

2 IN-DEPTH ANALYSIS OF EXISTING SITUATION

Vadodara, the third largest city in the state of Gujarat, is one of the focal points of industrial growth in Western India. The city became a metropolis in 1991, along with eleven other major cities across the country, by crossing the one million-population mark.

2.1 DEMOGRAPHIC PROFILE OF VADODARA

The city has witnessed high growth (40%) from 1981 to 1991. However, it could not maintain the momentum of growth; the growth rate slowed down to 26% in the last decade, 1991--2001. The population registered in 2001 was 13.06 lakhs as against 10.31 lakhs 1991. The compounded annual growth rate (CAGR) has been steadily declining from 4.64% in 1971-81 to 3.45% in 1981-1991, and further to 2.39 % in 1991-2001.

The population in 2005 has been estimated at around 14.69 lakhs. The population projection for 2011 is estimated around 17.54 lakhs and is based on the hypothesis that the city would grow at a constant rate due to the increasing urbanisation in the state. The trend also shows that the population would increase at a stabilised average annual growth rate of 2.99% from 2005 to 2011.

Table 1. Population of Vadodara

Year	Population (lakhs)	Average annual growth rate (%)
1981	7.34	4.64%
1991	10.31	3.45%
2001	13.06	2.39%
2005 (Estimated)	14.69	2.99%
2011 (Projected)	17.54	2.99%

Source: Census 2001

The population density of the city has increased from 9527 per sq.km in 1991 to 12064 per sq.km in 2001. However, this density reduced to 9925 per sq.km due to the addition of new areas (148 sq.kms) in 2002. The jurisdiction of Vadodara city has further increased in February 2006 and covers urbanised areas of around 15-20 sq.kms, on the northern side of the city.

2.1.1 An analysis of growth rate

Vadodara has witnessed a decline in the growth rate, which could also be attributed to the decrease in the birth rate (27 per thousand annually during 1981-91 to 21.6 per thousand annually during 1991-2001) owing to the increasing acceptance of the family planning concept. Also, at the same time, the death rate has increased from 7.4 per thousand annually during 1981-91 to 7.6 per thousand annually in 1991-2001. The increase in the death rate also indicates the deteriorating health conditions prevailing in the city.

Table 2. Pattern of Birth Rate, Death Rate and Natural Growth Rate of Vadodara City, 1981- 2001

Period	Rate per 1000 population		
	Crude Birth Rate	Crude Death Rate	Annual Natural Growth Rate
1981-91	27.0	7.4	19.6
1991-2001	21.6	7.6	14.0

Source: Computed from vital registration data provided by VMC

Note: It is well known that the registration of births and deaths is not 100%, particularly for the earlier period. The estimates are therefore subject to completeness of registration.



VADODARA MUNICIPAL CORPORATION

CITY DEVELOPMENT PLAN

LEGEND

- Vadodara Municipal Corporation Boundary
- VMC Boundary till July 2002
- Waterbody
- Broad Gauge Railway Track
- Metre Gauge Railway Track
- National Highway
- State Highway
- Ring Road
- Major Road
- Other Road

