in three categories – General Sector, Scheduled Caste Sub Plan (SCSP) and Tribal Sub Plan (TSP). Out of ₹7,209.10 crore released as Development Fund, ₹5,652.21 (78.40 per cent) was released as General category, ₹1,353.90 crore (18.78 per cent) under SCP category and ₹202.99 crore (2.82 per cent) as TSP category. In the case of Grama Panchayats the expenditure performance with regard to SCSP and TSP is less compared to General sector

Table 12.1.5 Annual Plan 2019-20- Share of Production Sector in the Normal share expenditure under General sector fund (₹ in crore)

Sl No	Type of LSGs	Production Sector expenditure in the Normal share of General sector fund	Total Expenditure in the Normal share of General sector fund	% of Exp.
1	Gram Panchayats	263.16	1,245.39	21.13
2	Block Panchayats	99.03	415.81	23.82
3	District Panchayats	58.15	336.49	17.28
4	Municipalities	22.90	263.96	8.68
5	Corporations	11.68	183.18	6.38
	Total	454.92	2,444.83	18.61

funds. Urban Local Governments have incurred higher expenditure under SCP as compared to General sector funds. The details are given in **Appendix 12.1.3** and **Figure 12.1.5**.

Sectoral Analysis

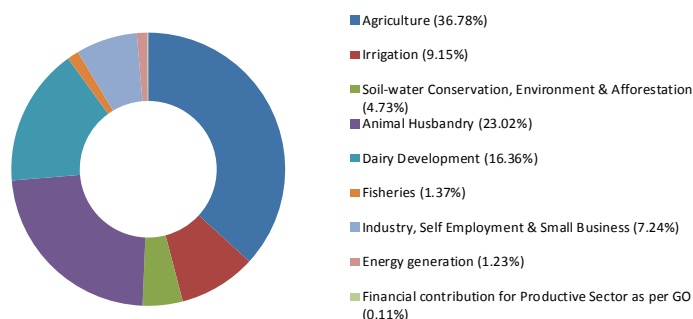
The Annual Plan guidelines require that the Local Governments are to allocate funds in three sectors viz; production, service and infrastructure based on sectoral norms. The sector-wise performance is given in **Figure 12.1.6**. The share of production sector in the total expenditure is only 12.64 per cent, while the largest share is for the service sector 66.78 per cent. The share of infrastructure sector is recorded as 20.58 per cent. Details are given in **Appendix 12.1.4**.

Production Sector

Figure 12.1.7 shows the subsector-wise expenditure of Local Governments in production sector. Of the total expenditure incurred for production sector, 36.78 per cent was for Agriculture, followed by Animal Husbandry (23.02 per cent), Dairy Development (16.36 per cent), Irrigation (9.15 per cent), Industry and self-employment (6.78 per cent). Expenditure in fisheries accounted for just 1.37 per cent while for soil and water conservation it was 4.73 per cent. Details are given in **Appendix 12.1.5**.

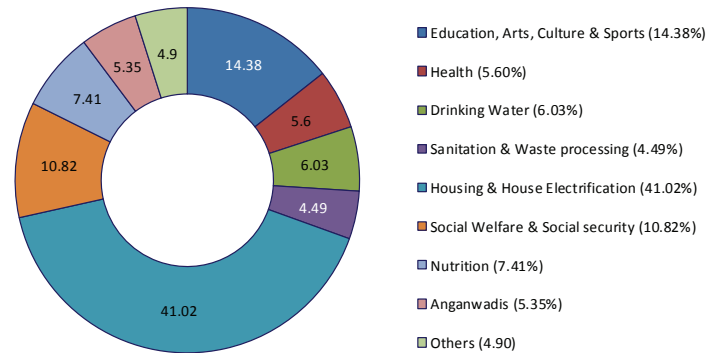
As per the sectoral norms set for the Annual Plan 2019-20, rural Local Governments had to allocate 30 per cent of their Normal share of General sector funds towards production sector activities while for the Urban Local Governments it is 10

Figure 12.1.7 Sub sector-wise expenditure share of productive sector in 2019-20, in per cent (Development fund)



Source: Information Kerala Mission, 2020

Figure 12.1.8 Sub sector-wise expenditure share of service sector in 2019-20, in per cent (Development fund)



Source: Information Kerala Mission, 2020

per cent. **Table 12.1.5** shows the production sector expenditure share of Local Governments in their General Sector (Normal share) fund. All types of Local Governments have incurred less than the stipulated expenditure for productive sector because of the restrictions imposed in the treasury in the context of Covid-19.

Service Sector

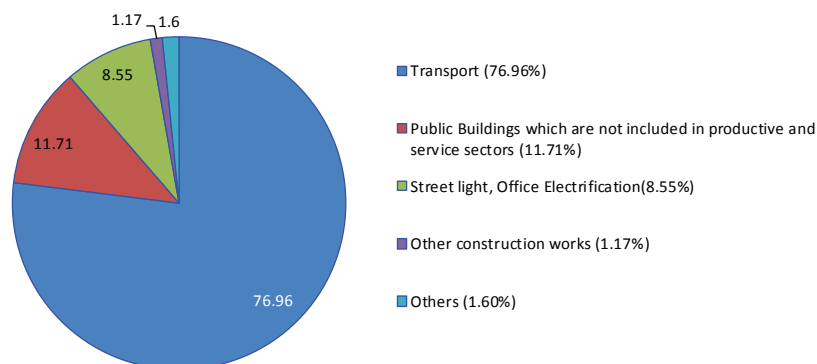
The sub sector-wise Service sector expenditure undertaken by Local Governments is shown in **Figure 12.1.8**. 41.02 per cent of the expenditure under service sector is for housing and house electrification. The mandatory allocation towards housing by all Local Governments explains the high expenditure in housing. Local Governments

have to mandatorily earmark 20 per cent of the sum total of funds under Normal share of general sector, SCP, and TSP towards housing as well as expenses of PMAY etc. Expenditure figures show that Local Governments are giving utmost importance to providing housing and house electrification. 14.38 per cent of the total service sector expenditure was spent for education and 10.82 per cent for social welfare and social security and 6.03 per cent for drinking water and 4.49 per cent for sanitation. Details are given in **Appendix 12.1.6** and **Figure 12.1.8**.

Infrastructure Sector

In 2019-20, out of the total expenditure under infrastructure sector, a major portion (76.96

Figure 12.1.9 Sub sector-wise expenditure share of infrastructure sector in 2019-20, in per cent (Development fund)



Source: Information Kerala Mission, 2020

Table: 12.1.6 Expenditure for Special Sector Plans 2019-20

Sl No	Special Sector	% share of expenditure in sum total of Normal share of General sector fund, SCP and TSP
1	Women Component Plan	6.36
2	Special Plan for children	3.95
3	Special Plan for the aged	2.72
4	Special Plan for the differently abled	1.90
5	Palliative care projects	2.17
6	Special Plan for the Transgender	0.005

per cent) has been utilised for transport sub-sector comprising roads and bridges. Out of the total infrastructure expenditure of ₹830.58 crore, Grama Panchayats utilised ₹469.11 crore followed by municipalities (₹132.43 crore). Sub sector-wise expenditure details under infrastructure sector in 2019-20 are given in **Figure 12.1.9** and **Appendix 12.1.7**.

Performance under Special Sector Plans

The Women Component Plan (WCP) and Plans for disadvantaged groups (aged, children, differently abled, palliative care and transgender) by the Local Governments are the noteworthy features of Kerala's decentralised planning. The Local Governments have to mandatorily earmark 10 per cent of the sum total of Normal share of General sector funds, SCP and TSP towards Women Component Plan (WCP) and 5 per cent for children, persons with disabilities and transgender and another 5 per cent for the development of aged and palliative care projects. The expenditure on WCP in 2019-20 as per cent to total expenditure (incurred under the categories of Normal share of General sector funds, SCP and TSP together) is 6.36 per cent. In the case of special programme for children and persons with disabilities it comes to 3.95 per cent and 1.90 per cent respectively whereas for palliative care it is 2.17 per cent. The expenditure of Local Governments under these special sectors is not according to the required-level implying that more attention is required in initiating such projects. The details of expenditure for special sector Plans in 2019-20 are given in **Table 12.1.6**

and the tier-wise details in 2019-20 are given in **Appendix 12.1.8**.

To sum up, Local Governments have become important and strong institutions of governance in the State. Decentralised Planning, which is now into its 25th year, has helped in making development an inclusive and participatory process. The experiences of the last 25 years are also a lesson to be learnt in terms of achievements, gaps, and the corrective measures required to strengthen the process. Kerala, far ahead of other States in the participatory planning process, aims to further deepen, strengthen and expand it so as to ensure development to all sections of the society.

Review of Central and State Programmes Implemented in the Local Government Sector

Kerala is getting increasingly urbanised throwing open new challenges before the State Government in terms of meeting the needs of the urban population and designing programmes to provide basic facilities for a good standard of living. The steady increase in the rate of urbanisation in Kerala, however, has to be accompanied by high pace of development, especially in provision of basic amenities by the State. As per the 2011 census, the State has an urban population of 1.59 crore which accounts for 47.6 per cent of total population against a rural population of 1.75 crore (52.4 per cent). A rural area is clearly visible elsewhere in India which mainly consists of vast areas

of agricultural land with hamlets distributed sporadically. However, in Kerala, a number of small and medium towns are distributed in the village background. It may also be noted that the features in rural and urban areas in Kerala are almost alike. The infrastructural initiatives of the State including setting up urban amenities and creating rural connectivity, sanitation and waste management infrastructure, housing in rural and urban areas along with employment and livelihood generation are detailed below.

1. Infrastructure Development

Kerala's decentralised planning has made it unique among Indian States with a higher level of social infrastructure and services infrastructure, comparable with that of many advanced countries. Housing and provision of other basic amenities like drinking water, sanitation and construction of drainage are the core indicators of quality of life and decent standard of living. The State implements the Centrally Sponsored Schemes (CSS) and also supplements them with funds from own programmes for critical infrastructural development.

i. Housing

Housing condition is an important indicator of human welfare both from the point of individuals as well as communities. It has an instrumental value as it affects the physical and mental health of the residents and through that in their ability to function in both economic and social spheres of life. In a wider sense it is more than a structure, it includes facilities of potable water, sanitation and other basic amenities of life.

