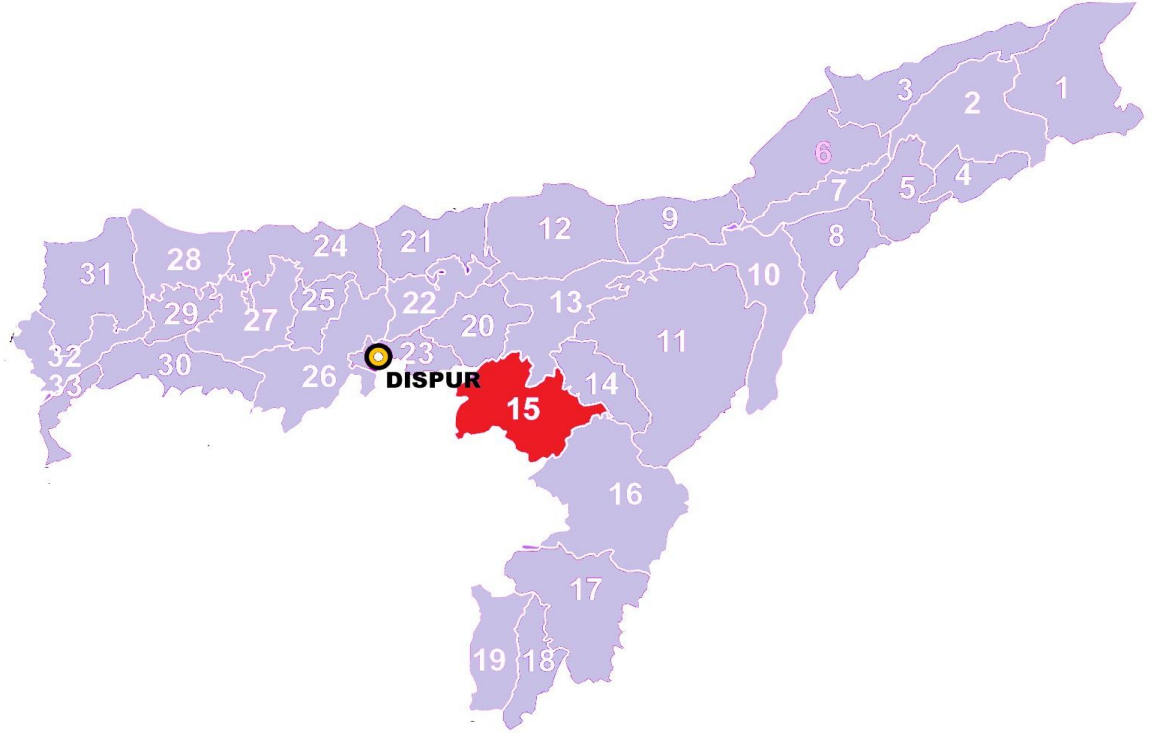


Area Development Schemes Karbi Anglong (West) District



राष्ट्रीय कृषि और ग्रामीण विकास बैंक
असम क्षेत्रीय कार्यालय, गुवाहाटी

**National Bank for Agriculture and Rural Development
Assam Regional Office**

G. S. Road, Dispur, Guwahati - 781 006

Tel: 2313235, 2313241, Fax: 0361- 2235657

मुख्य महाप्रबंधक के कलम से ...

अभी भी असम में कृषि प्रथाएँ प्रमुखतः एकल फसल पर आधारित हैं। जहाँ, इस पारंपरिक मनस्थिति को बदलने के लिए, अन्य क्षेत्रों में ध्यान केन्द्रित करने जैसे अनेक उपाय किए जा रहे हैं, वहाँ पर डेयरी, सूअर पालन, बकरी पालन, मत्स्य पालन जैसे संबद्ध गतिविधियों ने ग्रामीण असम के सांस्कृतिक, सामाजिक एवं आर्थिक बनावट में महत्वपूर्ण भूमिका निभाई है।

नाबार्ड ने इन अनुषंगी गतिविधियों की महत्व को समझते हुए, विशेषकर निरंतर लाभप्रद आय प्रदान करने में, असम के सभी जिलों में क्षेत्र विकास योजनाओं के निर्माण की सुविधा के लिए पहल की है।

इन योजनाओं के बारे में सभी हितधारकों यानी संबन्धित विभागों, बैंकों और गैर सरकारी संगठनों के साथ मिलकर इस दिशा में संकल्पना किया गया एवं विचार-विमर्श के बाद आम सहमति से इन्हें अंतिम रूप दिया गया है। विशिष्ट परियोजना क्षेत्रों में शाखाओं की पहचान की गई है तथा अगले पाँच वर्षों अर्थात् 2018-19 से 2022-23 तक विविध क्षेत्रों के तहत बैंकिंग योजनाएँ तैयार की गई हैं।

सही दिशा में उठाए गए छोटे छोटे कदमों को जब एकजुट कर लिया जाता है तो इससे बहुत बड़ा फर्क दिखाई देता है। बैंकिंग योजनाओं के बारे में बताते हुए मुझे असीम खूशी महसूस हो रही है जिसमें असम के डेयरी, सूअर पालन, बकरी पालन, मत्स्य पालन और बुनाई क्षेत्र को सुविधाजनक बनाने के लिए बैंकों द्वारा लगभग रु.802 करोड़ की बड़ी राशि की परिकल्पना की गई है।

किसानों तक आधार स्तरीय ऋण प्रवाह की वृद्धि करने में ये बैंकिंग योजनाएँ लंबे समय तक सहायक होंगी तथा “2022 तक किसानों की आय को दोगुना करना” अधिदेश की उपलब्धि की ओर इसका प्रबल योगदान भी रहेगा। ऋणों के संबंध में हो रहे गैर-निष्पादित आस्तिया(एनपीए) को लेकर बैंकों की वास्तविक शंका को नाबार्ड समझता है। इस जोखिम को कम करने के लिए, नाबार्ड ने अनेक जिलों में संयुक्त देयता समूह कार्यक्रम के साथ क्षेत्र विकास योजना को मिला दिया है। क्षेत्र विकास योजनाओं के तहत गैर सरकारी संगठनों के माध्यम से पोषित संयुक्त देयता समूह लाभार्थी होंगे, जहाँ गैर सरकारी संगठन ऋण संविभाग की गुणवत्ता बनाये रखने में सहायता करेंगे और उचित अदायगी नीति को सुविधाजनक बनाएँगे।

मुझे पूरा विश्वास है कि नाबार्ड की इस पहल का परिणाम बहुत जल्द ही 2018-19 में शुरू होने जा रहे बैंकिंग योजनाओं में दिखाई देगा। इसी सकारात्मक सोच के साथ मैं पूरे दिल से सभी हितधारकों को इस महान उद्यम में सहभागी बनने के लिए आमंत्रित करती हूँ।



[राजश्री के बरुआ]

मुख्य महाप्रबंधक

नाबार्ड, असम क्षेत्रीय कार्यालय, गुवाहाटी

From Chief General Manager's Desk

Agriculture in Assam is still predominantly practiced in the mono-cropping mode. Although many inroads have been made in focused areas to break this traditional mindset, allied activities such as dairy, piggery, goatery and fishery, have played an important role in the cultural, social and economic fabric of rural Assam.