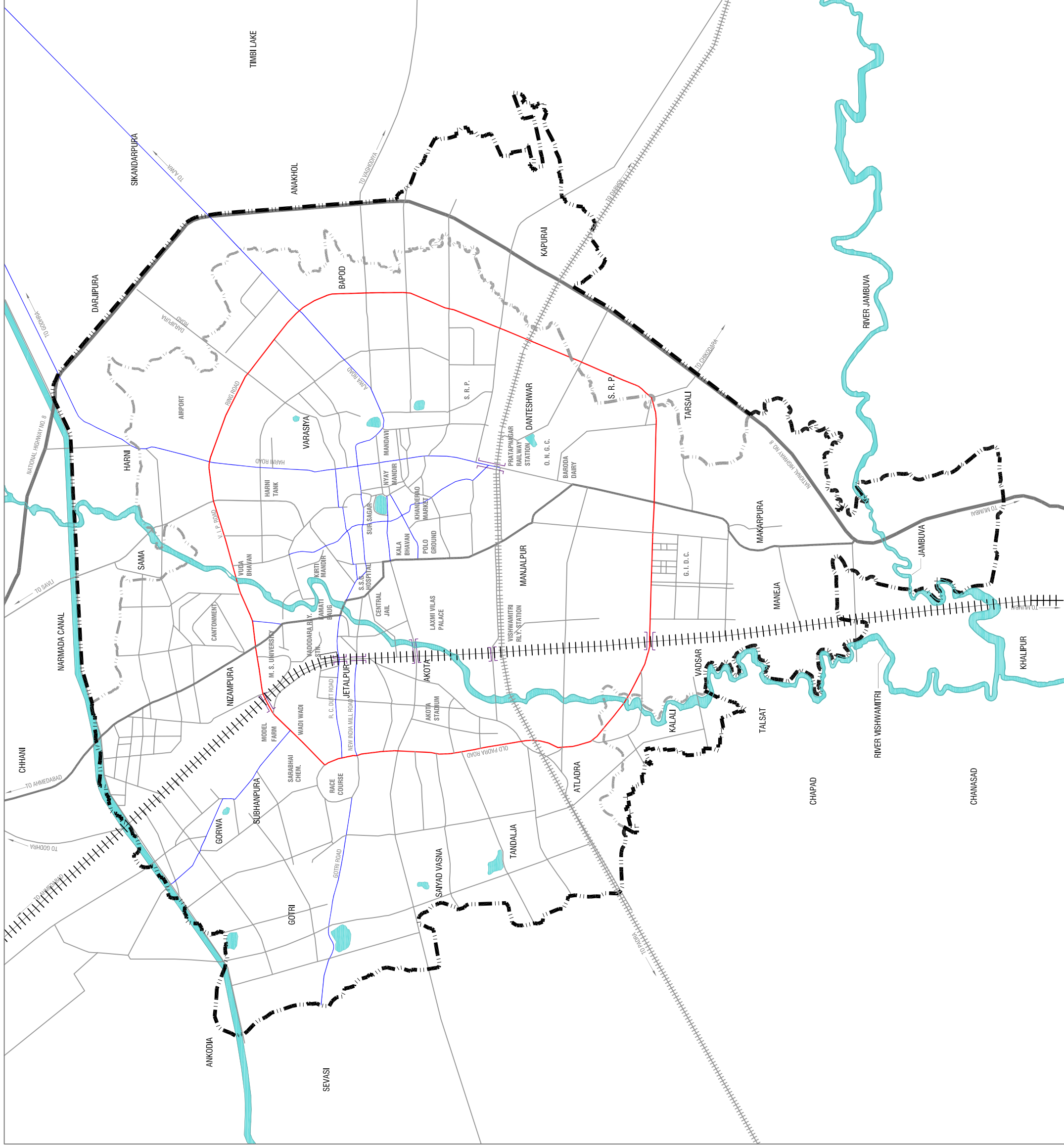


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BASE MAP

VADODARA MUNICIPAL CORPORATION

CITY DEVELOPMENT PLAN
VADODARA





CITY DEVELOPMENT PLAN

LEGEND

- Vadodara Municipal Corporation Boundary
- VMC Boundary till July 2002
- Ward boundary
- Waterbody
- Broad Gauge Railway Track
- Metre Gauge Railway Track

WARD DENSITY

- < 10,000
- 10,000 to 25,000
- > 70,000



Ward No.



