EXECUTIVE SUMMARY

TATA Steel SEZ/Industrial park project has been envisaged as an integral fit with State Government’s vision of enabling sustainable economic and industrial growth in Odisha. Being a pioneering state in terms of mineral richness and workforce availability Odisha has the opportunity to grow as a wide spectrum of industrial activities in the region.

Tata Steel Special Economic Zone Ltd, a 100% subsidiary of Tata Steel is the developer for the project. Tata Steel Group (as part of their development initiative) in order to create a favorable economic environment and promote industrialization in the Gopalpur region has proposed development of a Special Economic Zone and an Industrial Park. For the same, the group has acquired approx. 2493 acres of land in Gopalpur, Odisha.

The aim is to develop a modern eco-friendly and smart Industrial Park & a Multi-product Special Economic Zone with state-of-the-art infrastructure with a comprehensive strategic study background in line with the state’s and region’s economic potential.

For Gopalpur SEZ extensive market research and on ground assessment has been conducted to identify suitable industrial sectors and clusters categorized as core industries (Basic Metals, Fabricated Metal Products, Machinery & Equipment, Food & Beverage) base industries (Chemical Products, Other Non-Metallic Mineral Products, Apparel & Auto Components), ancillary industries (Information Technology, Plastics, Repair & Installation of Machinery & Equipment) and logistics (Warehousing, Container Freight System) etc.

The purposes of the project are as follows:

i. Development Vision

- The entire development is foreseen as consisting of two major components such as SEZ/Industrial park which is focused on international market and export business.
- Apart from SEZ secondary components are also envisaged as non-processing area (NPA) to accommodate residential facilities, commercial, institutional and public places, retail developments, business parks and recreational amenities.
- An extensive logistic park with multi modal transportation facilities has been considered for freight transport. The logistic park is an important element of development to expand its connectivity to the resource base and internal and external markets with the Gopalpur Port and South Eastern Railway line. Vision Plan framework for industrial cluster selection has shown in Figure 1.1.
Development of TATA Steel SEZ and Industrial Park at Gopalpur has been conceptualized on a number of planning principles that includes spatial flexibility of industrial plots and proper alignment of plots with road layout for easy access and respecting the natural key features of the site. In terms of transport and connectivity the project is conceived with multimodal freight transport options including rail and road which include integration with port with a direct access of railway line. Apart from transportation, other major factors considered are site and surrounding environment and considerations of place making.

Any activity aimed at development will have repercussions on the environment, both positive and negative. Environmental Impact Assessment study is a management tool, which enables the proponent to identify the negative impacts and to mitigate the negative impacts through appropriate Environmental Management Plans. Hence TATA STEEL as a part of the compliance to the regulatory requirement i.e. to obtain environment clearance from MOEF, have appointed a consultant to carry out the “Environmental Impact Assessment (EIA) Study for the Proposed SEZ/Industrial park at Gopalpur, Ganjam District, Odisha.
CHAPTER 2
IDENTIFICATION OF THE PROJECT/BACKGROUND INFORMATION

2.1 Identification of the Project & Project Proponent
Spanning over 2493 acres of land the development of multi-product industrial park includes a SEZ/Industrial park with proper internal infrastructure facilities including greenbelt and roads etc., TATA Steel SEZ project has been envisaged as an integral fit with State Government’s vision of enabling sustainable economic and industrial growth in Odisha. Being a pioneering state in terms of mineral richness and workforce availability Odisha has the opportunity to grow as a wide spectrum of industrial activities in the region.

Concept of development of Multiproduct SEZ/Industrial park
The key objective of the industry identification exercise is to identify and ratify the existing industries shortlisted as part of the previous study and to further add new industries based on the hinterland synergies of the region. To identify the most suitable and optimal product mix for TATA Steel SEZ keeping in perspective the state, region and local industrial strengths. A Funnel approach has been adopted to shortlist potential industries for the TATA Steel SEZ as depicted. The detailed report on industry positioning and demand estimation is provided in the respective report. The key components are mentioned as below shown in Fig 1.2.