Pradhan Mantri Awaas Yojana (PMAY) is the housing scheme of the Government of India (GoI) with the participation of State Governments for rural and urban areas, namely PMAY-Gramin and PMAY – Urban. PMAY-G aims at providing a pucca house with basic amenities to all houseless households living in kutcha and dilapidated houses in rural area by 2022. PMAY-G beneficiary is entitled with wages for 90 days unskilled

work performed for house construction from MGNREGS and for the construction of toilets, an amount of ₹12,000 is provided from Swachh Bharat Mission (Gramin).

PMAY-G targeted to construct 32,559 new houses in 2016-17 and 9,872 new houses in 2017-18. But the target was not achieved due to the norms of beneficiary selection of GoI. In 2019-20 and 2020-21, target was not given by GoI, and houses constructed for the corresponding financial years is against the target for 2016-17 and 2017-18 (i.e. 42,431). In 2019-20 and 2020-21 as on September 30, 2020, construction of 1,364 and 306 new houses were completed respectively. The beneficiaries include 626 SC beneficiaries, 177 ST beneficiaries and 867 other beneficiaries. The financial and physical progress of PMAY-G in 2019-20 and 2020-21 (up to September 30, 2020) are given in **Appendix 12.1.9** and **12.1.10** respectively.

GoI relied on Socio Economic and Caste Census (SECC) 2011 data for beneficiary selection. The identification and selection of the beneficiaries is done through the Gram Sabha based on the housing deficiency and other social deprivation parameters. If the beneficiary so chooses, he/she will be facilitated to avail loan from financial institutions for an amount of upto ₹70,000. All payments are made through Direct Benefit Transfer (DBT) to beneficiary's Bank/Post office accounts registered in Awaas Soft MIS.

Pradhan Mantri Awaas Yojana – Urban (PMAY – Urban) aims to address the housing requirement of urban poor including slum dwellers with the mandate of providing Housing For All by 2022. The approved total project cost for PMAY – Urban, as on September 30, 2020 is ₹3,598.88 crore where the Central and State shares released are ₹940.65 crore and ₹301.60 crore respectively. Fund will be released by Central Government in three instalments (40 per cent, 40 per cent, 20 per cent). In 2020-21, up to September 30, 2020 an amount of ₹60.38 crore and ₹41.46 crore respectively was received as Central and State share and an amount of ₹107.07 crore expended

Box 12.1.1 Haritha Bhavanam

“Haritha Bhavanam” competition was conducted to recognise the ‘Green Home’ in each Urban Local Government (ULG). Green home is selected based on parameters such as energy efficiency, waste management and maintenance of green space. The competition enabled to spread the message of rain water harvesting, kitchen garden, waste disposal mechanisms and green energy among PMAY-Urban beneficiaries. A cash prize of ₹ 10,000 has been given to the best home at Community Development Society (CDS) level. The campaign instilled a competitive spirit to maintain the house and premises clean and beautiful.

including balance available from the previous year.

Under the major component, Beneficiary Led Construction (New), 493 Detailed Project Reports (DPRs) of 93 Urban Local Governments and 34 panchayaths under the purview of three development authorities namely, Greater Cochin Development Authority (GCDA), Goshree Islands Development Authority (GIDA) and Thiruvananthapuram Development Authority (TRIDA) were approved by the Ministry of Housing and Urban Affairs (MoHUA), GoI. Moreover, 6 DPRs of 6 municipalities for the construction of housing complexes with the support of LIFE Mission consisting of 774 units were also approved by the MoHUA, GoI under Affordable Housing in Partnership component. Based on these DPRs, construction of 1,02,229 dwelling units were approved, construction of 77,541 houses have been started and 48,445 houses have been completed up to September 30, 2020. Credit Linked Subsidy (CLS) component aims to expand the institutional credit flow to the housing needs of urban poor. CLS will be provided on home loans taken by eligible urban poor for acquisition or construction of house. The identified beneficiaries under CLS is 25,656, of this subsidy released to 15,608 beneficiaries. The financial and physical progress of PMAY-Urban in 2019-20 and 2020-21 (upto September 30, 2020) are given in **Appendix 12.1.11** and Urban Local Government-wise progress of PMAY-Urban upto September 30, 2020 are given in **Appendix 12.1.12**.

Under PMAY-Urban, apart from providing habitable houses, support is also provided to beneficiaries through convergence with flagship programmes such as National Urban Livelihood Mission (NULM) and Pradhan Mantri Ujjwala Yojana. Convergence with National Urban Livelihood Mission envisages to enhance the quality of life of urban homeless through skill upgradation and setting up of self-employment ventures. 750 members of PMAY-Urban beneficiary families are given skill training and 160 are given placement under the ‘Employment through Skill Training and Placement’ (EST&P) component of NULM as on September 30, 2020. Under PM Ujjwala Yojana, free gas connection has been given to 215 beneficiaries of PMAY-Urban scheme across the State. Through convergence with Ayyankali Urban Employment Guarantee Scheme (AUEGS) 90 person days are provided to PMAY-Urban beneficiaries.

PMAY, being a centrally sponsored scheme, the unit assistance for house construction from Government of India is ₹72,000 and ₹1.5 lakh for rural and urban areas respectively. The State Government realised that this piecemeal assistance would not be sufficient to give momentum to housing scheme in the State. The State Government adopted a comprehensive approach to the housing issues and initiated the LIFE (Livelihood, Inclusion and Financial Empowerment) Mission as a flagship programme for addressing the issues of homelessness in the State. The assistance under LIFE Mission for houseless having land is ₹6 lakh for ST beneficiaries in remote ST hamlets and ₹4 lakh for all other beneficiaries. The details are discussed in Chapter 11 of this Review.

ii. Sanitation and Waste Management

Lack of access to sanitation facilities is a basic indicator of poverty. Proper sanitation and waste management facilities leads to a positive impact on the living standard of the people. As waste management is a serious issue, Government of Kerala gives more emphasis on this area. Suchitwa Mission is the nodal agency for evolving implementation strategy and providing technical support to the State Government and Local Governments in developing solid and liquid waste management projects and policies.

The State is Open Defecation Free (ODF) from November 1, 2016 onwards in rural areas and is now focusing on ODF Sustainability and 'ODF Plus' activities. The State has become Open Defecation Free (ODF) by constructing 1,74,720 Individual Household Latrines (IHHL) at villages. The incentive amount provided under Swachh Bharat Mission (Gramin) SBM (G) to Below Poverty Line (BPL) /identified APL households is up to ₹12,000 for construction of one unit of Individual Household Latrine (IHHL)

and to provide for water availability including storage for hand-washing and cleaning of the toilet. Central Share of this incentive for IHHLs from SBM (G) is ₹7,200 (60 per cent) and the State share is ₹4,800 (40 per cent). As part of community sanitary complexes/public toilets components of Swachh Bharat Mission (Gramin), 16 sanitary complexes/public toilets have been constructed for which ₹33.52 lakh has been expended as on September 30, 2020.

As on September 30, 2020 State has received ₹200.4 crore towards performance based incentive grant as part of Swachh Bharat Mission (Gramin). Of this, ₹56.46 crore has been distributed among 14 Districts based on the number of households in each Grama Panchayath (GP) for undertaking various solid and liquid waste management activities as per the guidelines. This fund is intended to meet the retrofitting expenses of toilets with up to ₹5,000 per toilet including for the toilets damaged during flood which were earlier constructed under SBM (G) based on the valuation certificate of the Grama Panchayat overseer. Apart from the

Table.12.1.7 Details of Public Toilet projects undertaken under SBM (U)

Districts	No. of toilet seats approved by DPC	Total No. of Public Toilet Seats Completed	Expenditure (₹ lakh)		
			SBM Share	ULB Share	Total
Thiruvananthapuram	67	24	9.97	32.63	42.6
Kollam	39	35	21.85	3.26	25.11
Pathanamthitta	70	0	0	0	0
Alappuzha	122	54	18.95	32.83	51.78
Kottayam	83	30	15.68	7.84	7.84
Idukki	69	28	17.03	26.1	43.13
Ernakulam	290	62	15.08	47.54	62.62
Thrissur	92	17	7.84	12.39	12.39
Palakkad	105	42	7.18	21.43	28.61
Malappuram	259	76	18.88	19.46	38.34
Kozhikode	183	37	14	17.46	31.46
Wayanad	66	20	0	8.72	8.72
Kannur	135	80	27.01	16.31	43.32
Kasargod	12	10	5.69	2.06	7.75
Total	1,592	515	179.16	248.03	427.19

17,278 numbers of retrofitting, 3051 of new IHHL and 344 school toilets are under various stages of construction.

In urban areas, construction of IHHLs target has been achieved by constructing 29,578 IHHLs. Central Government incentive for the construction of individual household toilets is ₹4,000 and State will contribute a minimum of ₹2,667. Ninety two Urban Local Governments in the State have got ODF declaration. 90 ULBs got ODF certificates from Quality Council of India. Moreover, 10,532 IHHLs were destroyed during flood. The State Level Empowered Committee (SLEC) and MoHUA have given sanction to take up the construction of the damaged toilets and, of this, 413 IHHLs are completed.

In the case of public toilets, the number of toilet seats undertaken for construction is 1592, of which construction is completed for 515 toilets. Central Government incentive for the construction of public toilets and urinals will be 40 per cent Grant/Viability Gap Fund (VGF), for each toilet block constructed. The base unit cost of public toilet is calculated at ₹98,000 per seat, wherein the VGF/Grant will be ₹39,200 per seat. States will contribute a minimum of ₹26,134 per seat towards public toilet projects to match Central Share of ₹39,200 per seat. Balance of ₹32,666 will be met by the local governments. For urinals, base unit cost of urinals is calculated at ₹32,000 per seat, wherein the VGF/Grant will be ₹12,800 per seat. Details of Public toilet projects undertaken under Swachh Bharat Mission – Urban (SBM – U) are given in **Table.12.1.7**.

Community Sanitary Complexes consisting of an appropriate number of toilet seats, bathing cubicles, washing platforms and wash basins have to be developed at public places, markets and bus stands. The maximum support per unit prescribed for a Community Sanitary Complex is ₹2.00 lakh. Sharing pattern among Central Government, State Government and the Local Governments is in the ratio of 60:30:10.