NABARD recognizing the importance of these allied activities, especially given the steady profitable income, has taken the initiative to facilitate formulation of Area Development Schemes in all the districts of Assam, from 2018-19 to 2022-23, under various sectors.

Small steps in the right direction make a big difference when aggregated. It gives me immense pleasure to share the Banking Plans wherein a whopping ₹802 crore has been envisaged by the bankers to facilitate the Dairy, Piggery, Goatery, Fishery and Weaving sectors in Assam.

These Banking Plans would go a long way in increasing the Ground Level Credit to farmers and contribute immensely towards the achievement of "Doubling of Farmers' Income by 2022" mandate. NABARD understands the genuine apprehension of the bankers regarding loans going NPA. To mitigate this risk, NABARD has converged the Area Development Scheme with its Joint Liability Group programme in many districts. Joint Liability Groups nurtured through NGOs would be the beneficiaries under the Area Development Schemes, wherein the NGOs would help in maintaining the quality of the loan portfolio and facilitate good repayment ethics.

I am confident this initiative of NABARD will culminate into the Banking Plans being launched soon in 2018-19. On this positive note, I welcome all the stakeholders to wholeheartedly participate in this noble venture.



[Rajashree K Baruah]
Chief General Manager
NABARD, Assam Regional Office
Guwahati

DAIRY FARMING

Area Development Scheme on Dairy Farming

1. Introduction

Agriculture is the main activity of the rural people in the district. The major crops grown in the district are Sugarcane, ginger, coconut, maize, cotton, chillies and black pepper. Livestock in Assam is highly livelihood-oriented and is generally owned by small and marginal farmers and landless agricultural laborers which forms more than 90% of the households in the district. Dairy has potential to be taken up successfully as a main occupation by unemployed educated youth and as an important source of subsidiary income by small / marginal farmers, agricultural laborers and women in the scheme area of Amri, Rongkhang, Socheng and Zirikinging block/s in the district.

The estimated per capita availability of milk is 114 g/day and is higher than the State Average of 70g/day and lower than the National average of 299 g/day(Yr 2014-15 estimates of Dept. of Animal Husbandry and Dairy, Govt. of India).

The present Area Development scheme has been launched with objectives to provide employment opportunity and promote setting up of modern dairy farms for production of clean milk and to bring structural changes in the unorganised sector processing and marketing of milk at village level and to bring about upgradation of quality and traditional technology to handle milk on a commercial scale.

This Area Development Scheme would provide a platform for all concerned viz. Farmers, Bankers, NGOs and Line Departments to work in a coordinated manner and would also fulfil the objective of scientific lending and creation of quality assets through infrastructural and other promotional support from State Government and credit support by Commercial Banks and RRBs with technical and refinance assistance from NABARD in the scheme area.

The support of State Government to promote dairy infrastructure and support services in the project area would give an impetus to develop employment opportunity and nutritional security as well as income support to a number of household in the area.

2. Backward - Forward Linkages

2.1 Availability of Milch Animals / Purchase of Quality Dairy Animals

As per the 19th Quinquennial Livestock Census 2012, the milch cattle and buffalo population in district during the year 2011-12 was 3.63 lakh and 0.14 lakh respectively. cross bred cattle (Jersey x local) in the district, constitutes a negligible proportion of the total cattle population.. Good quality crossbred cows of Holstein Friesian breed or Jersey

breed with peak yield of 10-12 liters per day and with average yield of at least 8 litres of milk per day would be purchased locally from the farms of progressive farmers or from the farms located in adjoining State or other adjoining places. The purchase can also be made from local animal fairs organized within the district and adjoining district/ animal fair. The Dairy development Department would provide support for purchase of dairy animals in the project area.

2.2 Veterinary Health and Cross Breeding Infrastructure

Veterinary services will be provided by experienced veterinary doctor hired by the Milk Producers Cooperative Society/ Farmers Club/ Producer Organisation. However, in addition Department of Animal Husbandry, Government of Assam may depute Veterinary Surgeons on weekly basis from the Veterinary Dispensary at Dongkamukam under Rongkhang development block to the project area for vaccination, disease surveillance and treatment of the animals. Artificial Insemination services and primary health services could be provided by Dongkamukam, Taradubi, Tumpreng AI centres of the area under Dairy Development Department.

2.3 Feed and Fodder Development

The fodders such as berseem, lucern, oats, maize, sorghum, guinea grass and cow pea could be cultivated by the farmers depending upon the availability of land owned or leased hold by the farmer. Additionally paddy straw would be given as dry fodders and local grass/leaves,etc. if any, available around the village/common field during lean period. Concentrate feed would also be available from local market. Farmers may formulate home made feed if they have the necessary experience. Fodder seed would also be supplied by Department to producers, where ever needed.

2.4 Milk Marketing Infrastructure

In order tap the huge potential Dairy Development Department has started systematic intervention in the required areas. The Dairy farmers are organised into Dairy co-operative societies(SHG) and Milk Producer's Institutions(MPIs). Through various schemes under state plan and central sponsored schemes, the enterprise of cattle rearing is constantly promoted, under which the farmers are given required training on scientific cattle rearing, provide bank linkages, supplied with good breed of cattle and support with inputs as well as marketing linkages. There is only one milk processing plant/ milk chilling plants at Kheroni under Rongkhang Dev Block.

Besides, Dairy Development Department, SBI-RSETI, Diphu conducts periodical training to rural people on dairy farming.