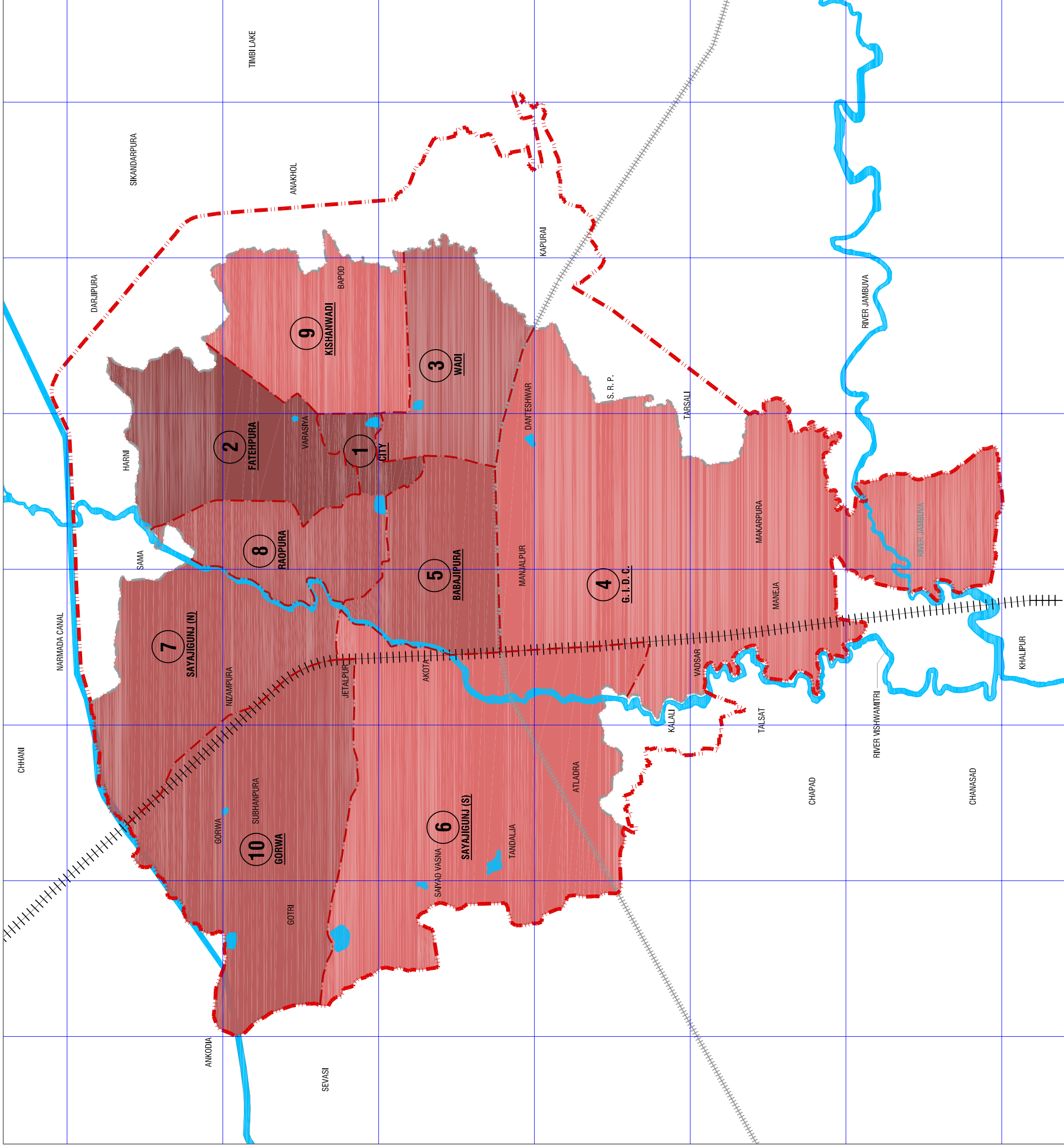
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WARD DENSITY

VADODARA MUNICIPAL CORPORATION

CITY DEVELOPMENT PLAN
VADODARA



2.1.2 Reduction in immigration

The total population increase in 1991-2001 was 2.74 lakhs as against 2.96 in the previous decade. The total increase in the last decade was attributed to natural increase and immigration, which was around 58% and 41% respectively. The reduction in the population growth by around 1.4% in the last

Table 3. Composition of Growth

Composition	Population increase during			
	1981-91	% of total	1991-2001	% of total
Natural increase	1,68655	56.8%	1,60909	58.6%
In-migration	1,28212	43.2%	113786	41.4%
Jurisdictional change	N.A	N.A	N.A	N.A
Total increase	296,867	100.0%	274,695	100.0%

Source: Population Research Centre, Vadodara

Note: It is well known that the registration of births and deaths is not cent percent, particularly for the earlier period. The estimates are therefore subject to completeness of registration.

decade implies the city's inability to attract migrants. On the other hand, the share of natural increase has gone up from the period 1981-1991 to 1991-2001 by 1.8%.

