

PLASTIC INDUSTRIES PARK IN TIRUVALLUR DISTRICT

1 Executive Summary

1.1 Preamble

Tamil Nadu, in particular, Chennai has a considerable appetite for plastic products, both of the mundane domestic utilities, toys etc as well as sophisticated engineered projects for industries such as automobiles, chemicals, defence etc. At present, the demand is met through unorganised small and medium scale units spread unevenly in the state or imported from other states. In this aspect, the western region of the country accounts for the bulk of the raw material and finished products in the country.

In order to have a broad base in the plastic industry and introduce a paradigm shift in the structure of plastic industry to move towards large competitive capacities, Ministry of Chemicals through Department of Chemicals and Petrochemicals (DC&PC), Government of India has introduced the concept of Plastic Parks to be established at various locations of the country for which incentives by Grant In Aid will be provided.

Government of Tamil Nadu (GoTN) realising that the state has considerable demand for plastic products of various types and qualities is keen on establishing such a Plastics Industries Park in Chennai. Chennai has all the attributes such as intense demand for products, good transport infrastructure, potential for sourcing raw material from refineries in the city and the neighbouring state and through imports through three ports located close to the city. There is also potential for the backward integration of Plastic machinery manufactures in the proposed park. Apart from satisfying the local demand, the proposed park has excellent scope for exports with availability of three ports in the vicinity.

Chennai has another unique advantage of having Central Institute of Plastics Engineering & Technology (CIPET) located, which can support research product design and development and training of specialised manpower.

In order to take the project forward, GoTN has mandated Tamil Nadu Industrial Development Corporation (TIDCO) as the nodal agency. TIDCO has already identified a suitable site of about 306 acres out of its land bank available in Voyalur and Kattupalli villages, located about 30 km north of Chennai city and commissioned this study report¹ for further processing with GoTN and DC&PC, Gol.

¹ Earlier TIDCO submitted the DPR to DC&PC in January 2013. Subsequently DC&PC responded to TIDCO suggesting them to submit the details of the SPV formation and related activities. Further there was a slight shift in the land boundary (within the existing land of TIDCO), due to reallocation for accommodating a port road connectivity project being pursued by GoTN. The changes in the project configuration with respect to earlier DPR are indicated through footnotes in respective sections. Further this report also provides the SPV details along with necessary agreements.

1.2 Special Purpose Vehicle for Implementation

Based on the G.O. No 47/MIA. 1 /2014 dated 14/05/2014, an SPV named Tamil Nadu Polymer Industries Park Ltd (TPIPL) had been incorporated for the implementation of the project.. The equity structure may undergo change when user enterprises will join the SPV, at a later date which is as per the guidelines and directions prescribed in the plastic park scheme. Subsequent to the incorporation of the SPV, TIDCO has transferred the land earmarked for the project.

1.3 The Site

Figure 1-1 gives the relative location of the site along with the features of transport linkages. The site earlier has been a salt pan and hence low lying with ground levels varying between -0.59 to +2.61 m CD requiring certain amount of filling. It is more than 500 m from the sea coast and also has adequate buffer (100 m) from the Buckingham Canal located to the east of the site, hence it is not attracting the provision of Coastal Regulation Zone. The project falls under Category B as per the EIA notification. Geotechnical investigations reveal that filling required for more than 2 m height, pre-consolidation technique has to be adopted.