Critical Infrastructure

- i. At least 1 Milk van with capacity of around 2,000 litres may be required in the first year for transportation of milk in each of the project area. More no. of Milk vans may be sponsored/financed based on the requirement.
- ii. At least 1 Bulk Milk Chamber (BMC) would be required to store the milk for a brief period in the first year, at the project area. More no. may be sponsored/financed based on the requirement.

3. Selection of the Area

Considering the traditional practice of dairy farming and availability of infrastructure etc, one development block out four Blocks namely, Rongkhang has been identified for implementing the scheme.

4. Selection of Beneficiaries

Proper selection of beneficiaries / Dairy entrepreneurs is of prime importance to make the scheme successful. Criteria adopted for selecting the beneficiaries should be based on availability of the area for growing green fodder / availability of the space for cattle shed, own farm, dry fodder resources, concentrate feed sourcing, experience, etc. Minimum unit size is 2 milch animals. Depending upon the interest and resources of the farmers, multiple units of 2 milch animals may be considered. District AH & Veterinary Services Deptts., would provide necessary extension through their Dispensaries, Block Veterinary Officers and Veterinary Field Assistants. All Bank branches are expected to provide credit to eligible Dairy entrepreneur for development of the sector.

5. Capacity Building of the Beneficiaries

There is a lack of knowledge and capacity on modern approaches to milk production and handling. The district has no such facilities to cater scientific rearing and feeding techniques for production of good quality milk. The SBI - RSETI, Diphu provides cost free training to Dairy Farmers of the District. In addition, Dairy Development Department conducts training of Dairy farmers from time. If it is required NABARD may also provide budgetary support to conduct training programs for Dairy Famers through NGOs.

6. Techno Economic Assumptions

A. Cost Chart

Sl. No.	Particulars	Physical Unit
1	No of Animals (No.) 1 or 2 or 3 or 4	2
	No of Animal in First Batch	1
	No of Animal in Second Batch	1
	No. of Days after which Second batch animal Purchased after First	180
	Stage at which the animal is bought(Days of Lactation) / freshly calved animals in 1st to 3rd calving	30
	Breed	HF/Jesey Crosses
2	Average Milk Yield (Litre/Day/Animal) with peak yield during first 3 months of lactation 20% to 25% above average yield.	8
	Lactation Yield per Animal (Litre)	2400
3	Average Cost of Animal (₹. /Animal)	40000
4	Cost of Transportation (₹. / Animal)	2000
6	Cost of Equipment (Chaff cutter, feeding buckets, milk cans, etc)(₹ /Animal)	3500
7	Shed - Area (Sq. Ft./Animal)	65
8	Cost of Construction of Shed (₹./Sq.Ft.)	300
	Store - Area (Sq Ft / Animal)	10
12	Green Fodder Requirement (Kg./Animal/Day)	10
13	Dry Fodder (Kg./Animal/Day)	5
14	Concentrate Feed - Maintenance (Kg./Animal/Day)	1.25
15	Concentrate Feed - Production (Kg./Animal/Day) 2.75 for 8 kg milk / 0.25 kg additional for every kg of milk	3.25
16	Concentrate Feed - Last 60 Days of Pregnancy (Kg./Animal/Day)	0.5
	Fodder cultivation (per animal area in Katha)	1.5
17	Cost of Green Fodder (₹/Kg)	4
18	Cost of Dry Fodder (₹./Kg)	3
19	Cost of Concentrate (₹ /Kg)	25
20	Insurance Premium (%) 1 Year(5%)3 Years(7%)	5
22	Cost of Breeding (₹./Animal/Year) / Animals to be inseminated preferably within its second heat after calving	200
23	Electricity and water (₹./Animal/Year)	1200
24	Miscellaneous expenses (sanitation, chemicals, etc.) (Rs./Animal)	200
25	Lactation Period (Days)	300
26	Dry Period (Days)	100
27	Calving Interval (Days)	400
28	Age at Maturity (Months)	19

**Area Development Scheme – Dairy Farming
West Karbi Anglong District**

Sl. No.	Particulars	Physical Unit
30	Age at first Calving (Months)	28
31	Dry Matter Requirement (Kg. /100 Kg Body Weight)	2.5
32	Veterinary Aid (₹. /Animal/Year) Cost of Vaccination and disease control and veterinary services / Animals to be vaccinated as per schedule prescribed by veterinary doctor	1000
33	Price of Milk (₹./Liter)	40
34	Income from sale of manure (₹./Animal/Year) /To be utilised in the Farm / Vermicompost	3000
35	Residual Value / Scrap Value of Animals after economic life of 5-6 lactation (₹./Animal)	10000
36	Margin (%)	15
37	Interest Rate (%)	12

B. Lactation Chart

Year - >	Year I	Year II	Year III	Year IV	Year V	Year VI
First Batch	365	365	365	365	365	365
Lactation Days	270	300	300	290	265	265
Dry Days	95	65	65	75	100	100
Days in Last 60 days of Pregnancy	55	25	40	60	60	60
Second Batch	185	365	365	365	365	365
Lactation Days	185	265	265	265	265	265
Dry Days	0	100	100	100	100	100
Days in Last 60 days of Pregnancy	0	60	60	60	60	60
Both Batch						
Lactation Days	455	565	565	555	530	530
Dry Days	95	165	165	175	200	200
Days in Last 60 days of Pregnancy	55	85	100	120	120	120

C. Feed Chart

Sr. No.	Particulars	Lactation Period		Dry Period	
		Quantity (Kg / animal/ day)	Cost (₹/animal/day)	Quantity (Kg / animal/ day)	Cost (₹/animal/day)
i	Concentrate Feed				
A	For milk	3.25	81.25	0	0
B	For maintenance excluding last 60 days of pregnancy	1.25	31.25	1.25	31.25
C	Additional feed during last 60 days of pregnancy	0	0	0.5	12.5
ii	Green Fodder	10	40	10	40
iii	Dry Fodder	5	15	5	15

7. Partners in Implementation, Convergence of Efforts & Support from State Government:

Every efforts will be made by all institutional stakeholders such as Dairy Development Department, DAH & Vety, NABARD, Banks and NGOs etc to achieve convergence and synergy for commercialization of Dairy farming. As the progress of implementing the scheme picks up government will be requested to set up necessary infrastructure such chilling Plants, Bulk Milk Cooling Centres, modern AI centres while private entrepreneurs will be encouraged to set milk parlours, indigenous milk processing units etc. Besides, banks will also explore potential for financing of such infrastructure in the private sector. Dairy Department, DAH & Vety and RSETI will ensure training & capacity building of all borrowers under the scheme. NABARD on its part will prepare banking plan, get it approved by DCC; ensure implementation of the plan through regular review and monitoring in DCC meetings with banks and line departments; facilitate capacity building of beneficiaries of the plan through RSETI / training institutes /KVK /National Research Centre on Pigs and provide exposure visits whenever required.