![Figure 1.2: Framework for Industry Identification Exercise](image)

To Identify prominent growth industries from the perspective of Global Industrial activity, India Industrial dynamics and existing Industrial scenario across the state of Odisha and Ganjam District. This section involved an assessment of the prominent and growth industries at the Global and India level.

Global & India Level Industry Prioritization: As the project has been envisaged as a hub of international investments it is essential to study the international opportunities for certain promising industries which are suitable to be established in Gopalpur. This stage of the study was focused on identification of prominent industry groups at a global level based on an analysis of four major parameters such as potential for Production, Foreign Trade, Growth and FDI. Shown in Figure 1.4: State and district level industrial prioritization attributes.
2.2 Brief Description & Nature of the Project

TATA Steel SEZ is envisaged to develop with establishment of new industry clusters along with the existing industry groups in Odisha. Thus, keeping the aforesaid into consideration along with historical timeline datasets, a “Two- Fold Approach” has been adopted to undertake industrial forecast.

The approach for demand assessment involved forecasting the value of output collated independently for each target industry from the historical data or relevant benchmarks. The projected output was then converted to the number of units and further to the expected requirement for land by utilizing estimates for average land area typically taken up by units in the identified industry clusters (land area estimates collated through market study interactions and land area benchmarks).

Identify suitable industrial sectors and clusters categorized as core industries (Basic Metals, Fabricated Metal Products, Machinery & Equipment, Food & Beverage) base industries (Chemical Products, Other Non-Metallic Mineral Products, Apparel & Auto Components), ancillary industries (Information Technology, Plastics, Repair & Installation of Machinery & Equipment) and logistics (Warehousing, Container Freight System) etc. The entire development is foreseen as consisting of two major components such as SEZ/Industrial park which is focused on international market and export business which is focused to the domestic market. Details of the Area statement of the proposed project given in Table 1.1.
Table: 1.1 Details of the Area statement of the proposed project

<table>
<thead>
<tr>
<th>S.No</th>
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<th>Area (Ac)</th>
<th>Area (Ha)</th>
<th>%</th>
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<td>2</td>
<td>Textiles and Wearing Apparel</td>
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<td>Chemical, Pharma, Rubber and Plastics</td>
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<td>7</td>
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<tr>
<td>16</td>
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<td>18</td>
<td>Heavy Vehicle Parking</td>
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</tr>
<tr>
<td></td>
<td>Total Area</td>
<td>2493</td>
<td>1009</td>
<td>100</td>
</tr>
</tbody>
</table>

2.3 Need for the Project & its Importance to the Country/Region

SEZ/Industrial park have a tremendous socio-economic impact on Indian economy. SEZ/Industrial park have contributed to the growth and development of the Indian Economy in terms of exports, employment and investments. It is the key growth driver of Nation's economy and has made the country globally competitive.

In order to improve the socio – economic status of the local area and country “Development of Industries is a Must” Due to the proposed industrial area development at Gopalpur, Ganjam District, Odisha.

- To improve the Industrial Infrastructural facilities in Ganjam district of Odisha
- Government’s positive attitude towards the industrialization
- There will positive impacts on the socio – economic status of the surrounding areas
  - More employment opportunities will be generated
- Physical infrastructure development such as improvement to roads, UGD lines, street lights, parks, parking area etc will take place.
Gopalpur Industrial Park has a potential to prove that the Industrial development and environment protection can go hand in hand in contrast to the general feeling that the industrialization leads to pollution.

Green and clean industries are also considered for downstream or high-tech manufacturing which has low or nil environmental impact. The entire project will be comprehensive in terms of land uses as it includes ample residential areas and public amenities. Worker dormitories will be carefully located with pleasing environments for Work, Live and Play.

