

# Dahej Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) in Gujrat: Performance Analysis

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## Abstract

Neoliberal agenda of development followed since liberalisation and globalisation of the Indian economy in 1991 has expanded the role of the states enormously and shifted the onus of economic development on its constituent states. In consonance with this development model Gujrat like other Indian states has started promoting export promotion policy, a shift away from import substitution based development strategy. Since last two decades Gujrat Government is vigorously promoting industrial development in the state with appropriate policy changes including wide range of tax concessions, incentives, minimal regulations and development of world class infrastructure needed for industrial development, export promotion, attracting domestic as well as foreign direct investment (FDI) and generating employment. The Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) policy announced by the Government of India (GoI) in April 2007 approved four PCPIRs in the country with the view to develop industrial corridors in the petroleum, chemical and petrochemical sectors of the country. Dahej PCPIR in Gujrat is the most successful PCPIR in the country in terms of investment, infrastructure development, exports and employment generation. In this backdrop present paper seeks to analyze basic features of PCPIR policy, current status of Dahej PCPIR in Gujrat including details of infrastructural support and benefits of establishing this PCPIR in terms of investment, employment generation and exports. The paper further discusses certain key drivers for success of Dahej PCPIR. Finally concluding section suggests some policy intervention for the future success of well established and growing chemical and petrochemical industry.

**Key Words:** PCPIRs, industrial development, SEZs, infrastructure development, exports, investment, employment generation.

## Introduction: Vibrant Gujrat

Gujrat is one of the most industrially developed states of India with 5% of country's population, 6% of the country's geographical area and one fourth of country's exports. It is also a leading SEZ state in terms of total geographical area under SEZ. It is a leader in industrial sectors such as petrochemicals, chemicals, drugs and pharmaceuticals, auto and engineering, gems and jewellery, cement, textiles and dairy. Known as a 'petro-capital' or 'manufacturing capital' state of Gujrat contributes 62% in the India's petrochemicals production, 53% in chemicals production and 45% in pharmaceuticals production. Bulk of exports from the state goes to US, Europe and other developed nations. (India Chem Gujarat by TSM report 2018). In the post globalization era, Gujrat like other Indian states has vigorously followed export promotion policy, a shift away from import substitution based development strategy. In consonance with this strategy Gujrat government started promoting various export promotion policies which gathered momentum during last two decades with the introduction of Special Economic Zones (SEZs) and Petroleum, Chemicals and Petrochemicals Investment Regions (PCPIRs) which expanded the role of the states enormously and shifted the onus of economic development on the states. Since last two decades Gujrat Government is vigorously promoting industrial development in the state with appropriate policy changes including wide range of tax concessions, incentives, minimal regulations and development of world class infrastructure needed for industrial development, export promotion, attracting domestic as well as foreign direct investment (FDI) and generating employment.

The government has also promoted cluster based development strategy for certain emerging sectors like Petroleum, Chemicals and petrochemicals industry which is well established and growing industry of Gujrat. It is fastest growing in the world comprising 3.4% share in the global chemical market. According to TSM Cem Tec Report 2018 currently it ranks 3rd in Asia and is 6th largest market in the world with respect to output, after USA, China, Germany, Japan and Korea. This industry is also crucial for the development of downstream sectors such as textiles, pharmaceuticals, agriculture, etc as it is used as key input and has wide range of applications encompassing more than 80000 products. It is estimated that the size of Indian chemical industry is around USD 163 billion in the year 2017, contributing nearly 3.4% share in the global chemical market. The Indian Chemical industry is projected to reach USD 403 billion by 2025 (Gujrat Chemical sector report NBSO 2018).

According to K Satyanarayana, chief executive of OPEL, the petrochemicals sector has been growing at 10-12 per cent per annum since the last decade and is expected to grow at 12-15 per cent in the next decade.

### **PCPIR Policy: Key Features**

The Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) policy announced by the Government of India (GoI) in April 2007 approved four PCPIRs in the country with the view to develop industrial corridors in the Petroleum, Chemical and Petrochemical sectors of the country. Four coastal states where PCPIRs have been set up are--Andhra Pradesh, Gujarat, Odisha and Tamil Nadu. Gujarat and Andhra Pradesh PCPIRs were approved in 2009, Odisha PCPIR in 2010 and Tamil Nadu PCPIR received approval in 2012. These PCPIRs were perceived as key instruments in providing a boost to manufacturing, exports and employment generation with the ultimate objective of generating additional economic activity and catapulting Indian economy on a higher growth trajectory through the use of common infrastructure and support services. External physical infrastructure services would be provided by the central Government including rail link, ports, highways, airports, telecom services etc. based on Public Private Partnership (PPP). Responsibility of setting up PCPIR and providing internal infrastructure like uninterrupted power supply, state road connectivity, bulk supply of water, sewage & effluent treatment linkages, adequate infrastructure for dealing with safety, health and environmental issues rest with the concerned State Governments.

Key features of PCPIR Policy 2007 are:

- (1) PCPIR would be a specially delineated investment region spread over an area of around 250 square kilometers.
- (2) 40% of the total designated area is meant for manufacturing facilities, known as 'Processing area'.
- (3) 60% area known as 'Non-processing area' would include residential, commercial, social and institutional infrastructure other than manufacturing.
- (4) The external infrastructure will be provided by the Government of India and the concerned State Governments.
- (5) The internal infrastructure of the PCPIR will be built and managed by a developer, or a group of co-developers.

(6) The PCPIR may include free trade zones, warehousing areas, export-oriented units, industrial parks, Special Economic Zones etc. duly notified under the relevant Central or State Legislation or policy.

(7) Environment Impact Assessment will be carried out by the State Government.

### **Dahej PCPIR: Current Status in Terms of Infrastructure, Investment , exports and Employment Generation**

Dahej PCPIR (Gujarat) is one of the four PCPIRs announced by the Ministry of Chemicals and Fertilizers, Government of India under PCPIR Policy 2007. It is also notified as ' Special Investment Region' under Gujrat Special Investment Region Act, 2009 (SIR Act) by the Gujrat Government. The Government of Gujarat enacted the SIR act in 2009 with the objective of creating large size Investment Areas and Industrial Regions in the State of Gujarat and develop them as global hubs of economic activity supported by world class Infrastructure. Gujarat is the only state in the country to enact such an Act. Gujrat Infrastructure Development Corporation (GIDC) is setting up 11 Special Investment Regions in Gujarat for achieving unprecedented economic growth in the state.

Dahej PCPIR is spread over 44 villages of Vagra and Bharuch talukas in Bharuch district. It is located near Gulf of Khambhat and is well connected to state and national highways, sea ports, rail,airpors and other strategic locations. Dahej PCPIR is set up on an area of 453 square kilometer (table-1) of which 230 sq. km. has been demarcated as the processing zone for core business activities. ONGC Petroleum additions Ltd. (OPaL) is the anchor tenant in the entire region with an investment of Rs.27,700 crore which was dedicated to the nation by Hon'ble Prime Minister Mr. Narendra Modi, in March 2017 . OPaL is a joint venture of ONGC, Gujrat State Petroleum Corporation and GAIL which has developed a world scale 1.1 MMTPA multi-feed cracker in the PCPIR. OPal is the largest petrochemical plant in India and it is the first under the PCPIR in the Dahej SEZ, which has to export 50 per cent of its production . According to K.Satyanarayana chief execute OpeL,it has the annual capacity of 14 lakh metric tonnes of polymers, low and high density polyethelene, polypropylene and 5 lakh metric tonnes of benzene, butadiene and pyrolysis gasoline etc" ( as onMarch 2017).According to him the Dahej PCPIR has a potential to employ 32,000 people directly.

**Table-1****Actual Notified area in respect of four PCPIRs**

PCPIRs	Total Area (Square Kilometers)
Dahej, Gujarat	453.00
Vishakhapatnam–Kakinada, Andhra Pradesh	640.00
Paradeep, Odisha	284.15
Cuddalore and Nagapattinam, Tamil Nadu	256.83

Out of four PCPIRs, Dahej PCPIR has become the fastest growing PCPIR in the country. It has attracted investment of more than 1lakh crore in 180 operational industrial units and 650 units at various stages of construction since its inception. Gujrat Infrastructure Development Corporation (GIDC) the nodal agency for Dahej PCPIR has allotted 5,000 hectares of land to these units in the PCPIR. According to Minister of Chemical & Fertiliser Shri D.V.Sadananda Gowda this industry is expected to grow at a CAGR of 9.3% from USD 163 billion to USD 304 billion by 2025.

OPaL has started exporting many chemical and petrocheical products recently. The first consignment of butadiene was shipped to Singapore. According to OPaL chief executive K. Satyanarayana products like benzene can be exported to other countries as well for which soon it will be floating tenders. This plant has the capacity to generate annual revenue of Rs. 16,000 crore. Out of four PCPIRs set up in the country Dahej PCPIR in Gujrat is the only example of successful PCPIR in the country. It has attracted more investments both domestic and foreign than the other three noticed PCPIRs in India. The region attracted total investment of Rs. 25,163 crore in 2017-18. Various domestic companies like MRF Ltd., Emami group, Grasim Industries Limited, Bodal Chemicals Ltd, and GACL-NALCO Alkalies & chemicals Ltd (GNAL) have proposed their greenfield and brownfield projects in the PCPIR. Besides it, many foreign companies have also shown interest and proposed investment worth Rs. 950 crore including South Korea-based Kukdo Chemicals and Sweden's Perstorp. 200



out of 650 industrial units including a mega petrochemical project of ONGC Petro additions Ltd (OPal), have gone into production ( May 019).

### Factsheet of Dahej PCPIR

Indicator	Dahej, Gujrat
Total area (sq,kms)	453
Processing area (sq. kms)	248
Anchor Tenant	ONGC Petroleum additions Ltd. (OPAL)
Refinery/ Cracker capacity in MMTPA	Cracker: Ethylene: 1.1 propylene:0.6
Anchor project status	Polypropylene unit commissioned in March 2017
Total amout of infrastructure projects approved ( Rs.crore)	7,750
Investment till FY-2018 ( Rs. Crore)	85,928
Proposed investment (Rs. Crore)	50,000
Employment generated till FY-2018 (Number)	1,32,000
Projected employment (Number)	8,00,000

Source: CIPET, Union Ministry of Chemicals and Fertilizers

## Infrastructure Development at Dahej PCPIR

<b>Ports</b>	
Existing Infrastructure	Dahej Port: 11.7 MMTPA
	• Liquid Chemical Terminal: 5 MMTPA
	• LNG Terminal: 12.5 MMTPA
	• Liquid fuel jetty: 2.12 MMTPA
On-going development	• Bulk cargo jetty: 3.8 MMTPA
	Gogha-Dahej Ro-Ro Ferry Service (distance between the two places reduced from 350 Km by road to 30 Km by sea)
Jetty for handling Over Dimensional Cargo by Gujarat Maritime Board and Dahej SEZ Ltd.	
Proposed future development	41 MMTPA port for Solid Cargo, Liquid Cargo and Container
<b>Roads</b>	
Existing Infrastructure	50 km of six lane Dahej-Bharuch State Highway connecting six lane DelhiMumbai National Highway and National Expressway
	• Internal roads in Dahej PCPIR
Proposed development	• Ahmedabad Vadodara National Expressway to be extended to Mumbai
<b>Airport</b>	
Exsisting	• 85 km from domestic airport at Surat
	• 90 km from International airport at Vadodara
	• 250 km from International airport at Ahmedabad
Proposed	• Greenfield airport for PCPIR
	• Airstrip at Ankleshwar
<b>Rail</b>	
Exsisting	• Connected to Delhi –Mumbai Broad Gauge railway line at Bharuch
	• Bharuch –Dahej rail line (62 km) for both goods and passengers
Proposed	• Delhi-Mumbai Dedicated Freight Corridor (DFC)
	• Bharuch-Dahej broad gauge line to be connected to the DFC at Dayadra Jn.
<b>Power</b>	
Exsisting	• Four 220 KV sub-stations located at Dahej, Dahej SEZ, Rahiyad-Suva and Vilayat
	• Seven 66 KV substations located at Dahej, Luna, Bhensali, Vilayat
	• Gujarat Energy Transmission Corporation Limited (GETCO) has completed construction of 220 KV substation at Suva Dahej, which is operational
	• 1600 MW gas based power plant by Torrent Power Ltd. in Dahej SEZ has been completed