8. Project Cost for Dairy Unit

Capital Investment for 2 Cross Bred Cows

Sl. No.	Investment Cost	2 CB Cows
	Particulars	Cost (₹)
1	Cost of Crossbred Cows	80000
2	Cost of Transportation of Cows	4000
3	Equipments	7000
4	Cost of Construction of Shed	39000
5	Cost of Store	0
6	Concentrate Feed Cost for 1 month	3375
7	Cost of Cultivation of Green Fodder	0
8	Insurance	4000
9	Veterinary Expenses	2000
10	Miscellaneous	400
11	Total Investment Cost	139775

9. Banking Network & Trends in Credit Flow

The position of banking network in the district is as given below:

Agency	No. of Banks/Soc.	No. of Branches			
		Total	Rural	Semi-urban	Urban
Commercial Banks	2	4	2	2	--
Regional Rural Bank	1	15	13	2	--
All Agencies	3	19	15	4	--

The sub-sector wise credit flow pertaining to Dairy is not readily as no separate data is maintained for West Karbi Anglong till now.

10. Physical and Financial Programme

Bank-wise physical and financial target is given below:

(₹ in lakh)

Name of Bank	Total	
	Phy Units	Financial
LDRB	230	322
SBI	245	343
Union Bank	125	175
Total	600	840

11. Project Profitability

Expenditures/Cost (₹)	[year-wise cost of production]						(Amt. in ₹)
Income/Year	I	II	III	IV	V	VI	
Sale of Milk	145600	180800	180800	177600	169600	169600	
Sale of Manure / Vermi-compost	6000	6000	6000	6000	6000	6000	
Salvage value							20000
Total Income	151600	186800	186800	183600	175600	195600	
Expenditure							
Feed Cost							
Green Fodder	22000	29200	29200	29200	29200	29200	
Dry Fodder	8250	10950	10950	10950	10950	10950	
Concentrate - Maintenance	1250	2500	2031.25	1718.75	2500	2500	
Concentrate - Production	51187.5	63562.5	63562.5	62437.5	59625	59625	
Concentrate - Last 60 Days of Pregnancy	2406.25	3718.75	4375	5250	5250	5250	
Breeding Expenses	400	400	400	400	400	400	
Veterinary and other Expenses	2000	2000	2000	2000	2000	2000	
Insurance	4000	4000	4000	4000	4000	4000	
Electricity and water	2400	2400	2400	2400	2400	2400	
Miscellaneous expenses	400	400	400	400	400	400	
Total Expenditure	94293.8	119131.3	119318.8	118756.3	116725	116725	
Less Capitalised Expenditure	9775						
Total Expenditure after netting Capitalised expenditure	84518.8	119131.3	119318.8	118756.3	116725	116725	
Gross Surplus	67081.3	67668.75	67481.25	64843.75	58875	78875	

12. Financial Analysis (Amt. in ₹)

Cash flow and Calculation of IRR	Year I	Year II	Year III	Year IV	Year V	Year VI
Investment Cost	139775	0	0	0	0	0
Recurring Cost	84519	119131	119319	118756	116725	116725
Total Cost	224294	119131	119319	118756	116725	116725
Income	151600	186800	186800	183600	175600	195600
Net Income	-72694	67669	67481	64844	58875	78875
NPW of Total Cost @ 15%	195038	90080	78454	67899	58033	50463
	539968					
NPW of Income @ 15%	131826	141248	122824	104974	87304	84563
	672739					
NPW of Net Income @ 15%	-63212	51167	44370	37075	29271	34100
	132771					
Benefit Cost Ratio	1.25					
IRR	63.7%					

13. Sensitivity Analysis

The above financial analysis has been recalculated taking into consideration 5% increase in cost and 5% decrease in benefits and indicated below. (Amt. in ₹)

Total Cost after 5% increase	235508	125088	125285	124694	122561	122561
Total Income after 5% reduction	144020	177460	177460	174420	166820	185820
Net Income	-91488	52372	52175	49726	44259	63259
NPW of Total Cost @ 15%	204790	94584	82377	71294	60934	52987
	566966					
NPW of Income @ 15%	125235	134185	116683	99725	82939	80335
	639102					
NPW of Net Income @ 15%	-79555	39601	34306	28431	22005	27349
	72136					
Benefit Cost Ratio	1.13					
IRR	29.4%					

14. SWOT Analysis

- **Strengths:**
 - Good supplementary activity in the scheme area for doubling the farmers' income.
 - Adequate availability of forward and backward linkages in the scheme area.
- **Weaknesses:**
 - Limited green fodder availability in the scheme area.

- Inadequate awareness among the farmers on scientific dairy farming.
- **Opportunities:**
 - Growing demand for milk from consumers in the area due to increasing in income level.
 - Proximity to demand centres/markets.
- **Threats:**
 - Changes in Govt. policy leading to adverse procurement price.
 - Weak monsoons adversely affect the milk production and thereby milk procurement.
 - Climate change may also affect productivity of milch cows.

15. Repayment Period

The repayment is considered to be 5 years including moratorium period.