2.4 Demand – Supply Gap

Keeping in perspective findings from the benchmarking exercise and feedback solicited from the end users, developed land (in plotted format) has been identified as one of the most preferred development format for the TATA Steel SEZ. Accordingly, the developed land has been short-listed as the high potential development formats for the TATA Steel SEZ and a demand assessment exercise was undertaken for the format subsequently.

Supply and demand is an economic model of price determination in a market. It concludes that in a competitive market, the unit price for a particular good will vary until it settles at a point where the quantity demanded by consumers (at current price) will equal the quantity supplied by producers (at current price), resulting in an economic equilibrium of price and quantity. In the proposed project, only industrial plots will be developed and allotted to the industrial entrepreneurs. Hence in this project there is no relationship between demand and supply gap. Water & power demand of the proposed project will be met without affecting the other users.

2.5 Imports V/s Indigenous Production

The high potential development format in consonance with assessment of the potential of attracting units in identified industry groups across the proposed SEZ/Industrial park (based on the findings of the industry analysis section), a detailed demand assessment exercise was undertaken to accurately quantify the net land requirement for the proposed zone. In line with the above, this section highlights the approach, methodology and the key findings for the demand estimation exercise undertaken for the Gopalpur Special Economic Zone & Industrial Park in Gopalpur, Odisha.

Their main task is only development of the industrial park and allot to the industrial entrepreneurs. Individual industrial entrepreneurs will be involved in the production of the products that depends on the imported or indigenous production.

2.6 Export Possibility

Any good or commodity, transported from one country to another country in a legitimate fashion, typically for use in trade. Export goods or services are provided to foreign consumers by domestic producers. Advantage for the export possibility is the port near the proposed site.

2.7 Domestic/Export Markets

From the proposed project, there is direct marketing of products in domestic or export markets as it is only development of SEZ with processing and non-processing area for multi-product industries. However, there will be marketing of products from entrepreneurs in the domestic and export
markets.

The demand assessment exercise involves analyses of various data sets at a Global, India, Odisha & Ganjam District level. Mainly the exercise includes analyses on data sets such as historical production industry wise (value of output), No. of Units, Investments, Exports, Employment, etc.

A. Demand forecasted from Year 2014 ~ The forecasts which were undertaken for 10-15 years for the target industry clusters & support infrastructure (keeping in perspective the overall net zone area available for take-up).

B. Undertaken through a “Two Fold Approach” ~ An analysis of historical data (in terms of production, number of units, etc.) and subsequent projection of future trends utilizing suitable global / country level benchmarks, feedback received from relevant market entities, etc.

C. The Y-o-Y land demand was assessed individually for each product formats envisaged.

D. Demand Assessment Findings ~ Special Economic Zone

The land off-take projections were derived using the number of units expected at the subject development. It may be highlighted that the average land areas are a combination of large & medium scale industries to be established in the proposed zone. The demand is expected to accelerate in the medium to long term with the establishment of an overall ecosystem in the region and influx of key anchor tenants

Special Economic Zone Land Demand ~ Industry Sector Break-up
The Fabrication & Engineering along with Electrical, Electronics & IT industry together account for approx. 65% of the total land demand. It may be highlighted that the above stated industries (primarily identified as the thrust industries) are expected to witness significant interest from the medium and large scale units.

2.8 Employment Generation (Direct & Indirect) due to the Project

It is important that GDP growth be accompanied by the growth in employment as well. Therefore, it is imperative that labour intensive sectors such as metals, food & beverages, wood, etc. are given the necessary thrust. Further, across sectors which are not as labour intensive, overall growth in the industry would also translate into employment growth.

Direct employment at the subject development was forecasted using relevant benchmarks in each industry group across the zones benchmarked. Direct employment at the subject development is expected to be near 15,000 by 2027 giving substantial contribution to the regional economy. It can be noted that the increase in employment from the year of commencement i.e. 2017 is expected to grow 35 times till 2027.
Industry wise cumulative direct employment: SEZ (2027)
CHAPTER 3
PROJECT DESCRIPTION

3.1 Type of the Project Including Interlinked & Interdependent Projects, if any

TATA STEEL is planning to develop multiproduct industrial park, identified 1009 ha (2493 Acre) of land, It is not an interlinked and interdependent project.