The State generates 10,044 tonnes Per Day (TPD) solid waste; 14 per cent by 6 Corporations, 45 per cent by 87 Municipalities and 41 per cent by 941 Grama Panchayats, of which 49 per cent of the waste is generated in households, 36 per cent in institutions and 15 per cent in waysides and public places. 7,734 TPD of waste is putrescible in nature, 1,808 TPD is non-biodegradable and 502 TPD is inert. Non-biodegradable waste includes 603 TPD of paper, 402 TPD of plastic, 100 TPD of metals, 100 TPD of glass, 200 TPD of rubber and leather and 40 TPD of domestic hazardous waste. Currently, 3,494 tonnes per day, out of a total of 7,734 tonnes per day (45 per cent) of biodegradable waste is treated at households, institutions and community level. The non-biodegradable waste is collected from the sources and temporarily stored in Material Collection Facility (MCF).

Almost 70-80 per cent of the waste generated in the State is biodegradable in nature with high moisture content. Hence, instant handling of such waste is unavoidable for preventing putrefaction. This is achieved by processing the entire biodegradable waste at source itself, such as at household, institutions and community levels. More and more people are adopting this practice under the slogan 'My waste my responsibility', which is adopted from the 'Polluter Pays Principle'. There are mini, medium and major bio-waste treatment systems at the household, institutional and community level. Source level composting facilities are established at 7,31,216 households and institutions, that is, 94,300 biogas plants and ₹6.37 lakh composting facilities including pit composts facilitated by MGNREGS and Community level composting units of 2,019 numbers are established at various markets, colonies and waysides. In order to facilitate the implementation of source level waste management projects, Suchitwa Mission has empanelled 64 service providers and these agencies are providing support to the LSGIs in establishing source level treatment facilities through the projects envisaged by them.

In 2019-20, as part of Swachh Bharat Mission – Gramin, an amount of ₹20.04 crore was expended on 8,059 Solid and Liquid Waste Management (SLWM) projects across the State. 82 ULBs in the State have prepared the DPR and were placed before the State Level Empowered Committee (SLEC) for Sanitation which approved the proposal for a total project cost of ₹295.09 crore (Central Share: ₹103.28 crore; State share: ₹68.75 crore ULB share ₹123.05 crore). The first batch of these 82 ULBs have taken up 606 projects with a total outlay of ₹295.09 crore. A total of ₹86.07 crore (₹51.64 Crore as the Central share and ₹34.43 Crore as the matching State share) have been released to 82 ULBs as 1st instalment.

State has been facing severe threat in terms of the quality of ground water as there are not sufficient facilities for treating sewage and septage waste. With the technical and financial support of Suchitwa Mission, construction of 13 septage treatment plants at various LSGIs is progressing and out of which three has started functioning. A decentralised waste management treatment system (DEWATS) has started functioning at Alappuzha.

Many of the Government hospitals do not have Sewage Treatment Plants (STPs) to treat the toilet waste and therefore it is proposed to establish STP in at least one hospital in each District. Suchitwa Mission issued technical sanction and partial financial assistance for eight Liquid Waste Management (LWM) projects which are proposed to be installed in hospitals and market places. Sewage treatment plants have been constructed at a bus-stand comfort station in Adimaly Grama Panchayat of Idukki District and Sultan Bathery Taluk hospital in Wayanad District. A septage treatment plant has been constructed under KSUDP at Wellington island Kochi. Technical sanctions for 355 projects of various LSGIs have been issued by the Suchitwa Mission in 14 Districts. Through the implementation of these projects, 78,517 units of source level waste management devices would come up across the State. Funds from all

the major four schemes of Suchitwa Mission have been provided for the implementation of these projects.

The pre-monsoon cleaning campaign was implemented in collaboration with Directorate of Health Services, National Health Mission and Haritha Keralam Mission. The campaign was a success owing to pre-campaign planning, integration of activities by different departments and effective convergence of funds at the Local Government level.

Capacity building activities have been conducted for stakeholders like officials, people's representatives, resource persons and Green Task Force members. An amount of ₹160 lakh has been released by MoHUA for capacity building and office expenses activities and an amount of ₹150.15 lakh has been spent. Information Education and Communication (IEC) programmes undertaken includes radio jingles campaign, video documentation, exhibitions, interpersonal communication, Green Protocol, preparation of IEC tools like video, booklets, leaflet and posters. An amount of ₹160 lakh has been spent for IEC activities at State level and 197.39 lakh has been spent at District level. Details of the District level training programmes in 2019-20 and 2020-21 (upto September 30, 2020) are given in **Appendix 12.1.13**.

New Initiatives

Collectors@school Programme

Collectors@School is a State-wide programme targeting school students to make them aware of the need for scientific waste management and help them practice it. The project initiated by Suchitwa Mission is currently being implemented in selected schools in the State in association with Local Self Government Institutions. A minimum of three schools from each District have been selected by District Suchitwa Mission for implementing the programme in the pilot phase. It aims to develop (1) the habit of segregation of waste in students by schools and thereby

Box 12.1.2 Declaration of Suchitwa Padavi

Suchitwa Padavi is given to the Local Governments which provided basic facilities for bio and non-bio waste treatment, effectively implemented door-to-door waste collection activities, carried out the activities of the Harithakarma Sena and installed public toilets and latrines in all households. The Local Governments, which were given the status, are able to implement Green Protocol, control the consumption of disposable plastics and successful in spreading public awareness on waste management. As on October 10, 2020, 597 local bodies in the State (31 Block Panchayats, 508 Grama Panchayats, 55 Municipalities and 3 corporations) were officially awarded the status of 'Suchitwa Padavi'.

disseminate the message of judicious use of natural resources for sustainable development to the households and to the society; and (2) an understanding of Reduce, Reuse, Recycle (3 R's) concept. 238 schools in the State have initiated the programme which is now in the process of scaling up to 3,772 schools. The Mission intends to scale up this to the entire schools in the State to inculcate the waste segregation habit among school children.

GOBAR DHAN (Galvanising Organic Bio-Agro Resources Dhan) Scheme

The scheme aims at processing of biodegradable waste and generation of biogas. A total number of 21 biogas plant projects, at least one in each District have been initiated in the State. Under Gobar Dhan Ten projects, one in Thaneermukkhom Grama panchayath (GP) in Alappuzha District, Koovappady and Pampakuda GPs in Ernakulam District, Elamkulam GP and Othukkungal GP in Malappuram District, Adimaly and Nedumkandam Grama Panchayat in Idukki District, Pudukerry GP in Palakkad, Velom GP in Kozhikode, Pappinassery Grama Panchayat in Kannur District have been completed. The works of the rest of the projects are progressing. A biogas plant is being constructed in Perinjanam Grama Panchayath of Thrissur District under the GOBAR-Dhan Scheme of the Swachh Bharat Mission Gramin.

Swachh Iconic Place (SIP) – Phase II – Kalady

"Swachh Iconic Place (SIP)" is a multi-stakeholder initiative, focusing on cleaning up 100 places

across India that are "Iconic" because of their heritage, religious and cultural significance. All iconic sites have designated Public Sector Undertakings (PSUs) for financial and technical support. Kalady in Ernakulam District as the birth place of Sri Sankaracharya has been selected as a Swachh Iconic Place in Phase II by the Ministry of Drinking Water and Sanitation under SBM. Bharat Petroleum Company Limited (BPCL) has been designated as the PSU for supporting the activities in Kalady. As part of the project, the peripheral areas have been cleaned and about 500 tonnes of waste has been removed from the dumping yard. During the floods in 2018 and 2019, 560 tonnes of non-biodegradable waste was disposed. Various awareness campaigns and IEC programmes are being undertaken for effective waste management. A proposal for developing Kalady as a pilgrim tourist destination is under consideration. The GP renovated 6 major ponds. Kalady – Swachh Iconic Place was awarded the "Swachh Bharat National Award" by the Ministry of Drinking Water and Sanitation, GoI.

Green Protocol

It is a programme for behavioural change to achieve judicious use of resources by reducing wastage and promoting reuse, thereby moving towards a green living and conserving material and energy. This movement is expected to inculcate the 3R habit and promote a culture of material and energy conservation. As part of the Green Office Campaign, each Government office has designated nodal officers for coordinating Green Protocol activities in their offices. Training programmes were also conducted for

the designated State level nodal officers. Green Protocol is being promoted in major events like Attukal Ponkala, Ramzan and meetings.

Ban on Single Use Plastics

Based on the recommendations of Suchitwa Mission, the Government has banned the use of PVC flex and single use plastic items in order to curb the uncontrolled generation of plastic and disposable items and its unscientific disposal. It is estimated that the State generates around 45,000 tonnes of plastic waste a year. The ban came into effect taking into account the environmental and health impacts of these disposables. The Government also recommended substitutes in their places respectively as part of a broader strategy towards more sustainable production.

iii. Urban Infrastructure

Increasing urbanisation demands more investment in urban infrastructure development. Considering the special features of urbanisation and the geographical peculiarities of Kerala, the process of urbanisation in the State requires special attention while moulding various urban infrastructure development programmes. Therefore, for the State to have highest possible positive impact of urbanisation on economic growth, the negative externalities of urbanisation have to be taken care of with great caution.

Urban infrastructure covers schemes such as water supply, waste management system, city sanitation Plans, establishment and enhancement of public comfort facilities, implementation and improvement of sewerage schemes, storm water drainage schemes, effective parking policy and modern mechanised parking system, beautification of cities and creation of green cities and non-motorised urban conveyance. The major infrastructure development programmes being implemented in the State are discussed below.

Atal Mission for Rejuvenation and Urban Transformation (AMRUT) aims to address the basic challenges of urban physical and

institutional infrastructure development covering the components of water supply and sewerage, septage, storm water drainage, urban transport, green spaces and parks and capacity building. Six Municipal corporations and three Municipalities viz; Alappuzha, Palakkad and Guruvayoor in the State have been selected under AMRUT. The duration of the mission was initially for 5 years (2015-2020), but now the period is extended up to March 2022. The projects were approved in three State Annual Action Plans (SAAPs) (SAAP 2015-16, 2016-17, 2017-18) covering 1,008 projects costing ₹2,357.64 crore. The fund sharing pattern among Centre, State and ULB is in the ratio of 50:30:20. Out of 1,008 projects, 1,002 projects have been tendered, work awarded for 961 projects and 482 projects have been completed as on September 30, 2020.