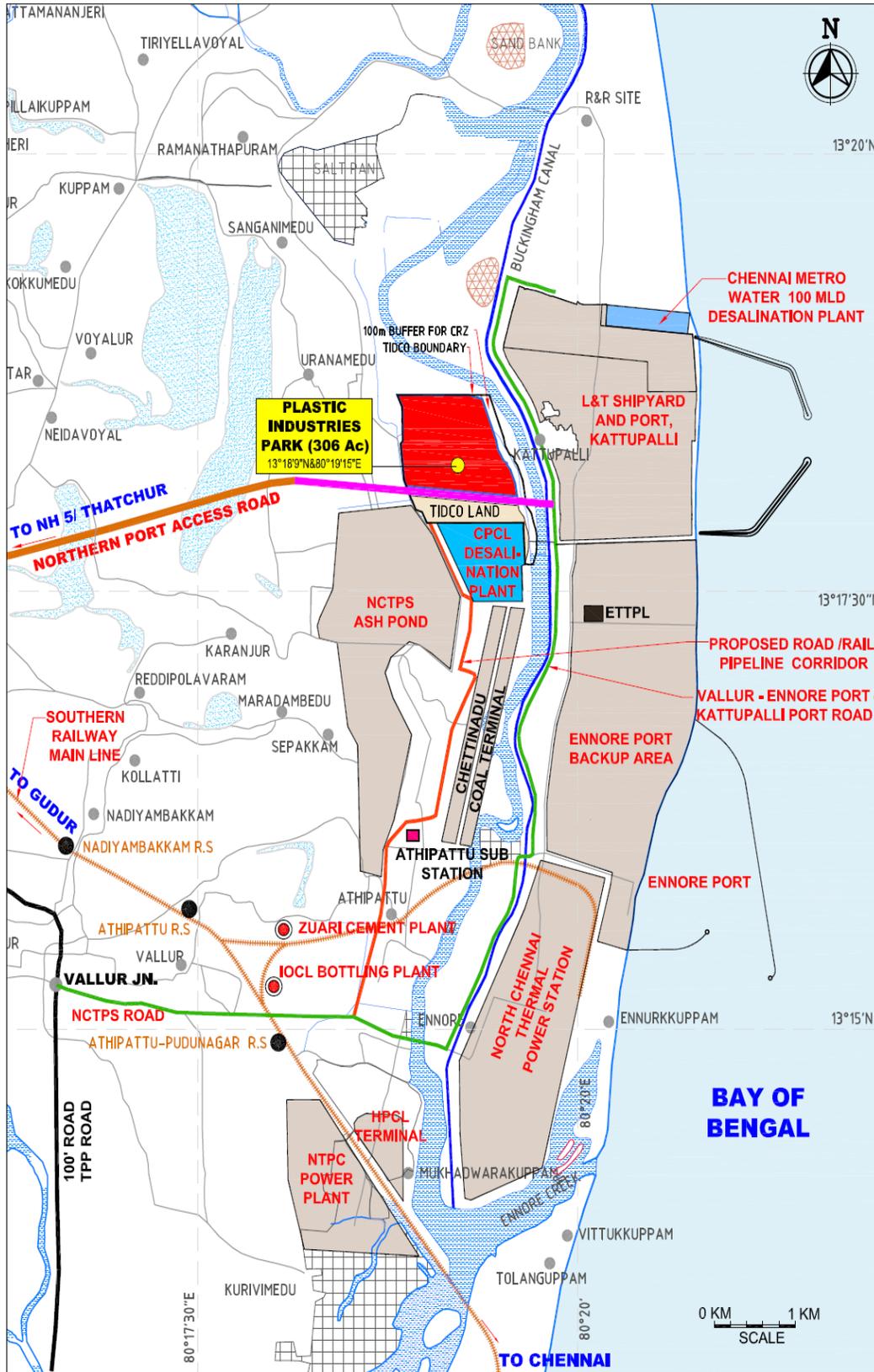


Figure 1-1 Transportation Linkages

Road connectivity- The project site can be reached from Chennai through NH-5, TPP (Tiruvottiyur – Ponneri- Pancheti) Road and the NCTPS (North Chennai Thermal Power Station) road.

Direct connectivity from NH-5 to Ennore Port and Kattupalli Port (Northern Port Access Road) is being developed by GoTN. GoTN is also developing the Chennai Outer Ring Road (ORR) which is ending at Minjur (7 km west of the project site).

Rail connectivity: Chennai – Vijayawada Broad Gauge Line located around 5 km west of the project site and Athipattu is the nearest station.

Seaports: Ennore Port and Kattupalli Port are located in close proximity to the project site. Chennai Port is located 20 km south of the proposed project site.

Airport: Chennai International Airport is around 40 km.

1.4 Market Demand

It has been assessed that the proposed park will have demand for establishment of plastic processing (conversion based) industries such as injection moulding, blow stretch moulding, roto moulding and extrusion types to which the plastic machinery manufacturing industry is also added. A phased demand for both plastic processing and plastic machinery manufacturing is given in **Table 1-1**.

The overall cumulative market in the next 6 years is 348 acres. As the plastic park will take nearly over a year and above to commence, the cumulative market of 2015 – 2019 will become the effective potential i.e. 306 acres.

Table 1-1: Cumulative Market Potential

Type of the Industry	2014	2015	2016	2017	2018	2019
Plastic Processing Industry	36	42	49	53	58	63
Plastic Machinery Industry	6	7	8	9	9	10
Annual Potential (In Acres)	2056	2064	2073	2079	2085	2092
Cumulative Potential (In Acres)	42	91	146	208	275	348

The park is planned to bring in more organised players and to move away from the present dominance of SMEs. The park also envisages cashing on the strengths of Chennai in terms of its automobile industry, shipbuilding industry and the engineering Industry to bring in organised specialised players in automobile related plastic industry and the plastic machinery industry. About 353 players were contacted for seeking response. It included a mixture of units in Chennai and other parts of Tamil Nadu and outside the state. 67% of the contacts units responded out of which 39% responded positively. As on date Letter of Intents (Lols) for 18 acres is received.

1.5 Master Plan

The requirement for different types of industries has been made into a Master Plan for development which also includes various internal infrastructure, common facilities, logistics, green area etc. **Figure 1-2** presents the proposed Master Plan.

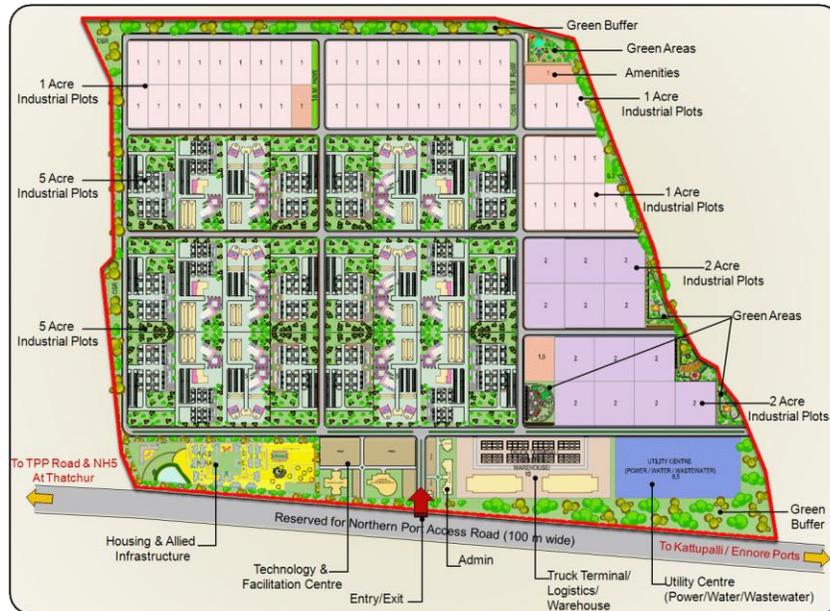


Figure 1-2: Site Master Plan

The land allotted for Industrial units are multiples of 1, 2 and 5 acre plots and amounts to 193 acres. Around 10 acres of land has been reserved for Logistics (warehouse and truck terminal), 8.5 acres for housing the Common Utilities (water, power and Wastewater), 3.5 acres for Amenities, 46.6 acres for OSR & Green areas and 10 acres for Housing and allied facilities.