Proposed Project is falls under Category ‘A’ as per EIA Notification 2006 - S.No. in the Schedule - 7 (c) Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes. Area is > 500 ha (with area greater than 500 ha)
If at least one industry in the proposed industrial estate falls under the Category ‘A’, entire industrial area shall be treated as Category ‘A’, irrespective of the area. Industrial estates with area greater than 500 ha and housing at least one Category B industry.

The role of the TATA Steel Ltd for the proposed multiproduct SEZ/Industrial park will consists of developing Common infrastructural facilities - roads, water, power, drainage, street lighting and green belt etc. Social Infrastructure - Banks, Post Office, canteens, primary health centre, etc. The SEZ will also have an Industrial Area Local Authority for maintenance of the SEZ, approval of building plans etc. the layout of the proposed multiproduct SEZ is shown in the Figure 1.1.

3.2 Location:
The proposed project Gopalpur, a Notified Area Council, located in the Ganjam District on the coast of Bay of Bengal. Gopalpur is characterized as a famous sea beach & tourist destination. Being situated along the National Highway and only 16 Kms away from the Municipal Corporation-Berhampur the region enjoys excellent connectivity with the major cities of Odisha such as Bhubaneshwar, Cuttack, Rourkela, Puri, Balasore, etc.,

Gopalpur Village between twin town’s chhatrapur & Berhampur, Ganjam district going to setup industrial park, the project site accessible is from NH 5 & Gopalpur port in the south. It is 180 km from Bhubaneswar, the state capital and 280 kms from Visakhapatnam, the port city. Key plan of the project shown in Fig: 1.3 Site photographs are given in Fig: 1.4. Location of the project shown in District Map Fig 1.5 & 10km Radius of the project shown in topographical map in Fig: 1.6

1.2 GPS for Proposed Project

<table>
<thead>
<tr>
<th>S.No</th>
<th>Latitude N</th>
<th>Longitude E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Deg.</td>
<td>Min.</td>
</tr>
<tr>
<td>1</td>
<td>19</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>19</td>
<td>19</td>
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<tr>
<td>3</td>
<td>19</td>
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<td>4</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>19</td>
<td>17</td>
</tr>
</tbody>
</table>
Fig 1.3 the layout of the proposed Project Layout

KEY PLAN
(Scale: 1:35000)
Fig: 1.4- Site Photographs
Fig 1.5 Location of the Project Site in District Map
Fig: 1.6 Topographical Map Showing 10 km Radius of Proposed Project Site.
3.3 Details of Alternative Sites, Considered & the Basis of Selecting the Proposed Site, Particularly the Environmental Considerations gone into should, be highlighted
No alternative site proposed – land will be developed by TATA STEEL Limited. The proposed project location is ideal in all aspects.

3.4 Size or Magnitude of Operation
The role of the TATA Steel Ltd for the proposed multiproduct SEZ/Industrial park will consists of developing common infrastructural facilities - roads, water, power, drainage, street lightening and green belt etc. Social Infrastructure - Banks, Post Office, canteens, primary health centre, etc. The SEZ will also have an Industrial Area Local Authority for maintenance of the SEZ, approval of building plans etc.,

3.5 Project Description with Process Details (a schematic diagram/flow chart showing the project layout, components of the project etc., should be given)
The Proposed project is for development of Multi Product Industries like Food and Beverages, textile and wearing apparel, Chemicals(pharma, rubber etc), Construction materials, Fabrications & engg, electrical, electronics and IT, Jems & Jewellery, Logistics etc.

3.6 Raw Material Required along with Estimated Quantity, Likely Source, Marketing Area of Final Product/s, Mode of Transport of Raw Material & Finished Product.
Raw materials required in the construction phase materials will be procured locally & from the nearest sources and the operation stage various raw materials required for the upcoming industries in the proposed Industrial Area are used for the manufacture of the proposed products.