A. Bankability

(Amt. in ₹)

Year	I	II	III	IV	V
Unit Cost	139775				
Margin (%)	15				
Bank Loan	119000				
Rate of Interest (%)	12				
Loan O/S at the beginning of the year	119000	97364	73023	50895	27761
Gross Surplus	67081	67669	67481	64844	58875
Payment of Interest	14280	11684	8763	6107	3331
Repayment of Principal	21636	24341	22128	23134	27761
Loan O/S at the end of the year	97364	73023	50895	27761	0
Total Outgoing	35916	36025	30891	29241	31092
Net Surplus	31165	31644	36590	35602	27783

B. Repayment Schedule

(Amt. in ₹)

Year	Income	Expenses	Gross Surplus	Instalments	Net Surplus
I	151600	84519	67081	35916	31165
II	186800	119131	67669	36025	31644
III	186800	119319	67481	30891	36590
IV	183600	118756	64844	29241	35602
V	175600	116725	58875	31092	27783

16. Implementation Strategy and Monitoring Mechanism

- **Department of Animal Husbandry (DAH)** will create awareness about dairy in the districts and guide dairy farmers to establish farm units on scientific lines in the districts under the scheme. The department may also conduct veterinary health camps and provide training on scientific farming to the beneficiaries identified under the plan. It may identify suitable farmers interested in expanding their farms with credit.
- **Branches of Banks** may select suitable farmers identified by the Department of Animal Husbandry and or directly identify clients and finance diversified activities under dairy. Branches may ensure successful implementation of the banking plan in the districts.
- **NABARD** will prepare banking plans, ensure implementation of the plans in association with participating banks and line departments; facilitate capacity building of beneficiaries of the plans through RSETIs/training institutes/KVKs and provide exposure visits, whenever required.
- **Arrangements for Insurance and the Cost of Insurance:** An Insurance Scheme has been launched under the National Livestock Mission. Under this scheme, Central Government and State Government will contribute 30% each and farmers' contribution will be 40% of the premium for general category and for SC/ST farmers, Government share will be 80% and farmer's contribution will be 20%. Fund is available with the District Veterinary Departments. Otherwise, a five year insurance premium @ 10% of the cost of cows is applicable.

A Project Implementation and Monitoring Committee [PIMC] would be constituted for monitoring of the Area Development Scheme in each district. The PIMC would consist of the participating bank branches, Lead District Manager, Krishi Vigyan Kendra, RSETI, representative of the beneficiary farmers, Department of Animal Husbandry and NABARD with Deputy Commissioner of the respective district as Chairman.

17. Conclusion

The intended area development scheme on Dairy farming, if implemented, in right spirit would lead to substantial increase in farmers income. Further, Govt of India's impetus on doubling of farmers' income by 2022 over the base year of 2015-16, would require approximate annual growth of 10.41 per cent in farmers' income. This implies that the on-going and previously achieved rate of growth in farm income has to be sharply accelerated. Therefore, thrust has to be given for development of allied activities like Dairy farming, Piggery farming, Goat rearing, etc., to harness all possible sources of growth in farmers' income by the targeted year. The scheme will spur employment both in primary production of milk and along its value chain.

**Area Development Scheme - Banking plan on Dairy Farming
Bank wise and Block wise targets - Physical and Financial**

Name of the District : Karbi Anglong West

Unit Cost(₹ in lakh) 1.39

Name of Block	2018-19		2019-20		2020-21		2021-22		2022-23		Total	
	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial
Amri	0	0	10	14	20	28	30	42	60	84	120	168
Rongkhang	30	42	40	56	50	70	70	98	100	140	290	406
Socheng			5	7	15	21	25	35	50	70	95	133
Zirikinding			5	7	15	21	25	35	50	70	95	133
Total	30	42	60	84	100	140	150	210	260	364	600	840

Unit Cost(₹ in lakh) 1.39

Name of Bank	2018-19		2019-20		2020-21		2021-22		2022-23		Total	
	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial
LDRB	10	14	20	28	40	56	60	84	100	140	230	322
SBI	15	21	30	42	40	56	60	84	100	140	245	343
Union Bank	5	7	10	14	20	28	30	42	60	84	125	175
Total	30	42	60	84	100	140	150	210	260	364	600	840

Consolidated

Name of Block	Total	
	Phy Units	Financial
Amri	120	168
Rongkhang	290	406
Socheng	95	133
Zirikinding	95	133
Total	600	840

Name of Bank	Total	
	Phy Units	Financial
LDRB	230	322
SBI	245	343
Union Bank	125	175
Total	600	840

PIG FARMING

Area Development Scheme on Pig Farming

1. Introduction

Pig production in Assam is invariably a small-scale, backyard, marketed-oriented enterprise. It is a low-external input enterprise depending upon family labour and on other local inputs, particularly feed, that are of no or low opportunity cost. Despite being small-scale (one to five pigs), production contributes significantly to the livelihood of the majority of pig-rearing households. The income from pig sales meets essential household and farming expenses, and provides some financial independence to women in the family. West Karbi Anglong was recently carved out of Karbi Anglong district in 2016 consisting of the four Development Blocks of Amri, Chinthong, Rongkhang and Zirikinding. West Karbi Anglong's rural economy is agro-based. International Livestock Research Institute conducted a study on Piggery sub-sector in undivided Karbi Anglong district and reported that limited credit facility to resource-poor rural farmers was one of the major constraints for piggery development in the district.

Pig rearing is the most popular and traditional activity in West Karbi Anglong. Almost every tribal household in semi urban and rural areas maintains a small unit of local or exotic variety of pigs. The advantages of pig rearing are mainly the short gestation period, fast growth rate and prolific nature of the animals. However, the local variety of pigs are smaller in size, have lower conversion efficiency, smaller litter size and attain maturity later than the exotic variety. Cross bred varieties, which were introduced in the 70s, had high mortality rate and the people were also not accustomed with their scientific rearing. However, these are at present fully acclimatized with the local environment and are gaining popularity among the local people.

Characteristics of the Piggery farming (small producers) (with or without land)

Most of the Piggery farmers in the district are small and marginal farmers undertaking Piggery farming in an unorganized way with own land and some are tenant farmers. Some of the farmers have undertaken the activity individually in their backyards and some have been undertaking under JLG mode.

Type of Animals Reared by Small Piggery Farmers

Most of the farmers rear indigenous type of pigs. Some are undertaking farming with Hampshire HSX 1 type.

The advantages of pig farming are:

- a) Pigs have got highest feed conversion efficiency i.e., they produce more live weight gain from a given weight of feed than any other class of meat producing animals except broilers.
- b) Pig can utilise wide variety of feed stuffs viz., grains, forages, damaged feed and garbage and convert them into valuable nutritious meat. However, feeding of damaged grains, garbage and other unbalanced ration may result in lower feed efficiency.
- c) They are prolific with shorter generation interval. A sow can be bred as early as 8-9 months of age and can farrow twice in a year. They produce 6-12 piglets in each farrowing.
- d) Pig farming requires small investment on building and equipment.
- e) Pigs are known for their meat yield, which in terms of dressing percentage ranges from 65 – 80% in comparison to other livestock species whose dressing yields may not exceed 65%.
- f) Pork is most nutritious with high fat and low water content and has got better energy value than that of other meats. It is rich in vitamins like Thiamin, Niacin and Riboflavin.
- g) Pigs manure is widely used as fertilizer for agriculture farms and fish ponds.
- h) Pigs store fat rapidly for which there is an increasing demand from poultry feed, soap, paints and other chemical industries.
- i) Pig farming provides quick returns since the marketable weight of fatteners can be achieved with in a period of 6-8 months.