The priority sectors under AMRUT are water supply and sewerage. Water supply projects aim to ensure that every household has access to a tap with assured supply of water. The project comprises of works such as rejuvenation of water sources, construction of water treatment plants, water tanks, laying new pipe lines and replacing old pipes. Administrative sanction was accorded for 175 projects costing ₹1,101.78 crore under this sector. Kerala Water Authority is implementing 165 projects and the remaining are implemented by the ULBs. 55 projects have already been completed and the expenditure incurred is ₹584.60 crore.

Septage and sewerage projects aims to manage liquid waste in AMRUT cities scientifically and to ensure that every household has access to a sewerage connection. Administrative sanction worth ₹550.35 crore have been accorded for 140 projects under septage and sewerage. Kerala Water Authority is implementing 117 projects and the remaining are implemented by the ULBs. 43 projects have been completed and the expenditure incurred is ₹45.64 crore.

Projects under storm water drainage sector aims to eliminate flooding in cities by the construction

and improvement of drains and storm water drains. It comprises of 498 projects costing ₹279.82 crore. Of this, 324 projects have been completed and expenditure incurred is ₹182.53 crore.

Projects under urban transport sector aims to facilitate non-motorised transport in cities. It includes construction of skywalk, footpaths/walkways, sidewalks, foot over-bridges and multi-level parking. There are 122 projects costing ₹202.36 crore. Of this, 36 projects have been completed and the expenditure incurred is 45.69 crore.

Under green space and parks sector, there are projects for development of green spaces and parks with special provision for child-friendly components. There are 73 projects costing ₹46.48 crore. Of this, 24 projects have been completed and the expenditure incurred is 14.51 crore. The financial progress of the AMRUT Project upto September 30, 2020 is given in **Appendix 12.1.14**. The progress of AMRUT project in nine cities is shown in **Appendix 12.1.15** and sector-wise progress is shown in **Appendix 12.1.16**.

Incentive for Reform is one purpose of the Mission to improve governance through a set of Reforms. During the Mission period, 11 Reforms will be implemented. Ten per cent of the Annual Budget allocation shall be kept apart and given to the States/Union Territories (UTs) every year as incentive for achievement of Reforms. The Mission will give incentives for the previous year at the start of the succeeding Financial Year. The National Mission Directorate, on receipt of the self-assessment, will announce the award of incentive to the States. Kerala has received reforms incentives continuously for the last 4 years and bagged 7th rank at National level. So far, the State has received an amount of ₹59.82 crore as reform incentives.

Smart City Mission is a major infrastructure development programme launched by the MoHUA in 2015 to promote cities that provide

core infrastructure and give a decent quality of life to its citizens, provide a clean and sustainable environment and encourage application of smart solutions. Kochi city was selected under the Mission in the first phase and subsequently Thiruvananthapuram in the third phase. The total estimated project cost of the Smart City Kochi is ₹2,076 crore and Thiruvananthapuram is ₹1,538.20 crore. Of which, Central share is ₹500.00 crore and State share is ₹500.00 crore and the balance amount is adjusted through convergence, external funding and public private partnership for both Kochi and Thiruvananthapuram.

The Smart City project of Kochi aims at a planned and integrated development of Fort Kochi-Mattancherry area by improving the civic infrastructure. Under Smart City Kochi, 47 projects are envisaged, of this, 32 projects are under implementation, 5 projects are in tendering stage, 5 projects to be tendered and five projects are convergence projects. The initiated projects include integrated command control and communication centre, smart roads in Ernakulam and West Kochi, implementation of smart LED lighting, construction of new block at Fort Kochi Taluk hospital, Mattanchery Women and Children hospital, cancer block for General Hospital, roof top solar project, Intelligent Traffic Management system, and distribution of waste bins. Four projects were completed worth ₹75.36 crore viz; hospital road costing ₹4.49 crore, 1000 KWp grid connected roof top solar photovoltaic power plants at 28 buildings in Kochi Municipal Corporation area costing ₹5.7 crore, Integrated Command, Control and Communication Centre (IC4) in Kochi worth ₹64.50 crore, household and street bins for segregation of organic and inorganic wastes in Kochi worth ₹0.67 crore. Integrated Traffic Management System (ITMS) in Kochi worth ₹26.90 crore is functional since October 19, 2020.

Smart City Thiruvananthapuram Limited (SCTL) envisages 43 projects of which DPR prepared for 39 projects and administrative and technical sanction has been issued for all these projects

amounting to ₹1134.08 crore. Of this, 37 projects have been tendered and work awarded for 32 projects. Convergence projects are also under implementation under Swadesh Darshan and AMRUT including water supply, drainage and storm water drains.

Under Smart city Thiruvananthapuram, renovation and reconstruction of public toilets, installation of drinking water kiosks at 25 locations, construction of smart bus shelters, redevelopment of Palayam market, construction of multi-level car parking at Palayam and Thampanoor, rain water harvesting, development of integrated command and control centre, integrated social housing complex project at Rajaji Nagar, improvement of public health centre at Rajaji Nagar, rehabilitation block for TRIDA, construction of open air theatre and park at Putharikandam, redevelopment of Ponnara Sreedhar park and Children's park at Kerala Water Authority premises, smart roads, construction of interactive information kiosks are some of the projects that are in the final stages of implementation. Five projects have been completed including procurement of 15 electric autos and 15 electric rickshaws and smart EV Charger, upgradation of Anganwadi at 3 locations and open gym and child play equipment.

The Kerala Town and Country Planning Act 2016 mandates for the preparation of Master Plans for the areas under the jurisdiction of Local Self Government Institutions concerned for planned development. Master Plan envisages a comprehensive Plan for a local planning area. Master Plans for all the statutory urban local bodies are prepared in 3 phases. The details of the Master Plans prepared in Phase I, II and III is shown in **Appendix 12.1.17**.

Rural Connectivity

Rural road connectivity is a key component of rural development by promoting access to economic and social services and thereby generating increased agricultural incomes and productive employment opportunities.

In Kerala, rural connectivity through Pradhan Mantri Gram Sadak Yojana (PMGSY) has been very useful to the people in rural areas. Roads constructed under PMGSY are long lasting roads with high quality and durability as there exists a three-tier Quality Management System at the District Level, State Level and National Level. In Kerala, the Local Self Government (Rural) Department is the nodal department and Kerala State Rural Roads Development Agency (KSRRDA) is the State nodal agency for implementation of the scheme. The funds provided by GoI under PMGSY have to be used only for meeting the actual estimate cost of the works. There is no provision for utilising the fund for tender excess, shifting of utilities and also for maintenance of completed roads. To meet these expenses, the State Government sets aside fund over and above the stipulated share of 40 per cent through the 'State support scheme for PMGSY'.

PMGSY-III guidelines envisage consolidation of existing rural road network by upgradation of existing roads that are connected to grameen agricultural markets, higher secondary schools and hospitals. Kerala has been allocated 1,425 km of road. TS accorded for Batch-I 20 roads having total length of 104.65 km costing ₹8,286.00 lakh are in tender stage now. The preparation of DPRs for a length of 308 km had been completed and submitted to State Technical Agency (STA) for scrutiny and the DPRs of the rest of the road length works are in progress.

An amount of ₹12,218.00 lakh and ₹3,056.42 lakh were expended in 2019-20 and 2020-21 (upto September 30, 2020) respectively under PMGSY and an amount of ₹1,630.00 lakh was expended in 2019-20 under the scheme 'State Support for PMGSY'. The District-wise details of laying of roads under PMGSY scheme in 2019-20 and 2020-21 (upto September 30, 2020) are given in **Appendix 12. 1.18**.

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) – Watershed Development Component (WDC)

The Government of India merged the erstwhile Integrated Watershed Management Programme (IWMP) with the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) in 2015-16 and thereafter IWMP is implemented as the watershed component of the PMKSY. The funding pattern of the scheme between Central and State Governments is in 60:40 ratio. Agriculture Department is the nodal department for the implementation of PMKSY.

Prevention of soil erosion, regeneration of natural vegetation, rain water harvesting, recharging of ground water and reclamation of cultivable wasteland are the outcomes envisaged in the programme. This enables multi cropping, and the introduction of diverse agro-based activities, which help to provide sustainable livelihoods to the people residing in the watershed area. The project area is a cluster of 5-10 micro watersheds with area ranging from 4,000 to 6,000 Ha. Block Panchayats are the project implementing agencies. The project cost varies from ₹12,000 per ha for plain areas and ₹15,000 per ha for hilly areas.

An amount of ₹2031.00 lakh and ₹1262.92 lakh were expended in 2019-20 and 2020-21 (upto September 30, 2020) respectively under PMKSY. 26 projects under Batch II at a project cost of ₹203.96 crore and 15 projects under Batch III at a project cost of ₹106.86 crore were completed by March 2018 and September 2020 respectively. Government of India have directed to complete all the remaining PMKSY-WDC projects by March 31, 2021.

2. Employment Generation And Livelihood Support

Employment generation is an important indicator of poverty alleviation through increasing the level of income. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), one of the core of the core schemes in CSS plays

a significant role in providing rural employment. It proposes to enhance the livelihood security of the households in rural areas of the country by providing at least 100 days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do unskilled manual work. In Kerala, the unskilled wage rate for this programme was ₹271 from April 1, 2018 onwards. It was enhanced to ₹291 from April 1, 2020. From 2017-18 onwards, MGNREGS activities in the State is converged with 'Haritha Keralam Mission'. To utilise the full potential of MGNREGS through convergence with other Departmental schemes, following major initiatives are taken up in the State in 2019-20 and 2020-21.

- With the aim of contributing productive assets to agriculture, irrigation, animal husbandry, fisheries, dairy development and forest, thrust is given in generating individual as well as public assets for maximising production and development in these areas.
- Public asset generating works such as construction of compound wall and playground for schools, Anganwadi construction were taken up.
- Provided individual livelihood assets like cattle sheds, goat sheds and poultry sheds.
- In the year 2019, the Government of Kerala, issued order for taking up MGNREGS works in Geographic Information System (GIS) based Integrated Planning at Grama Panchayath level incorporating all permissible works. 100 Grama Panchayaths are selected for preparation of GIS based integrated Plans under MGNREGS on a pilot basis.
- Special focus on intervention in Subhiksha Keralam to create productive assets for strengthening livelihood resource base of poor.
- Special assistance to Scheduled Tribes (State sponsored component)
 - > **Tribal plus scheme** – A Scheme aiming to provide additional 100 days of job to Scheduled Tribe households using special financial assistance from the State Government.