Proposed	• Two 220 KV, one 44 KV & nine 66 KV substations are planned in Dahej & Saykha area respectively within PCPIR
<b>Water</b>	
Exsisting	• GIDC supplies 25 MGD raw water drawn from Narmada river at Nandand Angareshwar
Proposed	• Water supply scheme for 50 MGD water from Miyagam Branch Canal (130km) and 25 MGD water from Narmada River (65km)
<b>Effluent Treatment</b>	
Existing	• 90 MLD disposal pipeline of 40 km within PCPIR to dispose the effluent into deep sea (4.5 Km inside the sea)
Proposed	• Setting up of a CETP with capacity of 40 MLD by GIDC in Dahej
	• 90 MLD disposal pipeline and 40 MLD CETP at Saykha Existing Infrastructure
<b>Gas</b>	
Existing	• Gujarat Gas Company Limited (GGCL) owns and operates nearly 900 km of distribution pipelines in Bharuch district
Proposed	• All gas suppliers to extend network

Souece: Gujrat Infrastructure Development Corporation

### Key Drivers for Gujrat PCPIR:

1. Robust manufacturing sector of Gujrat which contributes over 30 % to State's Gross Domestic Product(GDP) constitute high and continuous demand for chemicals and petrochemicals. Presence of large number of manufacturing units across PCPIR helps in optimising the logistics costs and supply chain. Gujrat is emerging as auto hub which will also give rise to future demand for automotive chemicals.
2. More than half of India's polymer productin comes from Gujrat which ensures continious demand for petrochemical derivatives from plastic industry.
3. Concentration of chemical, petrochemical and petrolieum estates around PCPIR is one of the most important reason for current success of Dahej PCPIR. Gujarat is a hub for many petrochemical and petroleum refineries. Companies like Indian oil and Reliance etc., have already established their refineries making it a hub of many



petroleum and petrochemical refineries which facilitates movement of raw materials and intermediate products.

4. Dahej PCPIR unlike the other three PCPIRs in Andhra Pradesh, Odisha and Tamil Nadu has succeeded in attracting investment of Rs. 85928 crore so far due to the friendly policies of the Gujrat Government where red tapism is almost absent from the inception stage till the final production stage. Time bound approvals, well defined environmental regulations and protection for the firms are some of the key drivers for the success of Dahej PCPIR due to which Gujrat occupies fifth position among other states in terms of 'Ease of doing business.'

5. Strategic location of Gujarat having close proximity to Middle East countries which are world's source of petrochemicals feedstock, provides chemical and petrochemical industries within PCPIR an advantage of economies of scale.