2. Forward and Backward Linkages

2.1. Availability of Piglets

As per the 19th Quinquennial Livestock Census 2012, the pig population in the undivided district during the year 2011-12 was 1.62 lakh. There is one pig breeding farms at Donkamukam under Rongkhang Dev Block but it is not in a position to meet the growing demand for progeny and pork. However, the new district has sufficient stock of breedable pigs of exotic / local varieties. The new district is yet to have full-fledged DVO office.

There is a need for establishment of big or medium size exotic pig breeding farms in the private sector. Animal Husbandry Dept. should augment the resources for promoting their cross breeding programme. At least 2 to 3 big feed mills are required

to meet the shortage of concentrate feed in the district. One Slaughter house is also required for supply of hygienic pork for public consumption.

2.2. Veterinary and Cross Breeding Infrastructure

Veterinary services will be provided by experienced veterinary doctors hired by the SHGs. However, in addition, Department of Animal Husbandry, Government of Assam may depute Veterinary Surgeons on weekly basis from the Block Veterinary Hospital to the project area for vaccination, disease surveillance and treatment of the animals.

2.3. Feed and Fodder Development

Feed plays an important role in successful pig production. The quality of the ration determines the rate of growth of young pigs to a great extent. Pig is an omnivorous animal and can utilize feed of both animal and vegetable sources. Pig, being a mono-gastric animal requires all nutrients including good quality proteins and vitamins in proper amounts and proper proportions. A carefully planned feeding programme is, therefore, important for a successful swine production. It is obvious that pig feeding must be as economical and efficient as possible.

Tapioca chips, tapioca flour, thippi or tapioca waste, rubber seed cake, tobacco seed cake, mango seed kernel, molasses, fallow, hatchery waste etc., along with various agro-industrial products can be incorporated in pig rations. Garbage, such as kitchen waste and other vegetable waste can also be useful feed if properly cooked and fed. In large cities garbage is available in large quantities which can be well processed and fed to pigs.

2.4 Marketing Infrastructure

People of Assam and the north eastern states mostly prefer fresh meat. Hence butchers' shops are the major source of supplying meat to the consumers. The butchers procure live animals from the neighbouring villages or from the middlemen. As there is no monitoring system in selling of meat in small towns or rural areas so the butchers are virtually not accountable to any authority and hence, they run their business according to their own will. Most of the butchers sell meat in temporary sheds constructed above the ground with bamboo mat and with or without any sidewall. There is no glass or net in their shop.

3. Selection of Area

Pig rearing is the most popular and traditional activity in West Karbi Anglong. Almost every tribal household in semi urban and rural areas maintains a small unit of local or exotic variety of pigs. Hence, it is envisaged that the scheme can be implemented in the entire district in a phased manner. Besides, the scheme is being implemented by Langpi Dehangi Rural Bank since 2016-17. Therefore, the scheme

will be implemented in all development blocks by all banks from 2018-19 as per banking plan given in Chapter 10.

4. Selection of Beneficiaries

The selection of beneficiaries under the scheme will be done by Animal Husbandry department in close coordination with the respective financing banks. However, this does not restrict/restrain banks to scout for potential borrowers on through their Rural Development Officers/Field officers. Besides, Department of Animal Husbandry will create awareness about piggery in the district and guide pig farmers to establish breeding and breeder cum fattener units of pigs and pork retail outlet units on scientific lines in the district under the scheme. DAH may conduct veterinary health camps and provide training to the beneficiaries of the plan on scientific pig farming.

5. Training/Capacity Building of Beneficiaries:

The Department of Animal Husbandry and RSETI will be responsible for training and capacity building of beneficiaries. NABARD may also supplement the efforts these agencies by arranging training of beneficiaries through reputed NGOs if the need arises.

6. Techno Economic Assumption

A. Cost Chart

Sl. No.	Particulars	Physical Unit	
1	Breed	Crossbred Pigs	
2	No. of Animals		
	No of Boar (No.) 1 or 2	1	
	No of Sow (No.) 3 or 10	3	
	No of Animal in First Batch	1	
	No of Animal in Second Batch	1	
	No of Animal in Third Batch	1	
	No. of Months after which Second and Third batch animal Purchased after First	2	
	Stage at which the animal is bought(Months)	3	
	Body Weight of Animals(Kg/Animal)	25	
	Rate of Animal(/kg body wt)	150	
	Cost of Animal (₹. /Animal)	3750	
	Cost of Transportation (₹. / Animal)	250	
	3	Cost of Equipment (₹./Animal)	800
	4	Housing	
Shed - Area (Sq. Ft.)		290	
Cost of Construction of Shed (₹./Sq.Ft.)		300	
Open Area (Sq Ft)		310	
Cost of Construction of open area (₹./Sq ft)		100	

Area Development Scheme - Pig Farming

West Karbi Anglong District

Sl. No.	Particulars	Physical Unit
	Family labour used for housing (lumpsum `.)	0.00
5	Feed Requirement	
	Boar (Kg/Animal/Day)	3
	Sow (Kg/Animal/Day)	3.50
	Weaner (up to 2 months) (Kg/Animal/Day)	0.20
	Fattener (3 to 5 months) (Kg/Animal/Day)	1.50
	Fattener (6 to 8 months) (Kg/Animal/Day)	2
	Agricultural Waste (%)	70
	Cost of Agricultural Waste (₹./Kg)	0.50
	Concentrate Feed (%)	30
	Cost of Concentrate (₹. /Kg)	25
6	Insurance Premium (%) 1 Year(5%)3 Years(7%)	7
7	Technical Specifications	
	Pregnancy Period (Months)	4
	Lactation Period (Months)	2
	No of piglets per farrowings	8
	Mortality among weaners(%)	20
	Mortality among fattener(%)	10
	Age at Maturity (Months)	9
8	Medicines and Ovehead	
	Veterinary Aid (₹./Animal/Year)	3000
9	Financial and Banking Specifications	
	Age of Fattener at Sale (months)	8
	Weight of fattener at Sale (Kg)	80
	Rate of Fattener at sale (₹./Kg)	150
	Price of Fattener at Sale (₹.)	12000
	Income from sale of manure (₹./Year) To be utilised as FYM	0.00
	Salvage Value of all animals /value of closing stock at the year end (₹.)	99000
	Margin (%)	15
	Interest Rate (%)	12
	No. of Days in a Year	360.
	Repayment Period (5 to 7 Years)	5