> **Advance wage payment** – In order to motivate the participation of ST workers under the scheme, State Government has initiated a system to give advance payment as wages to ST workers from State Plan fund of Scheduled Tribes Development Department through Kudumbashree. The State Government has devised a system to pay the unskilled wages every week, to the beneficiaries using a corpus fund set apart by the Scheduled Tribes Development Department and to recoup the already paid advance amount from the beneficiaries' bank accounts, with their consent, as soon as the wages under MGNREGS is credited to the respective bank accounts.

As a result of the above innovative programmes, there was a great improvement in the participation of ST families under MGNREGS in 2019-20. The average person days for ST families in 2019-20 (lockdown from March 22, 2020 to March 31, 2020) was 77 and a total of 53.93 lakh ST person days were generated. Among the 69,609 ST families who participated in the activities of MGNREGS in 2019-20, 21,331 families completed 100 days and 2,918 families completed 200 days of employment.

The expenditure under MGNREGS in 2019-20 was ₹2,701.41 crore which is 95.46 per cent of the total release during the year. In the year 2019-20, a total of 8.02 crore person days were generated, of which 1.24 crore were for Scheduled Castes and 0.54 crore were Scheduled Tribes. In 2020-21, (as on September 30, 2020) an amount of ₹1,599.49 crore was expended, and 3.70 crore person days was created (as on September 30, 2020). The financial and physical progress of MGNREGS in 2019-20 and 2020-21 (upto September 30, 2020) are given in **Appendix 12.1.19, 12.1.20, 12.1.21 and 12.1.22** respectively.

MGNREGS is applicable only in rural areas. Based on its impact on rural poverty alleviation, GoK started Ayyankali Urban Employment

Guarantee Scheme (AUEGS), a State funded programme, intended to enhance livelihood security in urban areas by providing at least 100 days of guaranteed wage employment to every household whose adult members are willing to do unskilled manual labour. The State Government has launched the Ayyankali Urban Employment Guarantee Scheme in the pattern of MGNREGS. The fund has to be utilised for creating durable assets in Local Governments.

In 2019-20, an amount of ₹75.00 crore has been earmarked for Ayyankali Urban Employment Guarantee Scheme. The expenditure incurred was ₹65.09 crore and created 26,80,660 person days of employment in various Municipalities and Corporations. As on March 31, 2019, job card was issued to 1,81,586; 41,049 and 2,905 persons in General, Scheduled Castes and Scheduled Tribes respectively including 20,954 males and 2,04586 females. During this period, 1,05,788 households and 96,259 women were provided employment and 3,299 families completed 100 days of employment.

In 2020-21, the outlay provided was ₹75.00 crore. As on October 31, 2020, ₹74.23 crore was expended and created 13,90,464 person days of employment. Up to October 31, 2020, 46,373 households and 46,289 women were provided employment and 220 families completed 100 days employment. As on October 31, 2020, job card was issued to 2,12,099; 41,987 and 4,027 persons in General, Scheduled Castes and Scheduled Tribes respectively including 24,412 males and 2,33,701 females. 68,991 AUEGS labourers who were beneficiaries of PMAY-Urban scheme issued job card to get 90 days of employment. Dairy farming has also been introduced under the scheme in 2019-20 and the farmers who have more than two cattles can be given employment and wage through the scheme as per norms. Details on the Local Government-wise distribution of funds under AUEGS in 2019-20 and 2020-21 up to October 31, 2020 are given in **Appendix 12.1.23** and physical achievements of the scheme are given in **Appendix 12.1.24**.

Table 12.1.8 Physical achievements of DAY-NRLM

Name of the scheme	Components	Physical achievements (in number)	
		2019-20	2020-21 (upto 30/09/2020)
DAY - NRLM	NHGs	7,790	2,100
DDU GKY	Persons Trained	13,113	125
	Persons Appointed	9,957	120
MKSP-	JLGs	68,388	71,934
	Farmers	3,38,202	3,59,670
SVEP	NHGs (Mobilised)	5,428	328
	Enterprises	7,656	10,000

Source: Kudumbashree, Government of Kerala

While MGNREGS guarantees wage employment, due emphasis has also been given on livelihood development. Livelihood activities have direct impact on poverty reduction and employment generation and thereby increasing the standard of living of the people. The major initiative of Government of India in livelihood are the Deendayal Antyodaya Yojana – National Rural Livelihood Mission (DAY-NRLM) for rural areas and Deendayal Antyodaya Yojana–National Urban Livelihood Mission (DAY-NULM) for urban areas with a funding pattern of 60:40 ratio.

DAY-NRLM is a demand driven programme for encouraging self-employment among rural poor. Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU GKY), Start-up Village Entrepreneurship Programme (SVEP) and Mahila Kisan Sashaktikaran Pariyojana (MKSP) are the sub components of DAY-NRLM. DDU GKY is the skill and placement initiative under DAY-NRLM. SVEP helps to start and support rural enterprises in order to stimulate economic growth and reduce poverty and unemployment in the villages. The SVEP provides the supported enterprises with business skills, exposure, loans for starting and business support during the first critical six months of the enterprises by using the CBO network. As on August 31, 2020, a total of 12,212 enterprises were formed under SVEP and ₹30.50 crore Community Enterprises Fund (CEF) released to 7,654 enterprises. MKSP focuses on reducing the gender gap in agriculture, by promoting drudgery reduction systems and sustainable agricultural practices to

be followed by women farmers. In Kerala, MKSP project is implemented through the network of Kudumbashree Joint Liability Groups (JLGs).

In 2019-20, 7,790 Neighbourhood Groups (NHGs) were formed under DAY-NRLM and 3,38,202 farmers engaged in agricultural activities in 68,388 JLGs under MKSP. Out of the 13,113 persons trained under DDU GKY, 9,957 (75.93 per cent) persons got placements. Details on the physical achievements of DAY-NRLM are given in **Table 12.1.8**.

DAY-NULM aims to reduce the poverty and vulnerability of the urban poor. The scheme is being implemented in all the Urban Local Governments in the State. DAY-NULM has identified 3,195 homeless persons in the “shelter to the urban homeless” component of the programme. Upto September 30, 2020, 23,442 street vendors have been identified in the ‘support to urban street vendors component’. Identity cards were issued to 12,583 street vendors during the period. Under the component, ‘employment through skill training and placement’, 4784 candidates have been enrolled and out of this 4,012 candidates were certified and 2,379 candidates got placement. Skill training has been imparted to the unemployed urban poor youth in 74 trades across the sectors like cyber security, accounting, health care, automation, plastic technology, electronics, electrical, Ayurveda Nursing, hospitality, telecom and food processing. Under the self-employment programme of DAY-NULM, 1,211

individual micro-enterprises and 219 group enterprises were established and 9,628 NHGs were supported with interest subsidy on NHG linkage loan. Under the 'social mobilisation and institution development' component of DAY-NULM, opportunities are given to set up micro enterprises. Through this, 2,343 new NHGs were formed besides 4,646 NHGs and 97 Area Development Societies (ADSs) were supported with revolving fund and five city livelihood centres were sanctioned. Financial and physical achievement of DAY-NULM scheme is given in **Appendix 12.1.25** and **Appendix 12.1.26** respectively. List of District-wise micro enterprises and details of linkage banking NHGs are given in **Appendix 12.1.27** and **Appendix 12.1.28** respectively.

SPARSHAM, a State-wide campaign was launched for identifying those left out of Kudumbashree network, job aspirants interested in earning a livelihood by acquiring skill training by being placed in wage employment or be an entrepreneur by establishing a micro enterprise. The findings of this campaign were formulated as targets for the subsequent years and the mission has been successful in achieving the set targets.

As part of DAY-NULM, specific interventions were made for micro enterprises for marketing their goods and services such as identifying nano markets, displaying products of micro enterprises units in the web portal, setting up food kiosks and food fests, setting up of shops for exhibiting Kudumbashree products, providing training in geriatric care and formation of multitask teams from among those trained under the ARISE (Acquiring Resilience and Identity through Sustainable Employment) skill campaign. In all the placement linked skill development schemes, skill development agencies are not able to coordinate the placement in line with the aspirations of the unemployed youth. Many recruiters are willing to absorb candidates only from Human resources (HR) supply agency. Thus a society named 'Human Arm' was formed for the girls skilled under DAY-NULM. Annual turnover of the society during 2019-20 and

2020-21, (upto September 30) were ₹1.62 crore and ₹1.07 crore respectively and currently employs 258 candidates. The women employees are drawing a monthly salary of ₹14,321 and they have the benefits of PF and ESI. The society has extended its service to private hospital also.

Kudumbashree

Kudumbashree, the State Poverty Eradication Mission, was formed with the objective of poverty eradication through the empowerment of women. It is an innovative, women based, participatory poverty alleviation programme launched by GoK in 1998 with a participation of 45 lakh women. Kudumbashree is also the nodal agency for implementing various Centrally Sponsored Programmes namely, Deendayal Antyodaya Yojana-National Rural Livelihood Mission (DAY-NRLM), Deendayal Antyodaya Yojana-National Urban Livelihood Mission (DAY-NULM) and Pradhan Mantri Awas Yojana (Urban). In addition to this, Kudumbashree Mission enters into various activities in the State. The following are the major achievements of Kudumbashree in 2019-20 and 2020-21 (upto September 30, 2020).

For the rehabilitation of the poorest of the poor 'Asraya' was scaled up and renamed as 'Agathirahitha Keralam' Destitute Free Kerala (DFK). The needs of destitute are assessed in a convergent mode at local bodies and based on it detailed project reports were prepared. Forty per cent of the total project cost limiting to ₹40 lakh in case of general DFK projects and ₹50 lakh in case of ST projects are met through Kudumbashree known as the Challenge Fund. 1.56 lakh beneficiary families are supported through DFK project. 1033 local self-governments started implementing DFK, covering 1,56,647 beneficiary families. So far, Kudumbashree released challenge fund to all the approved projects to meet basic care services of beneficiaries like food, medicine and education.