3.7 Resource optimization/recycling & reuse envisaged in the project, if any, should be briefly outlined.
TATA STEEL itself and will insist the individual allotted entrepreneurs to adopt Resource optimization/ recycling and reuse techniques in their process.

3.8 Availability of Water & its source, Energy/Power Requirement & Source should be given
Ground water demand & source:
Bore wells were already exist in the project area and water be drawn from Requirement of water is around 33.5 MLD
Power Source: The power will be procured from narendrapur 220kv substation which is 7km from the site.
Tentative power demand: The total power required around 255 MVA
3.9 Quantity of wastes to be generated (liquid & solid) & scheme for their management/disposal

All the waste generated within the industrial area will be sent to the landfill site.

In Construction stage- no demolition waste will be generate due to open land for the proposed project and In operation Stage- Required preventive measures (as per MSIHC rules) will be considered which are hazardous to human health or the environment (flora, fauna and water supplies and for solid waste (degradable waste) R4 Reduce reuse recycle and recover other than this category waste will opt for landfilling or incineration method.

Techniques of Cleaner Production – Energy Efficiency (CP-EE)

The new & creative approach to enable less waste intensive production is based on different techniques will be adopted by regular up gradation of process technology. These techniques are as hereunder.

Source Reduction

Under this category, 5 techniques of CP – EE are briefly discussed below:

Good Housekeeping:

Systems to prevent leakages & spillages through preventive maintenance schedules and routine equipment inspections. Proper working instructions, supervision and regular training of workforce would facilitate proper housekeeping. Process change: Under this head, four CP – EE techniques are covered:

Input Material change:

Substitution of input materials by eco-friendly (non-toxic or less toxic than existing and renewable) material preferably having longer service time.

Better Process Control Modifications of the working procedures, machine-operating instructions and process record-keeping in order to run the processes at higher efficiency and with lower waste generation and emissions.

Equipment Modification:

Modification of existing producing equipment and utilities, addition of measuring and controlling devices, in order to run the processes at higher efficiency and lower waste and emission generation rates.

1. Technology Change – Replacement of the technology, processing sequence and / or synthesis pathway in order to minimize waste and emission generation during production.

Recycling

a. On-site Recovery and Reuse – Reuse of waste materials in the same process or for another useful application within the industry.

b. Production of useful By-Product – Modification of the waste generation process in order to transform the waste material into a material that can be reused or recycled for another application within or outside the company.
**Product Modification**
Characteristics of the product can be modified to minimize the environmental impacts of its production or those of the product itself during or after its use (disposal).

**Benefits of adopting CP-EE**

The benefits of integrating CP and EE (CP – EE) are as follows:

**Structured approach for long-term viability of EE:** EE improvement Programmes alone have often been unsustainable because they lacked well-structured CP methodology for addressing together energy and environment issues. This has been compounded by a lack of professionals with the multi-skills needed to integrate energy management with other environmental issues. Incorporating EE into the well-established and structured CP approach would help to ensure the long-term viability of EE measures.

Global business mandates, Conventions and Protocols: Global business mandates, conventions and protocols expressing international concern for resource conservation, energy and environment. Stand-alone CP or EE measures not always attractive: CP or EE measures not always attractive: CP solutions are not attractive if resources are low priced or subsidized. By combining it with energy efficiency, more attractive solutions can be proposed. Alternately, CP-EE may enhance the attractiveness of reducing energy consumption in case of low energy costs.

**Other benefits of CP-EE:**

- Conservation of Raw Material and Energy
- Lower Costs
- Improved Environment
- Better compliance with environmental regulations
- Better working environment
- Quality improvement
- Improved efficiency / productivity
- Better access to finances
CHAPTER 4
SITE ANALYSIS

4.1 Connectivity

The Gopalpur Port is also expected to increase the export/import potential from the region. Being located on the outskirts of the city, the subject region is well-suited for industrial activity. The subject region is expected to be developed as a multi-modal logistics hub with connectivity advantages owing to the presences of Rail, Road, Air, and Port connectivity.