2.1.3 Sex ratio and literacy rate

While the literacy rate has gone up from 54% in 1961 to 88% in 2001, the sex ratio has increased during the last decade to 909 from 899, indicating decreasing single male migration in the city in the last decade. The last two decades have been a period of developmental strains and deterioration, leading to a decline in industrial growth and reduced employment opportunities in Vadodara, which is reflected strongly in the falling decadal population growth rate. As a result, the people of Vadodara have been relying on their legacies; the pace of economic growth has slowed down and the city is no longer an attractive migration destination.

Table 4. Sex ratio and Literacy rate

Year	Male popu.	Female Popu.	Sex-ratio
1951	113518	97889	862
1961	160646	137752	857
1971	252080	214616	851
1981	388723	345750	889
1991	543217	488129	899
2001	684130	621905	909

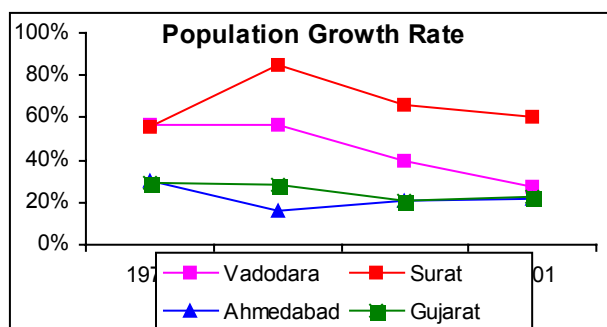
Source: Census documents

High population growth and high single male migration

2.1.4 Trend analysis with respect to Surat and Ahmedabad

It would also be pertinent to note that both Vadodara and Surat had a population of about 4.7 lakhs to 4.9 lakhs in 1971; in 2001, the population of Surat was 24.33 lakhs with a decadal growth rate of 60.38% and Vadodara had grown only to 13.06 lakhs with a decadal growth of 26.67%.

Ahmedabad's growth shows an increasing trend in the last two decades, from nearly 16% in 1981 to 22% in 2001. Surat, on the other hand, has witnessed a remarkably high growth rate of 60% in 2001, whereas Vadodara's growth trend has been rather low, declining



from 57% in 1981 to 27% in 2001.

2.1.5 Slums - a matter of concern

It is clear that the existing urbanisation process and the new development trend will have direct implications on the infrastructure and its environs.

According to surveys, slums record the highest number of cases of malaria, jaundice, diarrhoea, and dysentery. Every year, around 500-700 cases of diarrhoea are recorded in the slums. A survey in 1982 (ORG 1982) revealed that there were 255 slum locations in the city with a slum population of 0.95 lakhs, which had recorded a growth rate of 90% from 1972 to 1982. Presently, approximately 20% (2.57

lakhs) of Vadodara's population lives in 336 slums. As far as the services are concerned, 88% of the slum dwellers have access to water supply but only 46% of them have access to drainage systems. **It is therefore imperative to recognise and clearly identify forms of slum up-gradation.**

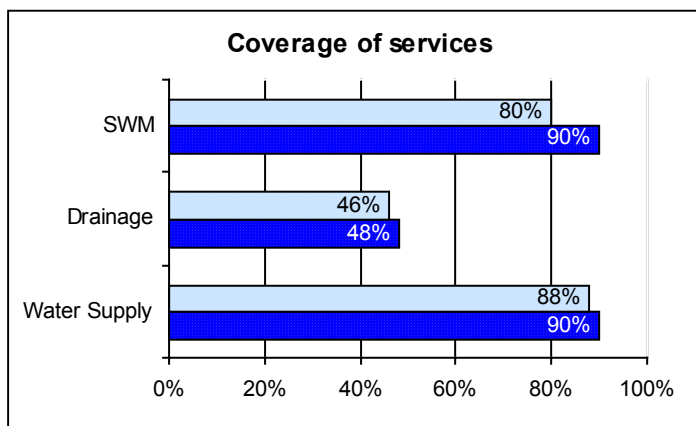


Table 5. Access of slum, dwellers to basic services

Year	Number of slum dwellers	Percentage of slum dwellers having access to		
		Water supply	Drainage system	Waste collection service
1991	2,26,100	NA	NA	NA
2001	2,57,195	88%	46%	80%
2005 (estimated)	2,70,799	88%	46%	80%