BUDS institutions for children with disabilities functioning under LGs are monitored

through Kudumbashree machinery. In 2018-19, Kudumbashree allocated ₹12.5 lakh to 200 LSGI to start the new BUDS institutions. 145 new BUDS institutions were started till September 2020. In 2020-21, online class for BUDS children and online therapy programme for the parents and BUDS children were started with the support of Composite Regional Centre, Kozhikode. Agri-therapy programme named ‘Sanjeevani’ envisages mental and physical development of the individuals. Through BUDS/BRC the children were given training on vegetable cultivation. In this project, a minimum of 2 cents of land was used for cultivation by the students. 230 BUDS/BRCs were covered under this programme.

Niramaya Health Insurance Scheme was initiated as a huge help for the persons with autism, cerebral palsy, mental retardation and multiple disabilities which comes under the purview of National Trust Act, 1999. Through this scheme, the beneficiaries can avail an insurance coverage up to ₹1 lakh. In 2019-20, within the span of one month 5,164 children were enrolled under health insurance scheme.

Balasabha is a platform for children that voices their opinion, ensures their involvement in decision making, nurtures their evolving capacities and reinforces the relevance of children’s participation. As of now, there are 31,648 balasabhas, covering 4,39,866 children. Pencil Camp, an initiative put forward by Haritha Kerala Mission in connection with the Kudumbashree Balasabha programme aims to propagate healthy lifestyle in children thereby to build a healthy family and society. Pencil Camp programme has completed the training sessions in District, block, village panchayat and city corporation level.

Kudumbashree mission took an initiative “Building Resilience” programme and also created a Task Force named as “Bala Jagratha Sena”. Building resilience was a convergence programme with Kerala State Disaster Management Authority, Indian Meteorological

Department, Kerala Fire Force and Health Department which focusses on sensitising children about disasters and their consciousness to them. Various regular activities related to health and hygiene, environment and others were done through Task Force. 1,15,824 children participated and formed 7,337 Task Forces across the State.

Over 450 weekly markets/Nattuchanthas have been provided with the infrastructure and other revolving funds, resulting in sales realisation of ₹14 crore and leading to sales of more than 2,918 tonness of vegetables, banana and tubers by the JLGs. A total of 5,631 markets have been conducted in 2019-20. As part of Subhiksha Keralam campaign, 3,437 new JLGs were formed and 1,522 inactive JLGs were activated. 4,984 Ha land was cultivated. 1,666 Ha of fallow land was converted to cultivable land. 132 Animal Husbandry units were also started.

To scale up and strengthen the agricultural activities among the tribal communities, tribal JLGs and tribal Joint Liability Group Evaluation Agent (JEVA) were formed. 1,057 new tribal JLGs and 34 JEVA have been formed across Kerala which practice traditional agriculture. In order to support these JLGs financially, revolving fund was given @ 10,000/JLG. 847 acres were cultivated by the tribal JLGs in 2019-20.

The scheme ‘Prathyasha’ mainly aims at the formation of microenterprises among vulnerable women who belongs to the category of mothers of intellectually disabled children, person with disabilities, elderly, victims, widows and dependents of severely ill/bed ridden patients. A total of 668 women entrepreneurs got benefitted through this scheme. In 2019-20, 205 enterprises were formed, of which, 95 are group and 110 are individual enterprises.

Kudumbashree provides training to the members of Haritha Karma Sena in Local Governments for undertaking waste management activities. Through this, 28,589 women were trained in 2019-20.

One of the major health sector initiatives undertaken by Kudumbashree in 2018-19 was 'Harsham-Elder Care Project'. By developing a pool of trained care givers in health care sector to meet livelihood requirement is the major goal of this programme. In 2019-20, 645 Kudumbashree members were trained to work as care givers.

In order to grab the opportunities in construction sector, Kudumbashree members who are interested in construction activities are identified, trained and registered in respective Local Governments and are entrusted with construction projects of Local Governments. As of now, 288 women construction groups (257 rural groups and 31 urban groups) with 2,376 members were formed across the State and given training and these groups has been constructing 465 houses. In 2019-20, 42 Kudumbashree construction units at Alappuzha constructed 121 houses using CSR fund received from Ramoji Film City, Hyderabad. 19 construction units completed construction of 20 houses at Kollam as part of PMAY project, 4 construction units at Ernakulum completed 15 houses using the fund received through HUDCO.

'Relationship Kerala' programme was designed for including Persons with Disabilities, transgender and elderly. Various campaigns, medical camps, meetings and tours were conducted in this regard and in 2019-20, 16,195 elderly NHGs (1,78,902 members), 1,847 NHGs of Persons With Disabilities (PWD) (15,001

members) and 12 Transgender NHGs (140 members) were formed

For the strengthening of coastal areas through the development of coastal communities 'Theerashree' was initiated by Kudumbashree. Service of 91 Coastal Community Volunteers were drawn on for this and in 2019-20, 707 new NHGs (8,730 members) were formed and 179 defunct coastal NHGs were revived. 1,761 coastal NHGs were bank linked and they availed the loan of ₹107.00 crore. Two sub programs were initiated as part of this, one is *Prathibha theeram* and other is *Kaayika theeram*. *Prathibha theeram* aims to provide special tuitions and life skill education to the students during evenings. As part of this program, 62 centres were started and 1,312 children from coastal areas were benefitted. *Kaayika theeram* aims at creating opportunities for the coastal youth to take part in sports and games activities.

As part of "Hunger Free Kerala Project", as on December 07, 2020, Kudumbashree has formed 843 Janakeeya hotels which is functioning successfully across the State.

As part of post flood activity for resurgent Kerala, Kudumbashree has started a skill campaign viz; ARISE. The aim of this programme is to provide skill training to 50,000 candidates in 10 selected areas. The ten areas of training are housekeeping, house maid, plumbing, electronic repair, electrical work, day care, agriculture labour, sales, data

Box 12.1.3 Special Livelihood Development Package of Kudumbashree

Kudumbashree, under the supervision of the State Planning Board prepared a "Special Livelihood Development Package" to revive livelihoods lost in floods of 2018. An amount of ₹75.00 crore was earmarked for the package in the Budget 2019-20. As floods occurred in 2019 also, the Special Livelihood Development Package was extended to the financial year 2020-21 and ₹50.00 crore was provided in the Budget 2020-21. The package addresses the issues of the flood affected in two ways: (i) provides immediate financial assistance to the people to revive their livelihood activities like purchase of machinery and marketing and (ii) provides assistance to develop new livelihood among the interested affected people across the State. In 2020-21, an amount of ₹12.31 crore was expended (up to November 16, 2020). Major achievements of the package are as follows:

- 210 Haritha Karma Sena members were capacitated to start additional income generation activities.

- 19,355 Kudumbashree beneficiaries were provided employment with an average monthly income of ₹10,000 under Local Employment Assurance Programme (LEAP).
- Provided psychosocial support and sustainable income among children with disabilities enrolled in 150 BUDS institutions of Kerala through the production, branding and marketing of products.
- 140 fruit processing units (10 per District) are being established exclusively for pineapple, papaya, mango and jackfruit and 100 urban vegetable kiosks in State.
- ₹74.37 lakh was provided as subsidy for 26 Ksheerasagaram units (cow rearing initiative) and 35 Aadugramam units (goat rearing initiative).
- 100 permanent marketing places named 'Kudumbashree Shopee' are being established by providing assistance for Marketing Support to CDS.
- Started Homeshops in all Districts except Malappuram.
- 1,550 tribal families are being supported to revive their livelihoods and to establish processing and marketing systems.

entry and laundry and ironing. As on September 30, 2020, around 14,049 candidates were trained, 219 Multi Task Teams were formed and 4,883 candidates received job through ARISE.

Activities during the Covid-19 Pandemic

In view of the current Covid-19 pandemic, several initiatives have been taken under the mission to trim down the infection rate. Efforts have been undertaken to identify new opportunities for enabling the society earn a sustainable livelihood. Programmes to create awareness through social media, care for the elderly and destitute, special attention to migrants and support to street vendors were organised. Community Kitchens later re-modeled as Janakeeya hotels are budget hotels which provided meals at the rate of ₹20 to the needy. Micro enterprise units that were engaged in production of soaps and detergents and cloth bag units are converted into enterprises to produce masks, sanitisers, hand wash, surgical gowns and PPE kits. Temporary shelters were allowed for migrant labourers where food was provided along with health check-ups.

Resurgent Kerala Loan Scheme

Government of Kerala introduced the 'Resurgent Kerala Loan (RKL) Scheme', with an aim of providing interest free loan to the flood affected families to revive livelihoods lost in the floods

of 2018. The scheme provides interest free loan upto ₹1 lakh per household (female headed). Assistance is provided for purchasing domestic appliances and attaining livelihood. Interested Kudumbashree members who are the beneficiaries of the immediate flood relief of ₹10,000 are eligible to get bank loan upto ₹1 lakh. The interest of the loan at 9 per cent will be borne by the Government. Upto September 2020, interest free loan of ₹1,800.04 crore was provided to 2.21 lakh people through 30,274 NHGs. District-wise details of NHGs that received Resurgent Kerala Loan are given in **Appendix 12.1.29**.

100 days programme of Kudumbashree

For mitigating the sufferings faced by the people due to Covid-19 pandemic and to boost the socio-economic status of the State, the State has announced a 100-day action Plan. The Kudumbashree Mission focusses on addressing three broad angles namely, livelihood, social development and overall women empowerment. The Mission targeted to give employment to 15,000 persons within 100 days. Of the 13,347 enterprises established, (Self-Employment: 11,405 and Wage Employment: 1,942) and 23,606 persons were employed (Self-Employment: 21,735 and Wage Employment: 1,871) upto November 10, 2020.

GLOSSARY

Basic Price

Basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, by the producer as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer.

Casual labour

A person who was casually engaged in others' farm or non-farm enterprises (both household and non-household) and, in return, received wages according to the terms of the daily or periodic work contract, is considered as a casual labour.

Consumer Price Index (CPI)

Consumer Price Index (CPI) is designed to measure the changes overtime in the level of retail prices of a fixed set of goods and services (consumption basket) consumed by an average family of a defined population group at a particular place.