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<td>Bhubaneswar</td>
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<td>Cuttack</td>
<td>175 – 185</td>
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<tr>
<td>Berhampur</td>
<td>20 – 22</td>
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<thead>
<tr>
<th>Location</th>
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<tr>
<td>Gopalpur Port</td>
<td>2 – 3</td>
</tr>
<tr>
<td>Berhampur Railway Station</td>
<td>20 – 22</td>
</tr>
<tr>
<td>Biju Patnaik International Airport</td>
<td>155 – 160</td>
</tr>
<tr>
<td>NH - 5</td>
<td>0 – 0.5</td>
</tr>
</tbody>
</table>

4.1.1 nearest Railway Station

The nearest railway station is located at Chhatrapur having two separate facilities for passenger handling and cargo handling. The passenger handling unit is not a major station as most of the important trains running north and south between Kolkata and Chennai only passes by Chhatrapur but only a few local trains stops there.

4.1.2 nearest Airport

Biju Patnaik International airport : Bhubaneshwar (148km-NE) from the proposed project site.

4.1.3 Approach Road of the Project Site

The Tata Steel SEZ/Industrial park project site is located at an ideal position for industrial development although it shares only 800 metres of its northern boundary with the NH5 which allows a single entry point from the national highway to the site. According to the NHAI regulation in India two consecutive surface crossing at any national highway should have a minimum interval of 0.5 Km. To meet the NHAI standard and accommodate a smooth traffic on the national highway the second approach point on NH5 for the SEZ site has been identified at a distance of 2 km from the first. The second or future entry point is located where the proposed ring road is crossing NH5 as per the CDP master plan.

4.2 Land Form, Land Use & Land Ownership

In general the site is rather flat and sloping from the north western side to southeast direction towards the Bay of Bengal. Small creeks and streams are running across the site. The site also has significant no of water bodies. Apart from its natural slope, the site has the only prominent undulation at its southeast edge where a couple of hillocks have created a scenic landmark surrounded by scattered water bodies and greens. The 2 hillocks will remain. Due to tidal flow from
the ocean most of the water bodies around the site has saline water and not purely suitable for industrial or domestic use.

4.3 Topography
The ground elevation for the site varies from 1m (at the east) to 33m (at the west). Generally the existing fall of the land runs from west to east. The highest elevation of the two hillocks at the south are 38m and 48m respectively. 90% of the land is between 0 to 3% slope. Generally the existing terrain profile will be retained except for the flood prone areas.

4.5 Existing Infrastructure
Presently there is no infrastructure as this is a Greenfield site. There are some pylons that traverse the site and a few ponds within the site which is cited for retention.

4.6 Soil Classification
Soil is Silt and clay.

4.7 Climatic Data from Secondary Sources
The climate of Gopalpur is tropical wet and dry. Based on the climatic normal observations of India Meteorology Department (IMD) at Gopalpur observatory, the average summer day time temperature is around 240C (max: 360C) with relative humidity of around 85 %.

The annual average relative humidity hovers around 80% with a maximum value of around 85%. The winter temperature is in the range of 20-260C. The climate is influenced predominantly by southwest monsoons. Gopalpur receives an annual average rainfall of around 1122 mm with an average 54 days of precipitation. June to September is the peak monsoon period with dragging of precipitation into the first half of October due to occurrence of cyclonic depressions. The wind speed varies from 8.3 to 17.4 kmph with annual mean of 11.7 kmph. The predominant wind directions are from SW & S.
CHAPTER 5
PLANNING BRIEF

5.1 Planning Concept

As the subject site is a SEZ/Industrial park development; the planning concept has to comply with the SEZ development norms in India. TATA steel Ltd has acquired land for the proposed project extent 2493 acres. Due to pending land registration formalities some of the land parcels which rightly should be in the SEZ boundary will be included in the future; thus making the SEZ larger than the minimum area stipulated. The rest of the site will be for, industrial as well as non-industrial use (NPA).