Source: Vadodara Municipal Corporation, 2006

Urban Poverty: A survey of basic services in the urban slums of Vadodara identified 96,000 families (2.8 lakhs) as falling below the poverty line i.e. the families were drawing an income of Rs 373 per capita per month. In other words, it would appear that 36% of the population of Vadodara lives below the poverty line. No analogies could be drawn between VMC data and the recent survey carried out by SEWA in the year 2006.

2.2 ECONOMIC CHARACTER

Gujarat has been the front-runner in the overall economic development of the country all these years. This is evident from the fact that with a mere six percent of India's geographical area and five per cent of the population of India, the state accounts for 21% of the country's exports and 6.42% of the national GDP at constant prices. The industrial growth of Gujarat (8.52%) could be way ahead of that of many Indian

Table 6. Social composition of population

Year	Number of poor*
1993/94	NA
1999/00	2,88,000
2004/05 (estimated)	NA

*- Below Poverty line

Source: Vadodara Municipal Corporation, 2000

states and other Asian countries viz. Singapore, Malaysia and Korea. The state is also recognised as the chemical capital of the nation.

The state is undergoing rapid industrial and economic growth; it has been registering a growth of 7.7% in Net State Domestic Product at constant prices over the last six years. During 2003-04, the gross state domestic product has been estimated at 15.4% as against 10.1% in the previous year. The primary, secondary and tertiary growth sectors have registered a growth of 60%, 5.5% and 8.6% respectively, reflecting high agricultural performance as well as robust industrial production in 2002-03.

2.2.1 Vadodara and its Regional Dynamics

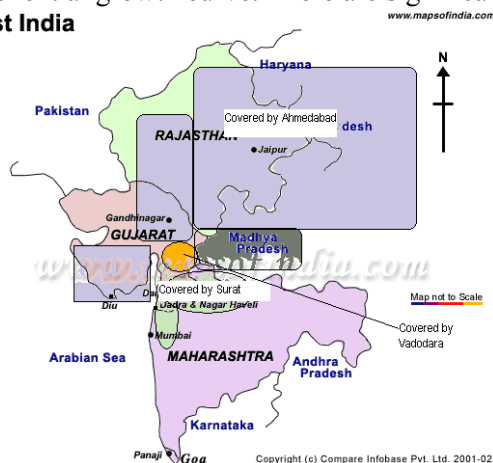
A perusal of the map of Gujarat shows that Vadodara is sandwiched between two major growth magnets i.e. Ahmedabad and Surat. Though a part of the golden corridor, Vadodara is at a disadvantage in attracting investments. It may be observed that Ahmedabad, due to its vantage location in central Gujarat, captures the entire hinterland of Kandla, Mundra, Pipava, Rajkot, Jamnagar, Porbander, and Surenderanagar and serves as a conduit point for all trade movements between these economic centres and the rest of the country. The central region's key strengths include strong textiles, pharmaceuticals and chemical base, agro produce and the recently developed higher education institutes.

Ahmedabad is poised to emerge as a major destination for trade and commerce. Also, being the state capital region, it would be assured of continued investments in various areas. In the future, Ahmedabad and central Gujarat would emerge as major players in the knowledge industry and as a value-added processing zone.



2.2.2 Vadodara as an integral part of South Gujarat's development

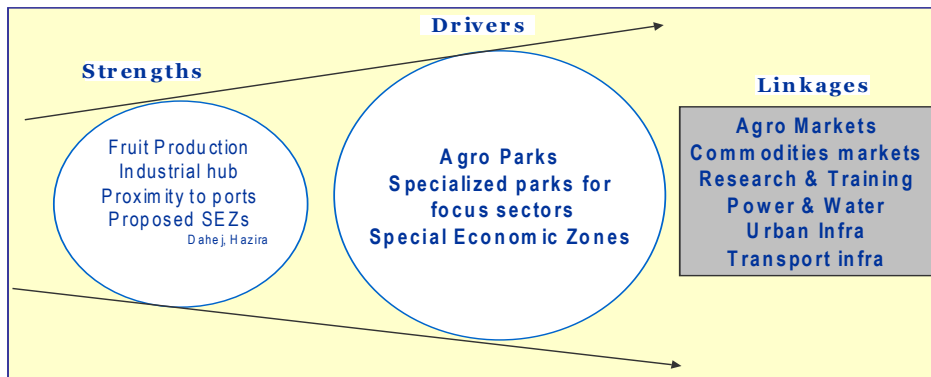
South Gujarat is the industrial backbone of the Gujarat economy and sees the highest amount of economic activity. This area has abundant raw materials and is a strong base for industrial chemicals. With investments in new ports, special economic zones and LNG terminals, the region is on the threshold of an exponential growth curve. There are significant opportunities available for the south Gujarat region; Surat is expected to capitalise most on these opportunities.



The city of Surat also stands to gain from Mumbai and the neighbouring areas of Maharashtra i.e. the districts of Dhule, Malegaon, and Jalgaon. In addition, due to train connectivity from Surat to the east, Surat is able to cater to a large portion of Madhya Pradesh and some parts of Bihar.

Unfortunately, this leaves limited hinterland with Vadodara comprising Anand, Panchmahal and Dahod. Vadodara's hinterland on its east gets constrained due to tribal areas and hilly terrain in the border districts of Madhya Pradesh.

Key Strengths and Drivers in South Gujarat



Being a part of south Gujarat, Vadodara also derives some of the strength of this region. It has the potential of being a biotech hub and has strong linkages to surrounding agro markets.

2.2.3 Vadodara's Industrial Growth

Vadodara City runs through the golden corridor, from Ahmedabad to Vapi, and is one of India's foremost industrial centres with dominant groups of chemicals and pharmaceuticals, cotton textiles and machine tools. The city witnessed a sudden spurt in industrial activity with the establishment of the Gujarat refinery in 1962. Various large-scale industries such as Gujarat State Fertilizers and Chemicals (GSFC), Indian Petrochemicals Corporation Limited (IPCL) and Gujarat Alkalis and Chemicals Limited (GACL) have come up in the vicinity of the Gujarat Refinery. The establishment of large industrial units in this region has automatically brought into existence a number of smaller enterprises. Several factors like raw material availability, product demand, and skilful mobilisation of human, financial and material resources by the government and private entrepreneurs had contributed to Vadodara's efflorescence as one of India's foremost industrial centres.

But, with increased competition in the global market and failures to cope with the economic momentum, Vadodara's economy has slowed down.

2.2.4 Indicators showing a decline in Industrial Growth

As discussed, the city has been declining in terms of its economic growth. The drop in growth rates can substantiate this. At the same time, there are other reasons for this decline, which are further elucidated below:

The Gujarat Industrial Development Corporation (GIDC) industrial estate was set up at Makarpura in 1970 and has currently around 2000 operational industries. This estate lies within the municipal limits of the city. However, about 40% of these industrial undertakings have closed down in the last decade. The reasons have been poor infrastructure support, ageing workforce, pressure of local taxation, lack of skilled manpower and the lack of entrepreneurship required in the wake of the globalisation of the Indian economy. Local taxation is the biggest factor forcing industrial establishments to move outside the VMC limits. These industries have selected new destinations close to the city so that they could still enjoy the benefits of city services.

The work participation rate of Vadodara in 2001 was 32% as against 38% of Surat. This indicates that Vadodara city has a low workforce ratio, which may be due to the slack in the economic growth of the city in the last decade.

2.2.5 Occupational pattern

In the years from 1981 to 1991, the share of manufacturing workers has declined by 3.4% due to the limited industrial development. One sector that seems to have increased its share significantly is trade and commerce, which forms nearly one fourth of the city's total workforce. At the same time, the share of primary sector in the total work force had reduced by 0.54% from 1981 to 1991. The share of agriculture and labourers in the total work force had further declined by 2001. The trend clearly shows that Vadodara is not an agrarian economy and the livelihood of people is more dependent on trade and commerce.