1.6 Infrastructure Development

Site Gradation: The total fill quantity is estimated as 29,82,455 m³ (say 3 Mn m³). It is proposed to use wet ash sourced from the NCTP ash pond as fill material with a soil (morrum) cover of 1m. Owing to proximity to Ennore Port, the maintenance dredge material from Ennore Port can be considered as alternative to morrum, as it will be economical owing to short lead distance. GoTN is requested to discuss with Ennore Port Trust and tie up the maintenance dredge material.

Road Network: 24m, 18 m and 12 m RoW is proposed. The total length of internal roads is 7.162 Km. The road cross-sections include utility corridor (water, power, waste water, telecom network) and foot path for pedestrian traffic.

Drainage: The site has an advantage of designing the drainage system that provides drainage outfalls towards northern, eastern and western side. The site is divided into smaller catchment areas with a network of rectangular drains. These drains finally discharge the storm water into the available channels (Backwater/Buckingham canal on the north and east and the drain on the west).

Water Supply: One time water demand has been estimated as 7.72 MLD. In an effort to conserve water to a maximum possible extent, it is proposed to go for open recycling systems where cooling water will be treated and supplied back for the same purpose. Further usage of treated sewage for greenbelt and toilet flushing has also been considered. On the above basis, the net water demand amounts to 2.2 MLD.

CMWSSB and CPCL Desalination Plant have been identified as sources of water. As CPCL desalination plant, is located adjacent to the site, CPCL has been consulted for providing the bulk water to the plastic park. CPCL appeared positive however informed that formal approval is required to allocate the required water.

Wastewater: The total wastewater is estimated at 1.78 MLD. The capacity of common treatment plant shall be 1.78 MLD including sewage and water used for cleaning in the manufacturing area.

Solid waste: Industrial waste is negligible as it gets recycled within the units. The municipal solid waste generation is estimated at 3 TPD. To ensure hygienic atmosphere within the plastic park, it is proposed to have a solid waste collection and disposal mechanism.

Power Supply and Distribution: The total connected load is assessed as 43 MW. Considering the diversity factor of 48%, the maximum power required is 20 MW. TNEB should extend the required power at 230/110 kV through an overhead line from their 230/110/33kv Athipattu substation, which is located 5km south of the plastic park site. The power will be distributed through an underground cable network to the end users in the park.

Solar Panels will be installed over buildings and in open areas to generate electrical energy to the extent of 100kW as supplementary source of power.

External Road Connectivity: Government of Tamil Nadu is developing the Northern Port Access Road, which is located on the southern edge of the Plastic Industries Park. This road will be connecting Kattupalli/Ennore Ports to National Highway No 5 at Thachur. The Plastic Industries Park will have exclusive Entry / Exit arrangement from the Northern Port Access Road.

Support services: Since the park is located in Chennai, it can derive the advantage of having a training centre by Central Institute of Plastics Engineering and Technology (CIPET). Depending on the demand, CIPET shall be requested to develop the tool room and associated facilities.

The project has been conceived as eco friendly by adopting water recycling and zero discharge concept and this has resulted in minimising the fresh water demand.

1.7 Project Cost and Means of Finance

Project Cost: The estimated infrastructure development cost for the development of Plastic Industries Park is Rs. 2646 Millions (at 2014 prices). The details of the project cost are given in the following **Table 1-2**.

Table 1-2: Project Cost (2014 prices in Rs Millions)

S. No	Item	In Rs Mn
1.	Site Grading	895
2.	Roads	147
3.	Boundary fencing	13
4.	Storm water Drainage	127
5.	Water Storage & Distribution	97
6.	Waste Water treatment & Distribution	80
7.	Electrical	175
8.	Buildings	81
9.	Technology Facilitation Centre	100
10.	Block Cost²	1715
11.	Land Premium	722
12.	Contingencies	86
13.	Engineering and Project Management Consultancy	43
14.	Preoperative Expenditures	36
15.	Interest on Advance Upfront Land Lease Charges collected from the User Enterprises	45
Total Project Cost		2646

Means of Finance / Financing Structure: The project will be funded with a combination of Equity from the promoters, Grant in Aid from GoI to the tune of Rs.400 Million and the Advance Upfront Land Lease Charges collected, prior to the Commercial Operations Date (COD) to the tune of Rs. 1258 Millions.