CDS

The Current Daily activity Status for a person is determined on the basis of his/her activity status on each day of the reference week using a priority-cum-major time criterion.

CWS

The Current Weekly activity Status of a person is the activity status obtained for a person during a reference period of 7 days preceding the date of survey. It is decided on the basis of a certain priority cum major time criterion. According to the priority criterion, the status of 'working' gets priority over the status of 'not working but seeking or available for work', which in turn gets priority over the status of 'neither working nor available for work'.

Density of Population

Density of population is defined as the number of persons per square kilometre. The geographical unit is ward, town, district and state.

E- procurement

E-Procurement is the business to business purchasing of goods and services through the internet.

Gross National Income (GNI)

Gross National Income is GDP less net taxes on production and imports, less compensation of employees less property income payable to the rest of the world plus the corresponding items receivable from the rest of the world (in other words, GDP less primary incomes payable to non-resident units plus primary incomes receivable from non-resident units); an alternative approach to measuring GNI at market prices is as the aggregate value of the balances of gross primary incomes for all sectors; (note that gross

national income is identical to gross national product (GNP) as previously used in national accounts generally).

Gross Value Added (GVA)

GGVA is the measure of the value of goods and services produced in an area, industry or sector of an economy. In national accounts, GVA is output minus inter-mediate consumption.

GVA at Basic prices

Gross Value Added at basic prices is defined as output valued at basic prices less intermediate consumption valued at purchasers' prices. Here the GVA is known by the price with which the output is valued. From the point of view of the producer, purchasers' prices for inputs and basic prices for outputs represent the prices actually paid and received. Their use leads to a measure of gross value added that is particularly relevant for the producer.

Infant Mortality

The infant mortality rate is an estimate of the number of infant deaths (death before the first birthday of an infant) for every 1,000 live births.

Labour force

Persons who were either 'working' (or employed) or 'seeking or available for work' (or unemployed) constituted the labour force.

Labour Force Participation Rate (LFPR)

Labour Force Participation Rate is the ratio between the labour force and the overall size of their cohort (national population of the same age range).

Literacy Rate

Literacy rate is defined as the percentage of population aged 6 years and above who can both read and write with understanding a short simple statement on his/her everyday life.

National Family Health Survey

National Family Health Survey (NFHS) is a large-scale, multi-round survey conducted in a representative sample of households throughout India.

Old age dependency ratio

The number of persons in age group 60 years and more divided by the number of persons in age group 15-59 years.

Parity Index

Parity Index is a relative measure of the gains or loss to farmers as a consequence of the price fluctuations in the

economy. The index is a function of cost of farm cultivation, domestic expenditure, and market rate of farm products.

Protection of Children from Sexual Offences Act, 2012

An Act to protect children from offences of sexual assault, sexual harassment and pornography and provide for establishment of Special Courts for trial of such offences and for matters connected therewith or incidental thereto.

Retail Price

Retail Price of a commodity is defined as the price which the ultimate consumer pays for relatively small transactions of the commodity.

School Management Committees (SMC)

It comprises of local officials, parents, guardians and teachers. The SMCs will monitor utilisation of Government grants and the school environment.

Sex Ratio

Sex ratio is defined as the number of females per 1000 males.

Urban Agglomeration

An Urban Agglomeration is a continuous urban spread comprising of a town and its adjoining outgrowths, or two or more physically contiguous census towns/statutory towns together with or without outgrowths of such towns.

UPS

Here the activity status is determined with reference to a relatively longer period during a reference period of 365 days. Unemployment Rate as per this method indicates the numerical magnitude of the persons unemployed for a relatively longer period. Thus it is an indicator of chronically unemployed.

Usual Principal and Subsidiary Status (UPSS)

Unemployment Rate as per this method also indicates the numerical magnitude of the persons unemployed for a relatively longer period during a reference period of 365 days. However, here the number of unemployed is arrived at excluding those employed in a subsidiary capacity during the reference period. The number arrived as per this method will be lower than the UPS approach as some persons categorised as unemployed according to the UPS approach might be working in a subsidiary capacity and this persons are excluded in the UPSS method.

Wholesale Price Index (WPI)

Wholesale Price Index measures the average changes in the prices of commodities for bulk sale at the level of early stage of transaction.

Worker Population Ratio (WPR)

WPR is defined as the percentage of employed persons in the population.

ABBREVIATIONS

AAY: Antyodaya Anna Yojana	ASI: Annual Survey of Industries
ABP: Agasthyavanam Biological Park	ATMA: Agriculture Technology Management Agency
ADB: Asian Development Bank	AYUSH: Ayurveda, Yoga and Naturopathy, Unani, Siddha, and Homoeopathy
AEU: Agro Ecological Unit	BDA: Bamboo Development Agency
AHIDF: Animal Husbandry Infrastructure Development Fund	BDS: Brahmagiri Development Society
AI: Artificial Insemination	BE: Budget Estimate
AMRUT: Atal Mission for Rejuvenation and Urban Transformation	BMC: Biodiversity Management Committees
AMUL: Anand Milk Union Limited	BOD: Biochemical Oxygen Demand
ANERT: Agency for Non-conventional Energy and Rural Technology	BPL: Below Poverty Line
ANP: Annapoorna Scheme	BRDC: Bekal Resorts Development Corporation
APCOS: Anand Pattern Cooperative Societies	BSNL: Bharat Sanchar Nigam Limited
APL: Above Poverty Line	CAAQMS: Continuous Ambient Air Quality Monitoring Stations
APTS: Anti-Power Theft Squad	CAPEX: Kerala State Cashew Workers Apex Co-Operative Society
ARD: Authorised Retail Distributors	CBSE: Central Board of Secondary Education
ARMS: Animal Resource Management System	CCC: Covid Care Centres
ASAP: Additional Skill Acquisition Programme	C-DAC: Centre for Development of Advanced Computing
ASCAD: Assistance to States for Control of Animal Diseases	CDC: Child Development Centre
ASCs: Agro Service Centres	C-DIT: Centre for Development of Imaging Technology
ASEAN: Association of Southeast Asian Nations	CDS: Centre for Development Studies
ASHA: Accredited Social Health Activist	CEPCI: Cashew Export Promotion Council of India
	CFC: Central Finance Commission

CFLTC: Covid First Line Treatment Centres
CFSC: Common Facility Service Centre
CHAI: Catholic Hospital Association of India
CHIS: Comprehensive Health Insurance Scheme
CIAL: Cochin International Airport Limited
CMDRF: Chief Minister's Distress Relief Fund
CMHLS: Chief Minister's Helping Hand Loan Scheme
CPC: Centralised Processing Center
CPI: Consumer Price Index
CPSEs: Central Public Sector Enterprises
CSIND: Coastal Shipping and Inland Navigation Department
CSO: Central Statistics Office
CSS: Centrally Sponsored Scheme
CTCRI: Tuber Crops Research Institute
CUSAT: Cochin University of Science and Technology
CWC: Central Water Commission
CWRDM: Centre for Water Resources Development and Management
Coirfed: The Kerala State Co-operative Coir Marketing Federation Ltd.
DBFOT: Design, Built, Finance, Operate and Transfer
DCB: District Co-operative Bank
DCS: Dairy Co-operative Society
DDU-GKY: Deen Dayal Upadhyaya Grameen Kaushalya Yojana
DES: Directorate of Economics and Statistics
DGE&T: Director General of Employment and Training
DIC: Directorate of Industries and Commerce
DMHP: District Mental Health Programme
DMRC: Delhi Metro Rail Corporation
DPL: Development Policy Loan
DRDO: Defence Research and Development Organisation
DRFI: Disaster Risk Financing and Insurance
DRIQ Board: Design Research, Investigation and Quality Control Board
DoECC: Directorate of Environment and Climate Change
EDCs: Enterprise Development Committees
EEZ: Exclusive Economic Zone
EMC: Energy Management Centre
EPC: Engineering Procurement and Construction
ESI: Employees State Insurance
ESS: Entrepreneur Support Scheme
FAO: Food and Agriculture Organisation
FC: Finance Commission
FCI: Food Corporation of India
FHC: Family Health Centre
FMCG : Fast Moving Consumer Goods
FMD: Foot and Mouth Disease
FOMIL: Foam Mattings India Limited
FPO: Farmer Producer Organisation
FRO: Farmers Retail Outlets
FSI : Forest Survey of India
FTA: Free Trade Agreement
GATE: Graduate Aptitude Test in Engineering
GCC: Gulf Cooperation Council
GCDA: Greater Cochin Development Authority
GDP: Gross Domestic Product
GEC: Government Engineering College
GHG : Greenhouse Gas
GIS: Geographic Information System
GST: Goods and Services Tax
GSVA: Gross State Value Added
GVA: Gross Value Added
GoI: Government of India
HDCK: Handicrafts Development Corporation of Kerala
HDI: Human Development Index
HS: High School
HSC: House Service Connection
HUDCO: Housing and Urban Development Corporation
HVDC: High Voltage Direct Current
IAMAI: Internet and Mobile Association of India
ICDS: Integrated Child Development Services
ICFOSS: International Centre for Free and Open Source Software
ICPS: Integrated Child Protection Scheme
ICSE: Indian Certificate of Secondary Education
ICT: Information and Communications Technology
IDSP: Integrated Disease Surveillance Programme
IGC: Industrial Growth Centers
IGNOAPS: Indira Gandhi National Rural Employment Guarantee Scheme
IIHT: Indian Institute of Handloom Technology
IIITM-K : Indian Institute of Information Technology and Management Kerala