B. Herd Projection Chart

(Amt. in ₹)

Year	I	I	III	IV	V	V
Year - >	1	2	3	4	5	6
All Batches						
Growing Boar - months	6	0	0	0	0	0
Growing Sow - months	18	0	0	0	0	0
Boar-months	6	12	12	12	12	12
Sow-months	18	36	36	36	36	36

Year	I	I	III	IV	V	V
Weaners-months	36	72	72	72	72	72
3 to 5 months fatteners months	0	90	90	90	90	90
6 to 8 months fatteners months	0	90	90	90	90	90
Sale of fatteners (no)	0	15	30	30	30	30

C. Water Requirement

Sl. No.	Maturing Age (in weeks)	Requirement (in litres)
1	8-12	3-5
2	13-18	6
3	19-24	7.5
4	25	8

7. Partners in Implementation of the Project

The partners in the implementation of the project would consist of participating bank branches, LDM, KVK, RSETI, piggery farmers, Department of Animal Husbandry, NABARD and District Administration.

8. Project Cost

Project cost of the (3+1) Piggery - Breeder cum fattener unit - 3 Crossbred sows and one exotic boar is as under.

Breeder cum fattener Unit Cost

(Amt. in ₹)

Sl. No.	Cost	Specifications	No of animals	₹./ unit	Amount (₹.)
1	Pig sty	Sft. per animal	No.	₹/sft	
i	Boar	70	1	250	17500
ii	Sow	60	3	250	45000
2	Fattener shed	12.5	20	250	62500
3	Equipments				3000
4	Cost of Piglets				
i	Boar	3 months	1	4000	4000
ii	Sow	3 months	3	2500	7500
5	Supplementary feed	Feed (Kg)	No.	Total (Kg)	
i	Concentrate feed	1134		25	28350
ii	Creep feed for piglets (up to weaning)	9	27	25	6075
6	Insurance	5%			1946
				Total	175871
				Say	176000

Phasing of Investment Cost**(Amt. in ₹)**

Phasing of Investment Cost	Purchase of Animal	Housing	Equipment	Feed Cost	Medicines and overhead	Insurance	Total
Quarter I	11500	125000	3000	5737	100	1946	147283
Quarter II				5737	100		5837
Quarter III				5737	100		5837
Quarter IV				5738	100		5838
Quarter V				5738	100		5838
Quarter VI				5738	100		5838
	11500	125000	3000	34425	600	1946	176471

Phasing of Loan**(Amt. in ₹)**

Phasing of Loan	Purchase of Animal	Housing	Equipment	Feed Cost	Medicines and overhead	Insurance	Total
Quarter I	9775	106252	2550	4876	85	1654	125192
Quarter II				4876	85		4961
Quarter III				4876	85		4961
Quarter IV				4877	85		4962
Quarter V				4877	85		4962
Quarter VI				4877	85		4962
	9775	106252	2550	29259	510	1654	150000

9. Banking Network & Trends in Credit Flow

The priority sector lending advance during 2016-17 ₹ 15562.88 lakh against target of ₹ 40060 lakh. The CD ratio as on 31 March 2017 is 41.71. The sub-sector wise credit flow pertaining to Piggery is not readily available except for LDRB(RRB), which has started financing Piggery under ADS in undivided Karbi Anglong district. During 2016-17, LDRB has financed 1034 units for a loan amount of ₹ 5.39 crore.

The position of banking network in the district is as given below:

Agency	No. of Banks/Soc.	No. of Branches			
		Total	Rural	Semi-urban	Urban
Commercial Banks	2	4	2	2	--
Regional Rural Bank	1	15	13	2	--
All Agencies	3	19	15	4	--

10. Physical and Financial Programme

Bank-wise physical and financial programme (₹ in lakh)

Name of Bank	Total	
	Phy Units	Financial
LDRB	750	1320
SBI	760	1338
Union Bank	490	862.4
Total	2000	3520

11. Project Profitability

Calculation of profitability of the project with 3 sows and 1 boar is as under

(Amt. in ₹)

Income/Year	I	II	III	IV	V	VI
Sale of fattener	0	180000	360000	360000	360000	360000
Sale of Manure	0	0	0	0	0	
Value of closing stock						99000
Total Income	0	180000	360000	360000	360000	459000
Expenditure						
Amount of Feed						
Breeding Stock						
Growing Boar (3 to 8 months)	360	0	0	0	0	0
Growing Sow (3 to 8 months)	1080	0	0	0	0	0
Boar	540	1080	1080	1080	1080	1080
Sow	1890	3780	3780	3780	3780	3780
Weaner (up to 2 months)	216	432	432	432	432	432
Fattener (3 to 5 months)	0	4050	4050	4050	4050	4050
Fattener (6 to 8 months)	0	5400	5400	5400	5400	5400
Sub Total	4086	14742	14742	14742	14742	14742
Feed Cost	32075	115725	115725	115725	115725	115725
Veterinary and other Expenses	600	12000	12000	12000	12000	12000
Insurance	1946	4950	4950	4950	4950	4950
Miscellaneous expenses	1000	1000	1000	1000	1000	1000
Total Expenditure	35621	133675	133675	133675	133675	163159
Less Capitalised Expenditure	35621	2350				
Total Expenditure after netting Capitalised expenditure	0	131325	133675	133675	133675	163159
Gross Surplus	0	48675	226325	226325	226325	295841
Operating Profit Before Interest and Depreciation	-35621	46325	226325	226325	226325	295841
Net Profit	-35621	46325	226325	226325	226325	295841

12. Financial Analysis

The financial analysis for 3 sows and 1 boar is as under.

(Amt. in ₹)

Cash flow and Calculation of IRR	Year - I	Year - II	Year - III	Year - IV	Year - V	Year - VI
Investment Cost	176000	0	0	0	0	0
Recurring Cost	0	131325	133675	133675	133675	163159
Total Cost	176000	131325	133675	133675	133675	163159
Income	0	180000	360000	360000	360000	459000
Net Income	-176000	48675	226325	226325	226325	295841
NPW of Total Cost @ 15%	153043	99300	87893	76429	66460	70538
	553664					
NPW of Income @ 15%	0	136106	236706	205831	178984	198438
	956065					
NPW of Net Income @ 15%	-153043	36805	148813	129402	112524	127900
	402401					
Benefit Cost Ratio	1.73					
IRR	55.5%					

13. Sensitivity Analysis

The above financial analysis has been recalculated taking into consideration 5% increase in cost and 5% decrease in benefits and indicated below.

(Amt. in ₹)

Total Cost after 5% increase	184800	137891	140358	140358	140358	171317
Total Income after 5% reduction	0	171000	342000	342000	342000	436050
Net Income	-184800	33109	201642	201642	201642	264733
NPW of Total Cost @ 15%	160696	104265	92288	80250	69783	74065
	581347					
NPW of Income @ 15%	0	129301	224871	195540	170034	188516
	908262					
NPW of Net Income @ 15%	-160696	25035	132583	115289	100252	114451
	326915					
Benefit Cost Ratio	1.56					
IRR	44.3%					

14. SWOT Analysis

- **Strengths:**
 - Good supplementary activity in the scheme area for doubling the farmers' income.
 - Adequate availability of forward and backward linkages in the scheme area.
- **Weaknesses:**
 - Limited fodder availability in the scheme area.
 - Inadequate awareness among the farmers on scientific rearing.
- **Opportunities:**
 - Growing demand for meat from consumers in the area due to increasing in income level.
 - Proximity to demand centres / markets.
- **Threats:**
 - Changes in Govt. policy leading to adverse procurement price.
 - Weak monsoons adversely affect the meat production and thereby meat procurement.
 - Climate change may also affect growth of pigs.

15. Repayment Period

The repayment is considered to be 5 years including moratorium period.

A. Bankability

(Amt. in ₹)

Year	I	II	III	IV	V
Unit Cost	176000				
Margin (%)	15				
Bank Loan	140076	9924			
Rate of Interest (%)	12				
Loan O/S at the beginning of the year	140076	166809	144568	100759	54959
Accrual of interest	16809	20017	17348	12091	6595
Gross Surplus	0	48675	226325	226325	226325
Repayment of Interest	0	20017	17348	12091	6595
Repayment of Principal	0	22241	43809	45800	54959
Loan O/S at the end of the year	156885	144568	100759	54959	0
Total Outgoing	0	42258	61157	57891	61554
Net Surplus	0	6417	165168	168434	164771

B. Repayment**(Amt. in ₹)**

Year	Income	Expenses	Gross Surplus	Instalments	Net Surplus
I	0	0	0	0	0
II	180000	131325	48675	42258	6417
III	360000	133675	226325	61157	165168
IV	360000	133675	226325	57891	168434
V	360000	133675	226325	61554	164771

16. Implementation Strategy and Monitoring Mechanism

- **Department of Animal Husbandry (DAH)** will create awareness about piggery in the respective districts and guide pig farmers to establish breeding and breeder-cum-fattener units of pigs and pork retail outlet units on scientific lines in the districts under the scheme. The Department may also conduct veterinary health camps and provide training to the beneficiaries of the plan on scientific pig farming. It may identify suitable pig farmers interested in expanding their farms with credit.
- **Branches of Banks** may select suitable pig farmers identified by the Department of Animal Husbandry and or directly identify clients and finance diversified activities under piggery. Branches may ensure successful implementation of the banking plan in the districts.
- **NABARD** prepare Banking Plans; ensure implementation of the plan in association with participating Banks and line departments; facilitate capacity building of beneficiaries of the plans through RSETIs / Training Institutes / KVKs and provide exposure visits whenever required.
- A Project Implementation and Monitoring Committee would be constituted for monitoring of the Area Development Scheme in the respective districts. The PIMC would consist of the participating bank branches, Lead District Manager, Krishi Vigyan Kendra, RSETI, representative of the beneficiary farmers, Department of Animal Husbandry and NABARD with Deputy Commissioner as Chairman in each district.
- Possibility of implementing the project through a reputed NGO/s under JLG mode may be explored. Incentives to NGO/s may be given by NABARD.

17. Conclusion

With proper and successful implementation of the scheme, traditional backyard pig rearing will be converted/upgraded into commercial pig farming benefitting the rural farmers. This will contribute substantially in achieving the Government's objective of doubling farmers' income by 2022. Further, the success of the scheme will spur employment in the form of fodder cultivation, commercial pig feed outlets, retail outlets, marketing and meat processing.

**Area Development Scheme - Banking plan on Pig Farming
Bank wise and Block wise targets - Physical and Financial**

Name of the District : Karbi Anglong West

Unit Cost (₹ in lakh) 1.76

Physical Units in Nos. and Financial in ₹ lakh

Name of Block	2018-19		2019-20		2020-21		2021-22		2022-23		Total	
	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial
Amri	60	105.6	75	132	95	167.2	120	211.2	140	246.4	490	862.4
Rongkhang	75	132	100	176	140	246.4	170	299.2	200	352	685	1205.6
Socheng	40	70.4	75	132	90	158.4	110	193.6	130	228.8	445	783.2
Zirikinding	25	44	50	88	75	132	100	176	130	228.8	380	668.8
Total	200	352	300	528	400	704	500	880	600	1056	2000	3520

Unit Cost (₹ in lakh) 1.76

Name of Bank	2018-19		2019-20		2020-21		2021-22		2022-23		Total	
	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial	Phy Units	Financial
LDRB	90	158.4	110	193.6	150	264	180	316.8	220	387.2	750	1320
SBI	90	158.4	120	211.2	150	264	180	316.8	220	387.2	760	1337.6
Union Bank	20	35.2	70	123.2	100	176	140	246.4	160	281.6	490	862.4
Total	200	352	300	528	400	704	500	880	600	1056	2000	3520

Consolidated

Name of Block	Total	
	Phy Units	Financial
Amri	490	862.4
Rongkhang	685	1205.6
Socheng	445	783.2
Zirikinding	380	668.8
Total	2000	3520

Name of Bank	Total	
	Phy Units	Financial
LDRB	750	1320
SBI	760	1337.6
Union Bank	490	862.4
Total	2000	3520