In the year 2001, agriculture and household contributed 0.88% each to the total work force, cultivators contributed 0.44% and other workers 97.81%.

Table 7. Economic base, occupational distribution 2001

Occupation category	1981		1991		Occupation category	2001	
	Number of workers (Lakhs)	% of total	Number of workers (Lakhs)	% of total		Number of workers (Lakhs)	% of total
Primary sector	0.06	4.43%	0.12	3.89%	Agricultural Labourers	0.04	0.88%
Household industry	0.02	1.36%	0.02	0.60%	Cultivators	0.02	0.44%
Manufacturing	0.44	34.18%	0.94	30.77%	Workers in household industries	0.04	0.88%
Construction	0.05	3.59%	0.18	5.85%	Other workers	4.47	97.81%
Transport, storage and communication	0.13	9.72%	0.28	9.15%			
Trade and business	0.23	17.51%	0.64	21.00%			
Services (includes Banking and Service)	0.38	29.20%	0.88	28.74%			
Total	1.29	100.00%	3.07	100.00%	Total	4.57	100.00%

Source: Respective Census

2.2.6 Comparison of industries vis-à-vis other major cities

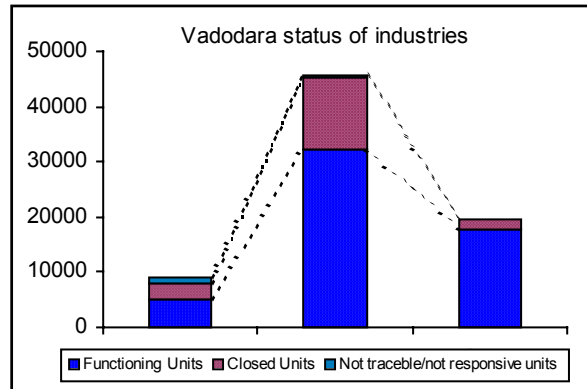
At a state level, Vadodara² has only 3.05% of the total state functioning units and attracts a fixed investment of Rs. 46,941 crores. However, this investment is not substantial enough and forms only 6.3% of the total state investment; it cannot provide any impetus for industrial growth.

Employment in Vadodara’s small-scale industries (SSI) is 4% as against 17.5% and 14.06% respectively in Ahmedabad and Surat. The exports from SSI in Vadodara amount to only 1% against 5.40% in the case of Ahmedabad.

The percentage of plant and machinery to fixed investments is 36% in Vadodara, implying that the industries are mostly labour intensive in nature. At the same time, the ratio of production to fixed investments in SSIs is 0.90, which is very low, implying that there is under-utilization or inefficiency in production. In comparison, the same ratio for Ahmedabad is 1.31 and for Surat 2.04.

The proportion of closed units to total units is 32.94% for Vadodara as against the state average of 20.45%, indicating the decline in the SSI units. The graph below gives a comparison of the closed units vis-à-vis the total functional units of all three urban areas i.e. Vadodara, Ahmedabad and Surat. The graph depicts that the percentage is the highest for Vadodara followed by Ahmedabad and Surat.

The city needs an economic vision wherein the key drivers would be identified which would give an impetus to the industrial revival of the city and bring it to a take-off stage. The vision has been detailed in the next section.

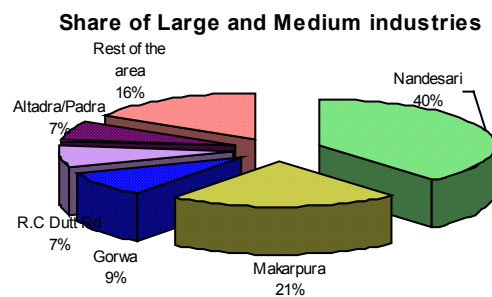


Summary:

The SSI analysis reinforces the fact that Vadodara needs focussed investment to create opportunities for industrial development. All the above factors call for interventions from the state to develop Vadodara in terms of its strengths. These issues need to be addressed through proper policy level interventions at the state and central level. The statistics are provided in annexure II.