5. Co-existence of raw material manufacturing units and main production units are benefiting companies.

6. The Central and the State Government have provided both external and internal infrastructure related to road, rail, port, water, power, gas, effluent treatment etc. necessary for trade, investment and development of Dahej PCPIR. Robust supporting infrastructure is key to the success of Dahej PCPIR. To facilitate transport and exports of chemicals, petrochemicals and related products it is connected to highly developed port infrastructure with a Ro-Ro facility which can handle any material-solids, gases and liquids. Gogha-Dahej Ro-Ro Ferry Service has reduced the distance between the two places from 350 Km by road to 30 Km by sea. As far as road infrastructure is concerned 50 km of six lane Dahej-Bharuch State Highway is connecting six lane Delhi-Mumbai National Highway and National Expressway. Ahmedabad Vadodara National Expressway is proposed to be extended to Mumbai. Many internal roads in Dahej PCPIR has been developed for facilitating trade and development. Other proposed road linkages include up-gradation of 8 km of port linkage, escape route (for security purpose), up-gradation of Dahej-Vagra-Bharuch Road, construction of 25 km of coastal roads, 42 km of State Highways within PCPIR to be upgraded to four lane and link Road (Stretch linking PCPIR to NH-8). Dahej PCPIR is also well Connected to Delhi – Mumbai Broad Gauge railway line at Bharuch and Bharuch –Dahej rail line (62 km) for both goods and passengers. Proposed Bharuch-Dahej broad gauge line will be connected to the DFC at Dayadra Jn and Delhi-Mumbai Dedicated Freight Corridor (DFC) will touch the PCPIR on the eastern side. Besides various existing power sub-stations at Dahej, two 220 KV, one 44 KV & nine 66 KV substations are planned within Dahej PCPIR. Gujrat Government is ensuring 24 hours uninterrupted power supply to the industrial units within Dahej PCPIR. Presently Gujrat Infrastructure

Development Corporation (GIDC) supplies 25 MGD raw water drawn from Narmada river at Nandand Angareshwar to the PCPIR. Government has further proposed water supply scheme for 50 MGD water from Miyagam Branch Canal (130km) and 25 MGD water from Narmada River (65km) which will look after the bulk supply of water within PCPIR. 90 MLD disposal pipeline of 40 km has also been developed within PCPIR to dispose the effluent into deep sea (4.5 Km inside the sea). GIDC has proposed setting up of a CETP with capacity of 40 MLD in Dahej and 90 MLD disposal pipeline & 40 MLD CETP at Saykha Existing Infrastructure. Thus availability of common utilities such as power, fire, safety, water storage, effluent treatment etc have facilitated development of industrial units within Dahej PCPIR.

## Conclusion:

Dahej PCPIR in Gujrat is the only example of successful PCPIR out of four PCPIRs in the country where the anchor tenant ONGC Petro-additions Ltd has initiated operations and started exporting its products. It has attracted more investments both domestic and foreign and has succeeded in generating more employment than the other three notified PCPIRs in India set up in Andhra pradesh, Odisha and Tamil Nadu. PCPIR policy was launched in 2007, but even after a decade the other three hardly witnessed any progress and failed to attract desired investments due to which the Union Ministry of Chemicals and Fertilizers is contemplating revision of the PCPIR Policy.

Success of Dahej PCPIR can be attributed to External and internal infrastructural support such as rail, road, port, airport, telecom, effluent treatment, water, gas, power etc. by both central and state governments, ease of doing business, existence of pre established industries, political stability, supportive policies and many more such pro-industry initiatives by the Gujrat government. Since PCPIRs are infrastructure driven projects, government is making every effort to meet the industry's demand for various types of infrastructure support through Viability Gap Funding (VGF). The Ministry of Chemical and Fertilizer is considering the scope of budgetary funding into these projects. Dahej PCPIR needs to facilitate continued investment flows in future to increase the production, exports and employment generation. High growth in production is required to meet the rising demand for chemicals and petrochemicals reflected by the increasing imports which is 10 million tonnes of chemicals and petrochemicals worth 65,000 crore currently. It is likely to grow to 46 million tonnes and over 200,000 crore by 2030. This chemical and petrochemical industry is crucial for the development of the manufacturing sector in India especially for realising the goal of \$1 trillion manufacturing economy by 2025. In spite of such impressive growth of Dahej PCPIR a long term strategy

needs to be evolved to address the socio-economic consequences of land expropriation and issues related to agricultural development keeping in view possible threats to the fragile ecosystem of the coastal areas and the marine life on which fishing communities depend for their livelihood (Swapna Banerjee Guha).

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