Table 1-3 Means of Finance

Means of Finance	% of the total Expenditure	Amount in Rs Mn
Equity	37.34%	988
Grant	15.12%	400
Advance Upfront Land lease charges from User Enterprises	47.54%	1258
Total	100%	2646

² The block cost in the previous report was Rs 1477 Mn, The change in the master plan as well as the updation of project cost to 2014 prices has resulted in the increase in the Block cost also the landing cost.

The SPV will market space in the park which will enable in collecting the advance upfront land lease charges from the user enterprises which will enable the SPV to meet the project development expenditure without depending on external debt component. The means of finance details are furnished in Table 1-3 .

1.8 Financial Analysis

The project cost is estimated at Rs. 2646 Million (at 2014 prices) and the breakup is given below. In order to simplify the depreciation calculation, similar kind of project components are arranged under various major heads as given in following Table 1-4.

Table 1-4: Project Cost heads (2014 prices in Rs. Millions)

PROJECT COST HEADS IN RS Mn	
Civil Cost	1438
Electrical	151
Mechanical	100
Msc Assets	26
Block Cost	1715
Land Premium	722
Engineering and Project Management consultancy @ 2.5%	43
Contingency @ 5 %	86
Preoperative	36
Interest on Advance Upfront Land Lease Charges collected from the User Enterprises	45
Total Project Cost³	2646

The revenue streams will be in the form of an upfront land lease charges and maintenance charges. The Upfront land lease charges, maintenance charges and the respective escalation factor considered for the viability study are given in the following **Table 1-5**.

Table 1-5: Revenue Details

Revenue Sources	Upfront Land lease Charges/ Sq.m In Rs	Maintenance charges/ Sq.m In Rs	Annual Escalation
Industrial Area	4050	80	5%
Commercial Area	8100	160	5%
Residential Area	4850	90	5%

³ In the earlier DPR(December 2012) the project cost was mentioned as Rs 2432 mn which has been revised on account of change in the masterplan and also due to updating the cost to 2014 prices

The key project parameters computed are Project IRR (pre-tax) and Project IRR (post-tax) are given in Table 1-6

Table 1-6: Key results – Base Case Scenario

Sr. No	Project Parameters	Output
1	Pre tax IRR	119.89%
2	Post Tax IRR	35.32%

1.8.1 Risk Analysis and Mitigation

1.8.1.1 Project Development / Construction Risk

The project development / Construction Risks are given in the following table.

SI No	Risks Factor	Proposed Risk Mitigation Mechanism
1.	Land availability	TIDCO has already transferred the land to the extent of 306 acres to the SPV.
2.	Rehabilitation & Resettlement (R&R)	No rehabilitation and resettlement is required for the project.
3.	Failure / delay in obtaining applicable permits	With their previous experience in similar kind of projects, the parent companies can assist the SPV in obtaining necessary clearances for the project.
4.	Funding Risk	The project will be funded with a combination of Promoter's contribution, Grant in Aid from GoI and Advance Upfront Land Lease charges collected from the User Enterprises. The project would be part funded with Advance Upfront Land lease charges collected from the User Enterprises which accounts to nearly 50 percent of the total project cost. In case the market situation becomes not so conducive for obtaining the Advance Upfront Land Lease charges as projected, The promoters have the responsibility to finance the deficit amount if any to ensure is not delayed due to lack of industry contribution as per the Share Subscription Agreement signed by the promoters and the SPV. . Thus the funding risk for the project is minimal.

5.	Project Cost Risk	The project costs are estimated with provision for contingency factors on various cost components. As such, change in the project cost estimates cannot be ruled out due to any delay in actual implementation of the project. However, the SPV can give various project components on EPC route with that risk associated with the change in project cost can be transferred to the EPC contractor.
6.	Development Delay Risk	The prequalifying criterion for selecting the EPC Contractor such that the entity would have sufficient experience in similar kind of projects. Besides, the SPV shall appoint PMC to monitor the progress of implementation of the project.