2.2.7 Large and Medium Scale Industries

There are 217 medium and large-scale industries (MLI) in and around Vadodara involving an investment of Rs 5812 crores and giving employment to 39587 people. A few of these industries such as Dupont and L&T have also procured land in and around Vadodara city. GIDC has also proposed Biotech Park at Savli GIDC area.



² The industrial development analysed are located in and around the urban centres, and within the respective city talukas limits.

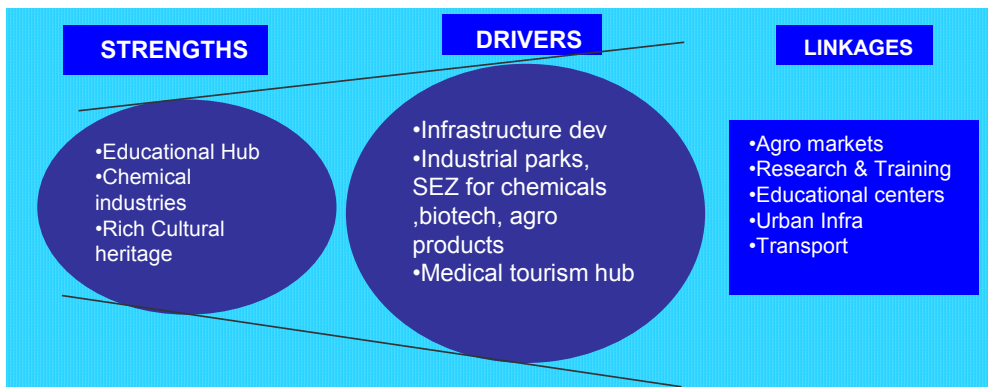
The maximum number of Medium and Large Industries (MLI) is concentrated in Nandesari and account for 40% of MLI. Some of these are: Gujarat State Fertilizers and Chemicals Limited, Gujarat Refinery, Indian Petrochemicals Corporation Limited and Gujarat Alkalis and Chemicals Limited.

2.2.8 Strengths and opportunities for leveraging

Despite issues and constraints, various opportunities still exist for Vadodara. The opportunities emerge from the overall growth projections for the Gujarat state based on the centrality that Gujarat holds in the country's economy. India's GDP is projected to grow at a higher than 8% rate. Hence, considering past trends, the Gujarat state would grow at a rate of over 10% annually.

In view of this trend, the growth rate would translate into higher contribution by industries and services to the overall GDP of the state, which stood at Rs.1,24,904 crores in 2001. The industrial growth in the state would primarily get driven by the existing industrial belts of the state and the emerging ones viz. port-based industries, value-added processing of goods, special economic zones, etc.

The services sector encompasses transport, storage, communication, trade, hotels, banking, insurance, real estate, business services etc.



Summary:

Vadodara has its limitations or constraints, which will define the possible role and scope of its economy. A direction needs to be defined to design interventions viz. policy, support and infrastructure, in precipitating a future.

The city needs an economic vision wherein the key drivers would be identified. This would give an impetus to the industrial revival of the city and bring it to a take-off stage.

Hence the city needs to be developed on the economic front and position itself as a *'Liveable and Economic City'* that scores high on liveable indices. To achieve this, it should:

Assume a leading position in Education -- Vadodara with its legacy of being an educational centre could position itself as a preferred location for educational institutes. To that end, it needs to earmark an area to induce the private sector to participate in setting up high-class education facilities. Vadodara would also need to influence the state government to expand the scope of the MS University to accredit these institutions. Given the availability of human resources, the IT-enabled services sector would find it lucrative to set up facilities. Vadodara could also facilitate these by delineating such zones (Special Education Zones) and seek support from the state government to attract investments.

Consolidate and retain its position in industries: Industries in this region could focus on retaining Vadodara's eminent position in petrochemicals and build diverse and ancillary industries around the main industrial centres.

Promote cultural heritage of the city for tourism: Vadodara is known for its rich cultural heritage. VMC could support State Government initiatives by providing connectivity and infrastructure related services to major cultural centres in the city and assist in including Vadodara in tourist circuits.

Each of these strategies is discussed in detail in the section on the vision of Vadodara.