ILO: International Labour Organisation

IMA: Indian Medical Association

IMD: Indian Meteorological Department

INDC: India's intended Nationally Determined Contribution

IPC: Irrigation Potential Created

IPDS: Integrated Power Development Scheme

IRS: Indian Register of Shipping Standard

ISM: Interstate Migrant, Indian System of Medicine

ISRO: Indian Space Research Organisation

IT: Information Technology

ITI: Industrial Training Institutes

IUCN: International Union for Conservation of Nature

IWMP: Integrated Watershed Management Programme

IWRM: Integrated Water Resources Management

JICA: Japan International Cooperation Agency

JJ: Juvenile Justice

JLGs: Joint Liability Groups

JNNURM: Jawaharlal Nehru National Urban Renewal Mission

JNPT: Jawaharlal Nehru Port Trust

JNTBGRI: Jawaharlal Nehru Tropical Botanic Garden and Research Institute

K-FON: Kerala Fibre Optic Network

KADCO: Kerala Artisans Development Corporation

KARSAP: Kerala Antimicrobial Resistance Strategic Action Plan

KASE: Kerala Academy for Skills Excellence

KASP: Karunya Arogya Suraksha Padhathi

KAU: Kerala Agricultural University

KCC: Kisan Credit Card

KCHR: Kerala Council for Historical Research

KCMMF: Kerala Co-operative Milk Marketing Federation

KERAFED: Kerala Kerakarshaka Sahakarana Federation

KESRU: Kerala Self Employment Scheme for the Registered Unemployed

KFC: Kerala Financial Corporation

KFRI: Kerala Forest Research Institute

KFWFB: Kerala Fisherman's Welfare Fund Board

KHRI: Kerala Highway Research Institute

KIIFB: Kerala Infrastructure Investment Fund Board

KILA: Kerala Institute of Local Administration

KILE: Kerala Institute of Labour and Employment

KINFRA: Kerala Industrial Infrastructure Development Corporation

KITTS: Kerala Institute of Tourism and Travel Studies

KLDB: Kerala Livestock Development Board

KMSCL: Kerala Medical Services Corporation Limited

KRDCL: Kerala Rail Development Corporation

KRFB: Kerala Road Fund Board

KSACC: Kerala State Agency for the Expansion of Cashew Cultivation

KSBB: Kerala State Biodiversity Board

KSBCDC: Kerala State Backward Classes Development Corporation

KSBM: Kerala State Bamboo Mission

KSCADC: Kerala State Coastal Area Development Corporation

KSCARDB: Kerala State Co-operative Agriculture and Rural Development Bank

KSCC: Kerala State Coir Corporation

KSCDC: Kerala State Cashew Development Corporation

KSCMMC: Kerala State Coir Machinery Manufacturing Company Ltd

KSDI: Kerala State Spatial Data Infrastructure

KSDMA: Kerala State Disaster Management Authority

KSEBL: Kerala State Electricity Board Limited

KSERC: Kerala State Electricity Regulatory Commission

KSIDC: Kerala State Industrial Development Corporation

KSIE: Kerala State Industrial Enterprises Ltd

KSINC: Kerala Shipping and Inland Navigation Corporation Limited

KSITIL: Kerala State Information Technology Infrastructure Ltd

KSITM: Kerala State Information Technology Mission

KSLMA: Kerala State Literacy Mission Authority

KSPCB: Kerala State Pollution Control Board

KSPDC: Kerala State Poultry Development Corporation

KSRDA: Kerala State Rural Roads Development Agency

KSRTC: Kerala State Road Transport Corporation

KSSM: Kerala Social Security Mission

KSUDP: Kerala Sustainable Urban Development Project

KSUM: Kerala Startup Mission

KSWAN: Kerala State Wide Area Network

KTDC: Kerala Tourism Development Corporation

KTIL: Kerala Tourism Infrastructure Limited

KSoM: Kerala School of Mathematics	Sustainable Fishing
KVASU: Kerala Veterinary and Animal Science University	NFHS: National Family Health Survey
KVYAF: Kerala Voluntary Youth Action Force	NFSA: National Food Security Act
LAC: Legislative Assembly Constituencies	NGOs: Non-governmental Organisations
LED: Light Emission Diode	NFSA: National Food Security Act
LFPR: Labour Force Participation Rate	NHAI: National Highways Authority of India
LGs: Local Governments	NHM: National Health Mission
LIFE: Livelihood, Inclusion and Financial Empowerment	NIC: National Informatics Centre
LPG: Liquefied Petroleum Gas	NKKP: Nava Keralam Karma Padhathi
LSGD: Local Self Government Department	NNI: Net National Income
LTRCF: Long Term Rural Credit Fund	NORKA: Non Resident Keralite Affairs
MAH: Major Accident Hazard	NPNS: Non-Priority Non-Subsidy
MBGIPS: Malabar Botanical Garden and Institute of Plant Sciences	NPS: Non-Priority Subsidy
ME: Micro Enterprise	NQAS: National Quality Assurance Standards
MEP: Minimum Export Price	NRDWP: National Rural Drinking Water Programme
MES: Modular Employable Skill Courses	NRIs: Non Resident Indians
MGNREGS: Mahatma Gandhi National Rural Employment Guarantee Scheme	NRK: Non Resident Keralites
MIDH: Mission for Integrated Development of Horticulture	NRLM: National Rural Livelihood Mission
MMTPA: Million Metric Tonnes Per Annum	NSSO: National Sample Survey Office
MOSPI: Ministry of Statistics and Programme Implementation	NTFP: Non-Timber Forest Product
MPI: Meat Products of India	NSR: NORKA Skill Repository
MSME : Micro, Small, and Medium enterprises	NUALS: National University of Advanced Legal Studies
MT: Metric Tonne	NULM: National Urban Livelihood Mission
MVIP: Muvattupuzha Valley Irrigation Project	NWMP: National Water Quality Monitoring Programme
MoFPI: Ministry of Food Processing Industries	OFP: Operation Flood Programme
NABARD: National Bank for Agriculture and Rural Development	ORC: Our Responsibility to Children
NABL: National Accreditation Board for Testing and Calibration Laboratories	OSC: One Stop Centre
NAFCC: National Adaptation Fund on Climate Change	OTR: Own Tax Revenue
NAMP: National Ambient Air Quality Monitoring Programme	PACS: Primary Agricultural Co-operative Societies
NATPAC: National Transportation Planning and Research Centre	PBR: People's Biodiversity Register
NCRMI: The National Coir Research and Management	PDNA: Post Disaster Needs Assessment
NCVT: National Council for Vocational Training	PDS: Public Distribution System
NDDB: National Dairy Development Board	PF: Protected Forests
NDPREM: NORKA Department Project for Returned Emigrants	PFMS: Public Financial Management System
NETFISH: Network for Fish Quality Management and	PGS: Participatory Guarantee System
	PHC: Primary Health Centre
	PHH: Priority Household
	PLFS: Periodic Labour Force Survey
	PMAY: Pradhan Mantri Awaas Yojana
	PMAY-G: Pradhan Mantri Awaas Yojana-Gramin
	PMAY-U: Pradhan Mantri Awas Yojana – Urban
	PMEGP: Prime Ministers Employment Generation Programme

PMGKAY: Pradhan Mantri Garib Kalyan Anna Yojana	SCM: Smart Cities Mission
PMGSY: Pradhan Mantri Gram Sadak Yojana	SDG: Sustainable Development Goals
PMKSY: Pradhan Manthri Krishi Sinchai Yojana	SDRF: State Disaster Response Fund
PMSSY: Pradhan Manthri Swasthya Suraksha Yojana	SECC: Socio Economic and Caste Census
POCSO Act: Protection of Children from Sexual Offences Act	SECWAN: Secretariat Wide Area Network
POL: Petroleum, Oil and Lubricants	SFB: Small Finance Banks
PPA: Power Purchase Agreement	SFC: State Finance Commission
PPP: Public Private Partnership	SHGs: Self Help Groups
PSU: Public Sector Undertakings	SHM: State Horticulture Mission
PTA: Parent Teachers Association	SI-MET: State Institute of Medical Education and Technology
PWD: Public Works Department	SID: State Initiatives on Disabilities
PSS: Psychosocial Support	SIHM: State Institute of Hospitality Management
PSWs: Psychiatric Social Workers	SILK : Steel Industrials Kerala Ltd
PwDs: Persons with Disabilities	SJD: Social Justice Department
RBDCK: Roads and Bridges Development Corporation of Kerala	SLBC: State Level Bankers Committee
RCC: Regional Cancer Centre	SLBP: Special Livestock Breeding Programme
RCEP: Regional Comprehensive Economic Partnership	SLEC: State Level Empowered Committee
REACH: Resource Enhancement Academy for Career Heights	SMP: Skimmed Milk Powder
RET: Rare, Endangered and Threatened plants	SONTR: State's Own Non Tax Revenue
RGSA: Rastriya Gram Swaraj Abhiyan	SOTR: State's Own Tax Revenue
RIAB: Restructuring and Internal Audit Board	SPB: State Planning Board
RICK: Road Infrastructure Company Kerala	SRIBS: Srinivasa Ramanujan Institute for Basic Sciences
RIDF: Rural Infrastructure Development Fund	SSLC: Secondary School Leaving Certificate
RIT: Rajiv Gandhi Institute of Technology	SUIT: Skill Updating Institute for Staff Training Corporation
RKI: Rebuild Kerala Initiative	SWMP: State Water Quality Monitoring Programme
RKVY : Rashtriya Krishi Vikas Yojana	SWTD: State Water Transport Department
RRB : Regional Rural Bank	TBI: Technology Business Incubators
RSBY: Rashtriya Swasthya Beema Yojana	TCCL: Travancore Cochin Chemicals Ltd
RSPM: Respirable Suspended Particulate Matter	TDAP: Technology Development and Adaptation Programme
RTE: Right to Education	TEQIP: Technical Education Quality Improvement Programme
RWBCIS: Restructured Weather Based Crop Insurance Scheme	THR: Take Home Ration
SAF: Society for Assistance to Fisherwomen	TISS: Tata Institute of Social Sciences
SAMP: State Ambient Air Quality Monitoring Programme	TREST: Trivandrum Engineering Science and Technology
SAPCC: State Action Plan on Climate Change	TRIDA: Thiruvananthapuram Development Authority
SAZ: Special Agricultural Zones	TSG: Technical Support Groups
SBM: Swachh Bharat Mission	TTI: Teacher Training Institute
SC/ST: Scheduled Caste/Scheduled Tribes	VAMBAY: Valmiki Ambedkar Awas Yojana
SCCF: Special Climate Change Fund	VAT: Value Added Tax

VFPCK: Vegetable and Fruit Promotion Council Kerala

VGf: Viability Gap Fund

VHSE: Vocational Higher Secondary Education

WHO: World Health Organisation

WPI: Wholesale Price Index

WPR: Worker Population Ratio

WWDR: World Water Development Report



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