The planning concept for the Master plan takes into consideration the following:

a. The SEZ requirements; minimum size; bonded area and non –bonded areas; SEZ processing zone and non-processing area.

b. The topography of the site;

c. The surrounding environments; and

d. The Berhampur Comprehensive Development Plan (CDP).

e. The site’s flooding problem during the monsoon period where the low-lying land at the southern side needs some filling and the containment of the flood waters from the adjacent stream with several retention ponds within the site to mitigate flooding.

As the proposed development is mainly industrial, the zoning concept is based on broad zoning principles as well as environmental considerations. Wind direction around a year is predominantly from the southeast to southwest. There is a forest land at the northeast side. It is recommended to vegetate the land with thick foliage trees to allow a natural purification of the polluted air. This forest land should be developed as a green buffer between SEZ and upcoming residential areas on the eastern side of the site. The location of the NPA was carefully considered in relation to the type of industries as well as its surrounding. Currently all the residential colonies and non-processing areas(NPA) are located at least 100m buffer, from the industrial area and are located at the south and south-western part of the side next to the university campus and only clean and green industries are located adjacent to it.
Location of the site in relation to the adjacent development and transport links
**Fig 1.7 the facilities to be provided in the proposed Multiproduct SEZ/Industrial park**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water storage and supply</td>
<td><img src="image1.png" alt="Water storage" /></td>
</tr>
<tr>
<td>Power supply</td>
<td><img src="image2.png" alt="Power supply" /></td>
</tr>
<tr>
<td>Roads Network and Street Lighting</td>
<td><img src="image3.png" alt="Roads network" /></td>
</tr>
<tr>
<td>Storm water drainage system</td>
<td><img src="image4.png" alt="Storm water drainage" /></td>
</tr>
</tbody>
</table>
5.2 Population Projection

Basing on the land use; it is estimated that the total industrial workforce (direct workers) is estimated to be about 15,000 when the park is fully operational. This does not take into account the workforce within the Ferro crome plant in an area of 400 Acres outside the SEZ area.

5.3 Land use planning

The final land use plan as depicted above shows the SEZ area exclusively within the pre-notified boundary which also includes the bonded PA and part of the NPA which is non-bonded area. The bonded SEZ area is delineated by roads and green linear green and the rest of the industrial land.

The suggested land usage plan based on the industry assessment report and projected demands for development of the multi-product SEZ/Industrial park, has been indicated in the table given below.

![Land use plan]

As per the statutory requirement, total 33 % Green Belt Land will be develop for the proposed project all along the boundary of the industrial area.
5.4 Assessment of Infrastructure Demand (Physical & Social)

The summary for all the utilities demand projection is appended in table below;

Utility Demand Projection:

<table>
<thead>
<tr>
<th>Utility</th>
<th>Total Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Water Demand</td>
<td>33,500 m³/d</td>
</tr>
<tr>
<td>Sewage Generated</td>
<td>21,000 m³/d</td>
</tr>
<tr>
<td>Power Demand</td>
<td>255 MVA</td>
</tr>
</tbody>
</table>

5.5 Amenities/Facilities

The total estimated residential population of the NPA is about 28,000. There will be a variety of housing types being offered ranging from high end bungalows; flats and apartments and worker dormitories.

A small town centre is being proposed within the residential cluster. This area will include offices, commercial. and it will include the following:

- Shopping malls,
- international school,
- clinics and
- Other necessary public amenities dormitories.
CHAPTER 6
PROPOSED INFRASTRUCTURE

Detailed feasibility studies were carried for the proposed Multiproduct SEZ/Industrial park. The results of the study are very encouraging and instilled confidence in the project proponents about the success of the project.

The study was carried out in a systematic way starting with site suitability studies to the financial feasibility of the project by assessing the demand through personal interviews with some of the industrialists.

The infrastructure requirement for the Multiproduct SEZ/Industrial park can be broadly classified into the following four heads:

- Basic Infrastructure
- