

# Preparation of Economic Revival Plan: A Case of Industrial Sector of Vadodara District

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## ABSTRACT

In the new era of industrialization, liberalization & urbanization, all countries are in a race to become global manufacturing houses & trade centers. China develops global manufacturing cities like Shanghai, Shenzhen, Guangzhou & many more. India is the robust economy of the world. In this global scenario of the world, India has taken part with its full potential. India takes significant steps toward this trend. Like any other developing country, India's economic growth is highly dependent on infrastructure expansion. The most ambitious plan is the 'Delhi-Mumbai Industrial Corridor (DMIC)'. That is the massive manufacturing & investment plan between India's capital Delhi and its financial capital Mumbai.

In order to develop plans for immediate, mid-term, and long-term activities, I urge the member Ministries, State Governments, and City Governments to evaluate this research and expand further on it. We can't develop urban India without Re-evaluating the TP scheme mechanism indicated in the conclusion of this document.

**Key Words:** town planning Schemes, Gujarat Town planning and Urban Development Act, GTPUD, allotments, reservation, Gujarat

## 1. INTRODUCTION

The most ambitious plan is the 'Delhi-Mumbai Industrial Corridor (DMIC)'. That is the massive manufacturing & investment plan between India's capital Delhi and its financial capital Mumbai. By utilizing 1500 km long high capacity 'Western Dedicated Freight Corridor' (WDFC) as the backbone. DMIC influence 62% land area of Gujarat state, which is among the highest of all seven DMIC states (i.e Haryana, NCR, Uttar Pradesh, Rajasthan, Gujarat, Madhya Pradesh & Maharashtra). So, Gujarat has the maximum advantage over DMIC. Major industrial regions in the DMIC zone are Ahmedabad, Vadodara, Surat & Bharuch.

In the influence zone of DMIC, the Vadodara district is centrally located in the state of Gujarat. Its geographical location has tremendous advantages for expansion. But, with the rise of major urban centres like Ahmedabad & Surat, Vadodara become a sandwich between them. Ahmedabad has an international airport, vicinity of the capital city Gandhinagar & strong industrial base. Same as Surat has a major textile market & manufacturing unit, port development & it is the centre of the world for cutting & polishing diamonds. However, with this competitiveness, Vadodara faces a major risk of falling into a low-growth trap and hence failing to attract sufficient investments to survive on this edge of globalization. Now it needs an ideal growth path and plan interventions, such as policy, assistance, and infrastructure, to bring about a desirable future.

To exploit opportunities and promote industrial growth in the Vadodara district, this 'ECONOMIC REVIVAL PLAN' is a study that attempts to analyse its industrial performance & rethink strategies to attract investment & industrial extension. It includes a brief industrial profile of Vadodara, a discussion of the history of industrialization of Vadodara

& current scenario, sector-wise units & its share in Gujarat. Also, the above-mentioned Vadodara is located at the conduit point of the DMIC influence zone of Gujarat state so, this study accommodates, an analysis of major infrastructural projects, which are the Delhi-Mumbai Industrial Corridor (DMIC), and Western Dedicated Freight Corridor (WDFC), India's largest Delhi-Mumbai Expressway & the Mumbai-Ahmedabad High-Speed Rail (MAHSR). Also, their impact on Vadodara. This "ECONOMIC REVIVAL PLAN FOR VADODARA" identifies economic growth strategies that will help to revive growth on track and boost Vadodara's economy.

## **2. BODY OF PAPER**

With the development of the Gujarat refinery in 1962, the city experienced a surge in industrial activity. In the area of the Gujarat Refinery, large-scale enterprises such as Gujarat State Fertilizers and Chemicals (GSFC), Reliance Manufacturing Division (formerly IPCL), and Gujarat Alkalies and Chemicals Limited (GACL) have sprouted. The establishment of large industrial units in this area has resulted in the emergence of many smaller enterprises. Several factors, including the availability of raw materials, product demand, governments and private entrepreneurs' skilful mobilization of human, financial, and material resources, contributed to Vadodara's rise as one of India's leading industrial centres.

But, with increased competition in the global market and failures to cope with the economic momentum, Vadodara's economy has slowed down. So, the research is attempted to analyze the performance of Vadodara's industrial sector.

Following are the objectives to full fill in this research:

- To study the industrial performance of Vadodara.
- To analyze major factors affecting the industrial growth of Vadodara
- To study major infrastructural projects (DMIC, WDFC & Delhi-Mumbai Expressway)
- To find out potential sectors of industries for Vadodara
- To prepare strategies for further development & investment opportunities.

### **2.1 Scope & limitation of this research**

- Scope: Provision of potential sectors with further development & identify nodes for industrial expansion.
- Limitation: Factors affecting industries based on physical features & the whole research is about Vadodara District only.

### **2.2 Methodology**

- First, collect secondary data from District Industries Centre (DIC), GIDC (Gujarat Industrial Development Corporation), Industries Commissionerate (IC) - Gujarat, Gujarat Industrial Development Board (GIDB) & Industrial Extension Bureau (iNDEXTb) – Gujarat. The data excrete from this are containing nos. of factories, nos. of MSMEs, nos. of employment, sector-wise distribution & GIDC land availability & plot details. etc.
- A bunch of secondary data tries to understand Vadodara's industrial growth in the last decade. Also, through the 'Gujarat Annual Statistical Outline, the Statistical Abstract of Gujarat State, District level industrial report – Gujarat' extract change rate of Vadodara in various industrial aspects.
- Conduct a primary survey of industries & discuss the factors affecting the industrial expansion of Vadodara.
- After the above findings & group discussion with FGI (Federation of Gujarat Industries) distinguish the potential sectors of Vadodara & make strategies to attract investments to strengthen the industrial performance of Vadodara.
- Study of regional infrastructural projects including Delhi Mumbai Industrial Corridor (DMIC), Western Dedicated Freight Corridor (WDFC) & Delhi-Mumbai Expressway. Identify locational advantages to establish export-oriented zones in the future.
- Making GIS-based analysis & GIS maps of influence area by the above-mentioned projects.

- Discuss the whole scenario with DIC – Vadodara & FGI (Federation of Gujarat industries).
- Followed by the above research select some prospective nodes & corridors in the periphery of Vadodara.

### 2.3 Highlights of the Economy of Gujarat

Gujarat's economy, which is located in Western India, contains major agricultural and industrial activity. Cotton, groundnuts (peanuts), dates, sugar cane, milk, and milk products are among the state's major agricultural products. Gujarat is one of the most industrialized states in the country, with major industries such as pharmaceuticals, chemicals, refineries and petrochemicals, ceramics, textiles, and automobiles. With a 33 % share of medication manufacturing and a 28% proportion of drug exports, Gujarat is India's pharmaceutical sector leader. There are 130 USFDA-approved drug manufacturing facilities in the state. The cities of Ahmedabad and Vadodara are regarded as pharmaceutical centres since they are home to a large number of large and small pharmaceutical enterprises.

Gujarat has India's longest coastline (1,600 km), and its ports (both private and public) handle roughly 40% of the country's ocean cargo, with Mundra Port in the Gulf of Kutch being the country's largest port by cargo handled (144 million tonnes) due to its favourable location on the westernmost tip of the country and proximity to global shipping lanes. Gujarat also accounts for around 20% of India's industrial output and goods exports.

### 2.4 Key Economy Drivers

1. Western Dedicated Freight Corridor (WDFC)
2. Delhi-Mumbai Industrial Corridor (DMIC)
3. Delhi-Mumbai Expressway

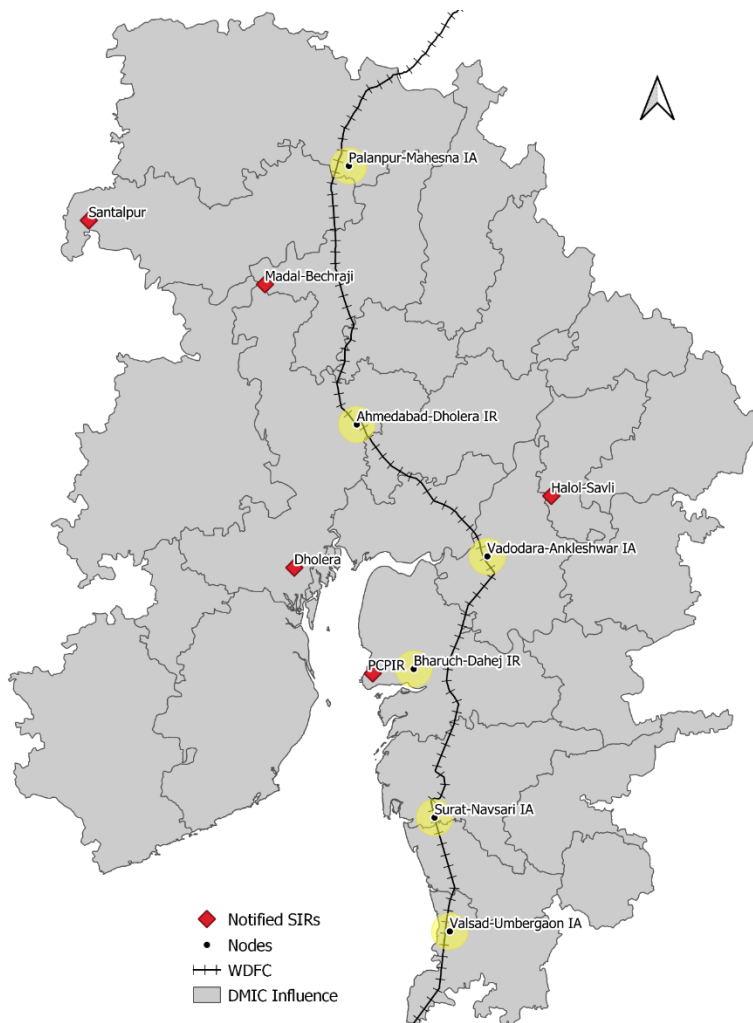


Figure shows DMIC influence zone of Gujarat state. Districts of Gujarat in influence of DMIC are Banaskantha, Sabarkantha, Arvali, Patan, Mahesana, Surendranagar, Gandhinagar, Ahmedabad, Kheda, Anand, Panchmahal, Mahisagar, Dahod, Botad, Amreli, Bhavnagar, Vadodara, Anand, Bharuch, Narmada, Surat, Navsari, Dang and Valsad.

Maximum advantages to Vadodara, Ahmedabad, Surat, Bharuch, Valsad, Navsari, Anand, Kheda & Mahesana district because WDFC alignment passing through those districts.

This revival plan, a special focus on Vadodara's industrial development. Vadodara is being selected as an important node in the above-mentioned table. As per NICDC, few details are represented about the Vadodara-Ankleshwar industrial area. Along with the Dedicated Freight Corridor, the projected Vadodara-Ankleshwar Industrial Area would be built. Engineering, Ceramics, Petroleum, Petro-Chemicals, Chemicals, Pharma, and Textile are all important sectors in the Vadodara-Ankleshwar region. Ankleshwar and Jhagadia are two important industrial estates in the area. Vadodara is the closest city to this zone.

## 2.5 Current Industrial Scenario of Industries in Vadodara

Chemicals and fertilisers, pharmaceuticals, biotechnology, cotton textiles, machine tools, glass, engineering, tobacco, fisheries, and dairy are among the industrial clusters. In Vadodara, there are almost 18,000 small scale industrial units, with repairs and services accounting for roughly 5,713 units, 1,923 textiles, 1,615 metal works, 1,357 chemicals, 1,316 equipment machinery, 1,145 rubber & its products, 1,047 food goods, and 3,840 miscellaneous units. Textiles, metalworking, chemicals, equipment, rubber goods, and food items are among the other important small-scale businesses. 885 are glass, ceramics, and cement, 829 are electrical equipment, 753 are papers and their products, 601 are nonferrous metals, 543 are leather, 173 are tobacco, and 56 are miscellaneous items. Chemicals, boilers and steam producing equipment, and glass all had significant growth throughout the decade of 1988-1997. Investments in the Chemicals industry, excluding fertilisers, increased by about 98 per cent between 1988 and 1997. Petrochemicals, chemicals, textiles, plastics, and pharmaceuticals saw the most investment over the decade 1988-1997. Chemicals and pharmaceuticals were also among the top five investment-generating sectors in the past decade, from 1997 to 2007. Infrastructure, Glass, and Transportation are three new areas that have had significant investment during this period. Vadodara has been an important target for attracting industrial investments thanks to the Delhi-Mumbai Industrial Corridor, which runs through the city. Several government firms, such as GSFC and GACL, maintain industrial facilities in the area. Vadodara is home to some of Gujarat's most prestigious educational institutions, which provide trained and intelligent labour in large quantities to different businesses and R&D operations. The district's proximity to significant industrial cities in Gujarat, such as Ahmedabad, Bharuch, and Surat, might be a major engine of economic growth.

## 2.6 Sector-wise distribution of Industries in Vadodara

Description of Industry	Vadodara 2017-18	Gujarat 2017-18	Share in Gujarat (%)
Mfg. of crop and animal production, hunting & related service activities	15	549	2.73
Other mining and quarrying	0	77	0.00
Mfg. of food products	120	2136	5.62
Mfg. of beverages	27	145	18.62
Mfg. of tobacco products	18	197	9.14
Mfg. of textiles	19	2902	0.65
Mfg. of wearing apparel	1	385	0.26
Mfg. of leather & related products	0	17	0.00
Mfg. of wood & products of wood & cork, except furniture	50	598	8.36
Mfg. of paper and paper products	91	1016	8.96
Mfg. of printing and reproduction of recorded media	30	301	9.97
Mfg. of coke and refined petroleum products	11	107	10.28
Mfg. of chemicals and chemical products	322	2596	12.40
Mfg. of pharmaceuticals, medicinal chemical & botanical products	139	819	16.97
Mfg. of rubber and plastics products	235	1767	13.30
Mfg. of other non-metallic mineral products	154	2777	5.55
Mfg. of basic metals	102	2012	5.07
Mfg. of fabricated metal products, except machinery and equipment	507	2168	23.39
Mfg. of computer, electronic and optical products	88	283	31.10
Mfg. of electrical equipment	238	699	34.05
Mfg. of machinery and equipment	393	2608	15.07
Mfg. of motor vehicles, trailers and semi-trailers	21	295	7.12
Mfg. of other transport equipment	12	71	16.90
Mfg. of furniture	13	119	10.92
Other manufacturing Industry	27	534	5.06
Mfg. of repair and installation machinery and equipment	12	104	11.54
Mfg. of waste collection, treatment and disposal activities	2	173	1.16
Mfg. of publishing activities	0	7	0.00
Other Industries	89	1123	7.93
<b>Total (All Industrial Groups)</b>	<b>2736</b>	<b>26585</b>	<b>10</b>

As per the above table maximum number of units is for machinery, tools & engineering which is 393 of Vadodara against Gujarat has a total of 2608 (share of 15.07%). Vadodara is performing well & contributing the highest share

(approx. 35%) in electrical equipment production, such as 500MW turbine, switch gears, cables, transformers & generators. Vadodara has notable growth in pharmaceuticals, chemicals & petrochemicals.

## 2.7 Support Infrastructure

The Delhi-Mumbai Industrial Corridor (DMIC) and National Highway No.8 connect Vadodara to all major cities, including Delhi (1,028 km) and Mumbai (448 km). NH 8 also connects Vadodara to Gujarat's key industrial cities, including Ahmedabad (111 km), Rajkot (294 km), Ankleshwar (84 km), and Surat (167 km). The district is also connected to Ahmedabad, Surat, and Rajkot, among other districts, Vadodara is well connected to Ahmedabad by India's first National Expressway, which runs through the city (93 km). Vadodara is also well linked to all major cities in the state, including Delhi, Mumbai, and Ahmedabad, as well as other districts where the state's Broad Gauge Railway line runs through. Vadodara has its own domestic airport, Harni, which is well connected to four Indian metropolises: Delhi, Mumbai, Chennai, Bengaluru, and Ahmedabad. But runway length is inadequate to perform international operations.

## 2.8 Growth trend

Year	No. of Factories	Change (%)	No. of MSMEs	Change (%)	No. of Employees	Change (%)
2010-11	2747		4147		160496	
2011-12	2820	2.66	6582	58.72	161662	0.73
2012-13	3010	6.74	9673	46.96	168063	3.96
2013-14	3051	1.36	12312	27.28	168757	0.41
2014-15	2963	-2.88	14740	19.72	169267	0.30
2015-16	3007	1.48	16379	11.12	169361	0.06

## 2.9 Analysis of Annual Survey of Industries (District Level Report) 2017-18

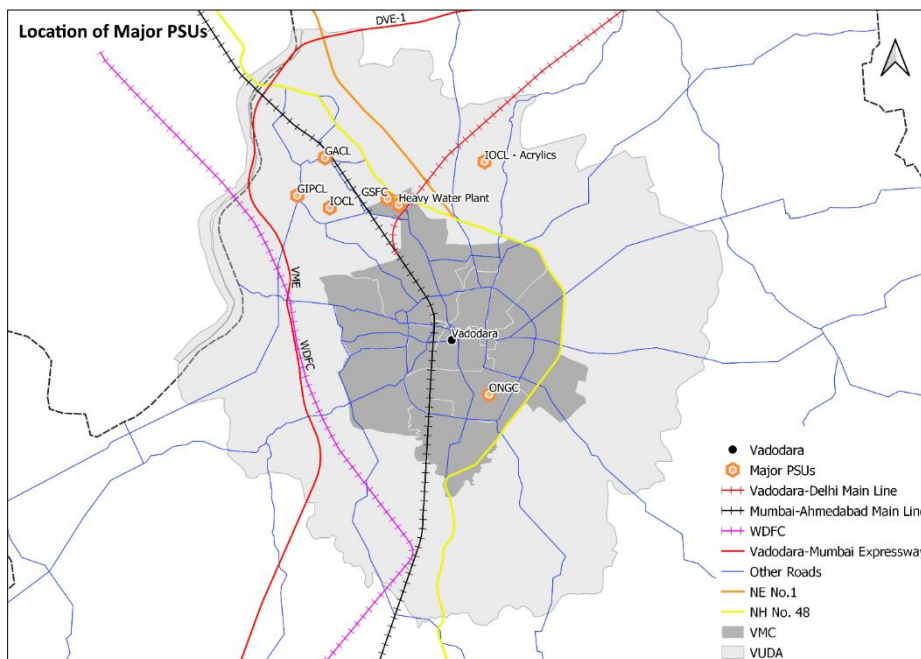
- Vadodara contribute a share of 10.28% out of all 32 districts of Gujarat in total nos. of factories; Vadodara holds rank 3<sup>rd</sup> after Ahmedabad & Surat.
- Vadodara District is having more factories with
  - Mfg. of fabricated metal products, except machinery and equipment
  - Mfg. of machinery and equipment n.e.c
  - Mfg. of chemicals and chemical products
  - Mfg. of electrical equipment
  - Mfg. of rubber and plastics products
  - Mfg. of other non-metallic mineral products
- Vadodara holds rank 4<sup>th</sup> in Net Value Added, the share of 11.31%
- Vadodara share (9.51%) for input consumption ranks 5<sup>th</sup>.
- Vadodara share (9.70%) for output originating, holds rank 5<sup>th</sup>
- Employment gain 9.17% in 2017-18
- In Vadodara district, Mfg. of fabricated metal products, except machinery and equipment has maximum no. of factories numbering 507 units (18.55%) to district total.
- Mfg. of computer, electronic and optical products Vadodara district occupies maximum no. of factories numbering 88 units (31.13%) to State total.
- Mfg. of electrical equipment Vadodara district occupies maximum no. of factories numbering 238 units (34.03%) to State total.



## 2.10 Analysis of Annual Survey of Industries (District Level Report) 2017-18

Fluconazole bulk, Azithromycin, Caprolactam, Ammonia, Melamine, Polybutadiene Rubber, Pharmaceuticals, Chemicals, Automotive Vehicle and Tractor Tyres, SteamGas Turbines up to 500 MW, Automotive Radiators, and Fertilizers & Pesticides are the main exportable items manufactured by the district's Medium & Small-Scale enterprises.

## 2.11 Major Large scale industrial development



Largescale PSUs were established from 1960 to 1980. When crude oil was found in Ankleshwar several large-scale industries came into the vicinity of Vadodara city. Due to large investments, Vadodara's industrial growth takes flight. So, Vadodara's industrial sector is based on PSUs & their ancillaries of petrochemicals & chemicals manufacturing. In Gujarat state, the petrochemicals & refining of crude oil industries' foundation stone was firstly established in Vadodara, that Gujarat Refinery by IOCL. The analysis of the

history of industrialization in Vadodara shows that there was a strong industrial base provided by large-scale public sector companies. The below figure shows the location of PSUs in Vadodara. The new plant of IOCL – Acrylics is currently under construction. Large-scale govt. undertakings situated in Vadodara are IOCL's Gujarat Refinery, Gujarat State Fertilizers & Chemicals Limited (GSFC), Gujarat Alkalies & Chemicals Limited (GACL), Oil & Natural Gas Corporation (ONGC), Gujarat Industrial Power Corporation Limited (GIPCL), Vadodara Heavy Water Plant (currently owned by GSFC), Indian Petrochemicals Corporation Limited (currently owned by Reliance), etc.

## 2.12 GIDC Land-use details

GIDC	Total Area (sqm)	Allottable (sqm)	Area Allotted (sqm)	Area Allotted Area (%)
Savli	82,15,830	64,04,795.00	61,11,309.00	95.42
Nandesari	21,41,500	14,90,000.00	14,86,471.00	99.76
Makarpura	32,45,000	NA	NA	NA
Por Ramangamdi	13,40,985	10,11,919.54	10,09,391.94	99.75
Waghodia	36,90,400	NA	NA	NA
PCC (Petrochemicals)	66,61,560	65,40,358.00	65,40,358.00	100.00
Ranoli	4,08,029	2,91,104.00	2,90,534.00	99.80
Dabhoi	1,05,000	82,203.00	82,203.00	100.00

The above table shows that all the GIDC estates in Vadodara are in a saturated situation. Few are places available in Savli GIDC approx. 4% of total allottable land. Savli GIDC has 2 phase development at Alindra & Pilol expansion. While Nandesari, Makarpura, Por & Waghodia has no availability of allotted (Regional Manager - GIDC, 2022) area. Makarpura & Waghodia GIDC's land data is not available, but as per iNDEXTb's Gujarat land bank analysis, both are in a saturated condition. Makarpura is located within VMC (Vadodara Municipal Corporation) limits, so GIDC has no scope for further expansion.

### 2.13 Vadodara based Private Industrial Parks

Several private industrial parks are developing in the vicinity of GIDC estates & on the NH.48 provide plug & play services to industries in Vadodara. Some industrial parks developed as SEZ in Vadodara. As per Gujarat, land bank data total land availability is approx. 46% in all over Vadodara district. Contrans Logistic Park Private Limited at Karjan & Aspen industrial park near Waghodia developed as SEZs. Major rail infrastructure developer Plasser India Limited has a manufacturing unit in Contrans Logistic Park Private Limited.

D-mart, Wago India, Voltas limited, banco products & Se forge limited are notable firms located in various private industrial parks.

Sr. No.	Private Industrial Park	Taluka	Category	Area	Vacant (Ha)	Available Area (%)
1	Aatmiya-2 Industrial Park (Snehdeep)	Karjan	Unsaturated	94.53	70	74.05 %
2	Aatmiya Brookfields (Balaji)	Vadodara	Unsaturated	21.15	5	23.64 %
3	Contrans Logistic Park Private Limited	Karjan	Unsaturated	79.18	68	85.88 %
4	Hamraz Food Products Pvt Ltd	Savli	Unsaturated	122.39	91	74.35 %
5	M/s Ratanakar Estate Developer	Vadodara	Unsaturated	52	10	19.23 %
6	Shah Industrial Park	Waghodia	Unsaturated	31.39	9	28.67 %
7	Siddhi Industrial Infrastructure Park	Waghodia	Unsaturated	57.54	10	17.38 %
<b>Total</b>			<b>Unsaturated</b>	<b>458.18</b>	<b>263</b>	<b>46.17 %</b>

### 2.14 Comparison with other Industrial regions

#### Comparison between Major Industrial Regions - Working Factories

Years	Ahmedabad			Vadodara			Surat			Rajkot		
	No.	of	Change (%)	No.	of	Change (%)	No.	of	Change (%)	No.	of	Change (%)
2010-11	6344		2.92	2747		1.93	2936		4.33	2533		4.07
2011-12	6529		2.92	2820		2.66	3077		4.80	2637		4.11
2012-13	6920		5.99	3010		6.74	3434		11.60	2719		3.11
2013-14	7212		4.22	3051		1.36	3737		8.82	2754		1.29
2014-15	7409		2.73	2963		-2.88	3863		3.37	2876		4.43
2015-16	7507		1.32	3007		1.48	3871		0.21	2918		1.46
CG (%)			<b>18.33</b>			<b>9.46</b>			<b>31.85</b>			<b>15.20</b>

The above table shows the compound growth (CG) from 2010 to 2016, maximum noted in Surat (31.85%) & minimum in Vadodara (9.46%). There is significant change shown in the case of Ahmedabad, Surat & Rajkot against Vadodara.

#### Comparison between Major Industrial Regions - Registered Micro, Small & Medium Scale Units

Years	Ahmedabad			Vadodara			Surat			Rajkot		
	No.	of	Change (%)	No.	of	Change (%)	No.	of	Change (%)	No.	of	Change (%)
2010-11	22839			4174			27737			7093		
2011-12	36035		57.78	6582		57.69	52587		89.59	11526		62.50
2012-13	53980		49.80	9673		46.96	86814		65.09	15843		37.45
2013-14	69014		27.85	12312		27.28	116183		33.83	20431		28.96
2014-15	83060		20.35	14740		19.72	150927		29.90	26050		27.50
2015-16	93655		12.76	16379		11.12	173008		14.63	31108		19.42
CG (%)			<b>310.07</b>			<b>292.41</b>			<b>523.74</b>			<b>338.57</b>

Total nos. of registered MSMEs registered in Surat (1,73,008), Ahmedabad (93,655), Rajkot (31,108), Vadodara (16,379). Vadodara has lowest nos. of MSMEs against Ahmedabad, Surat & Rajkot.

Comparison between Major Industrial Regions - Average nos. of workers working in Factories												
Years	Ahmedabad			Vadodara			Surat			Rajkot		
	No. of MSMEs	Change (%)		No. of MSMEs	Change (%)		No. of MSMEs	Change (%)		No. of MSMEs	Change (%)	
2010-11	290094			160496			230977			85428		
2011-12	296937	2.36		161662	0.73		252717	9.41		90708	6.18	
2012-13	312517	5.25		168063	3.96		268909	6.41		94008	3.64	
2013-14	325867	4.27		168757	0.41		285386	6.13		96928	3.11	
2014-15	340367	4.45		169267	0.30		287316	0.68		103848	7.14	
2015-16	341923	0.46		169361	0.06		290466	1.10		104403	0.53	
CG (%)		17.87			5.52			25.76			22.21	

The above data shows that nos. of workers working in factories in various districts. The highest nos. of shares in Gujarat is Surat. The annual compound growth of observed districts are Surat (25.76), Rajkot (22.21), Ahmedabad (17.87) & lowest one is of Vadodara (5.52) district.

## 2.15 Findings

- Vadodara has strong industrial growth story. Parent industrial sectors are Petrochemicals, Chemicals & Pharmaceuticals. All the Major PSUs are manufacturers of petrochemicals & chemicals.
- After, 1990 no major PSUs were established in Vadodara. Large-scale investment comes up in the private sector.
- From primary discussion & analysis with Assistant Manager (GIDC Regional Office, Vadodara) no land or plots are available in GIDC (Nandesari, Makarpura, Waghodia, Por-Ramanagamdi, Ranoli & Dabhoi). Also, as a secondary analysis of GIDC, GIDC Land-use details, Savli GIDC has approx. 5% land available for new investments.
- There are 50,862 hectares of non-agriculture land and 1,33,644 hectares of barren land accessible for the establishment of new industries.
- As per discussion with the Nandesari GIDC association, the Nandesari GIDC estate & surrounding areas have the worst quality of groundwater.
- Over 35% of India's power transmission and distribution equipment manufacturers are based in Vadodara, along with an estimated 800 ancillaries supporting the major participant in the power sector manufacturing and engineering business.
- Despite part of DMIC, till now no notable steps were taken for Vadodara's industrial growth. As per the secondary analysis mentioned in 2.14 Comparison with other Industrial regions, Vadodara has the very lowest share contribution in employment is only 5.52% from 2011 to 2016.
- Vadodara is sandwiched between two major growth magnets, Ahmedabad and Surat, according to the Gujarat map. Despite being a part of the golden corridor, Vadodara struggles to attract investment. Ahmedabad encompasses the whole hinterland of Saurashtra & Kutch owing to its strategic location in central Gujarat and acts as a conduit point for all economic flows between these economic centers and the rest of the country.
- To offer the potential for industrial growth, Vadodara needs to be a targeted investment. It is a necessity that governmental engagement to strengthen Vadodara's strengths. These concerns must be addressed at the state and federal levels through appropriate policy initiatives.
- Vadodara's limitations or constraints will determine the economy's potential function and scope. To create interventions, such as policy, assistance, and infrastructure, to precipitate a future, a direction must be specified.
- The city needs an economic vision that identifies the primary drivers. This would give the city's industrial renaissance a boost and help it get off the ground.

## 2.16 Other inferences

- Only five talukas, and various industrial clusters within each of those five talukas, contain industries that may be regarded as future stars. The talukas include Savli (Cement & Clay works), Dabhoi (Rubber-Plastic & Petroleum, Chemical & Chemical goods, and Basic Metals), Padra (Textiles and Wood & Wood Products), Vadodara (Wood & Wood Products, Paper & Paper, and Cement & Clay Works) and Savli (Textiles).
- One or more industrial groups, defined as those with a location quotient value larger than one and a rising trend in location value, might be deemed star groups in each taluka. And among these groups are Cement & Clay Works,



Rubber-Plastic & Petroleum, Basic Metals, Electrical Machinery, Transport Equipment, Tobacco & Tobacco, Wood & Wood Products, Textiles, Metal Products, Chemical & Chemical Products, and Tobacco & Tobacco.

3. In eight talukas the industrial groups which are categorized as declining stars, as those where location quotient value has declining trend. These talukas are Karjan, Jetpur Pavi, Dabhoi, Padra, Vadodara, Vaghodia, Savli and Shinor and the industrial groups are Food & Beverages, Textiles, Chemical & Chemical products, Electrical Machinery, Transport Equipment, Tobacco & Tobacco, Leather & Leather, Basic Metal and Metal products.

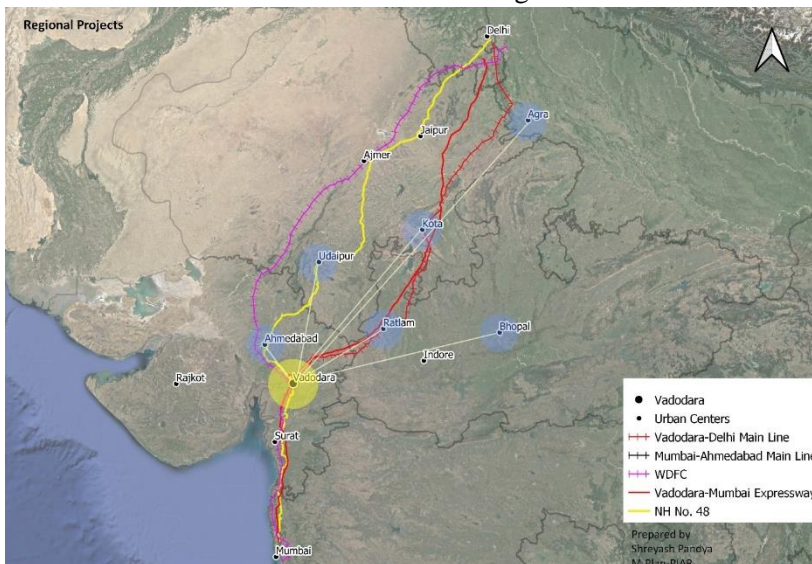
Inter-taluka industrial inequalities were present during the research period, according to the analysis of the Growth, Instability, and Location Quotient. In the talukas of Vadodara, Vaghodia, Savli, and Padra, there is an excessive concentration of industrial activity. While industrial activity has been extremely low in the Shinor taluka. However, the truth remains that reforms have caused enterprises to move from Vadodara, a taluka with a high level of development, to industrialising talukas like Savli, Padra, and Vaghodia.

## 2.17 Recommendations for Industrial Expansion & Support Infrastructure

As we discussed in findings various GIDCs are located in the Vadodara district. But there is no land available in GIDC. It is a major factor affecting industrial investment trends in Vadodara. So, below proposal for different industrial expansion & support infrastructure projects.

- **Location for Multi-Model Logistic Park (MMLP) at Nandesari**

Freight transportation, connectivity with other cities through highways & railways, and connectivity with ports and logistic facilities are the backbone of industrial growth.



Freight transportation, connectivity with other cities through highways & railways, and connectivity with ports and logistic facilities are the backbone of industrial growth. In current scenario, Ahmedabad is known as the conduit point of Gujarat, because it is located centrally on Gujarat land area and also in the vicinity of the capital Gandhinagar. After the completion of megaprojects (DMIC, WDFC, Delhi-Mumbai Expressway), Vadodara will become the gravitational location for the whole north-western part of India as shown below figure. Important regional infrastructural project links make Vadodara a geo-strategic & geo-economic location.

WDFC (Western Dedicated Freight Corridor)

Delhi-Vadodara-Mumbai main railway line

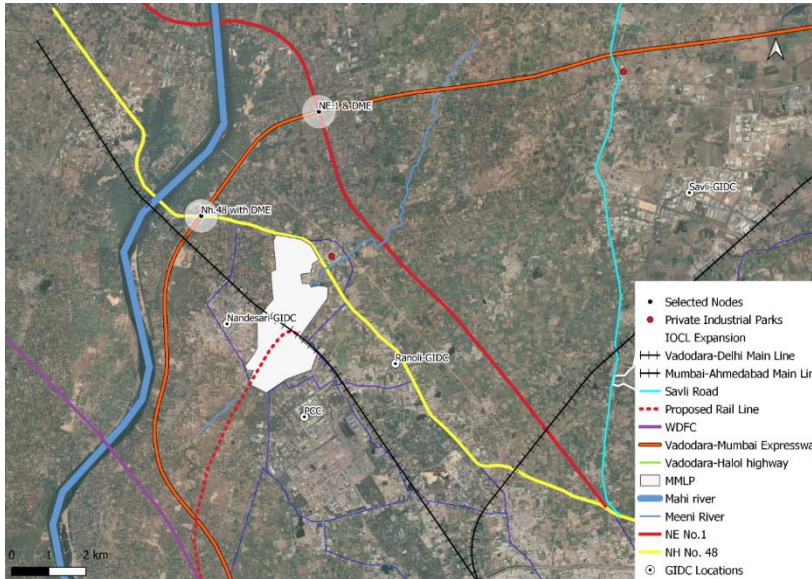
Delhi-Vadodara-Mumbai Expressway

WDFC run along with Mumbai-Ahmedabad-Delhi main railway line. It will cater to goods transportation for Vapi, Surat, Bharuch, Vadodara, Ahmedabad, Ajmer, Jaipur & Delhi NCR. But, newly developed areas such as Godhra, Halol, Dahod, Ratlam, Indore, Kota & Sawai Madhopur are far from the WDFC line. So, Vadodara-Delhi main railway line serves these locations and transport freight from all these nodes will be transported through Vadodara to Mumbai. Also, one more shining jewel in this harmony is Delhi-Mumbai Expressway. For this whole project, Vadodara is a centrally located conduit point. The district has a total 80kms span & 3 entry-exit interchange facilities of the Delhi-Mumbai expressway. In which, 2 entry-exit interchanges facilitate at the nearby location of Nandesari GIDC, shown in the below figure.

The MMLP Nandesari, which will created using a "Hub and Spoke" paradigm, will combine many forms of freight transportation using railways and highways.

A one-stop shop for all services linked to cargo movement, such as storage, custom clearance, parking, truck repair, etc., Also, near by location of Ranoli GIDC is noe hub of trucks parking, unloading & repair hub of north Vadodara. The Nandesari Multi Modal Logistic Park project is prepared to construct cutting-edge large-scale warehouse facilities

for all types of commodities. It will have all the facilities like warehouses, railway siding, cold storage, custom clearance house, yard facility, workshops, petrol pumps, truck parking, administrative building, boarding lodging, eating joints, water treatment plant, etc.



In figure, grey marked land is barren land. It is located between PCC (Petrochemical & Chemical industrial notified area) & Nandesari GIDC. Also, proximity to the Delhi-Mumbai expressway & NH.48 interchange. This selected land will be used as an export-oriented zone and Multi-model logistic park (MMLP). The new greenfield export-oriented zone requires a railway line to connect WDFC. The New proposed alignment of the railway line shows in the above figure. It will cater transportation services for the oil, petroleum, and petrochemicals products. Also, it will connect Ranoli station to the WDFC corridor. In the current scenario, Ranoli station faces major traffic of oil &

petroleum train traffic. The proposed MMLP will help to overcome the situation.

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