1.8.1.2 Operating Period Risk

The operating Period risk associated with the project is given as under;

S No	Risks Factor	Proposed Risk Mitigation Mechanism
1.	Occupancy risk	None of the nearby industrial estates hold land to the extent of 300+ Acres earmarked especially for Plastics Industrial units. Further, the consultant is already in receipt of positive response from various industrial players who are keen in occupying some space in the proposed Park.
2.	Sector specific risk	The Proposed Plastics Industry will be utilized by High end plastics industrial units (mainly for Automobile Industry) and Equipment manufacturing units which falls under different industry hence risk associated with any particular industry will not affect the viability of the proposed Plastics Industries Park.

1.9 Project Implementation

The project will become fully operational from January 2017.

Table 1-7: Project Execution Framework

Sr. No.	Activities	Duration- Months
1	Pre-Development Activities	10
2	Developmental Activities	18
3	Marketing Activities	Continuous process till all land parcels are leased

1.10 Management Structure

The project will be implemented through the SPV formed by TIDCO and SIPCOT. The SPV will have two distinctive stages – Development Stage and Operations and Maintenance Stage. The proposed Management Structure is depicted in the following **Figure 1-3**.

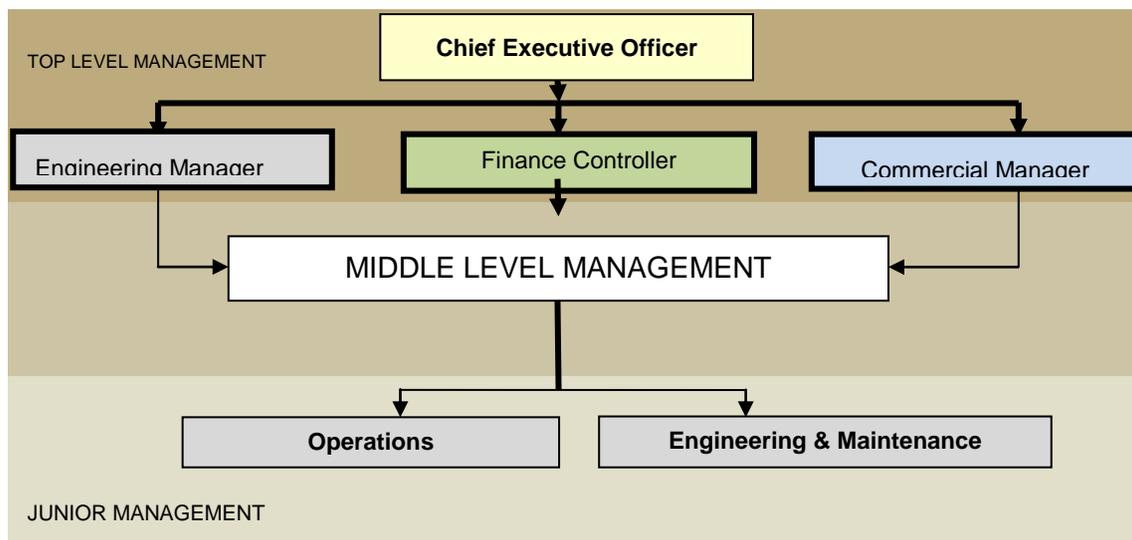


Figure 1-3 Management Structure

1.11 Project Impact

The plastic park will generate direct employment of 7,100 and indirect around 32100. The anticipate turnover is Rs.57,670 Millions. The value addition will be around 50% - 55% of turnover i.e. around Rs.29000 Millions when all the units are in place by 2017 – 2018. The exports are anticipated at Rs. 5767 Millions.

1.12 Compliance with Plastic Park Scheme

The project proposal conforms to objective specified in the “**Scheme for setting up of Plastic Parks**” framed by Department of Chemicals and Petrochemicals such as implementation through a SPV, creation of common facilities, clustering approach, training and skill development.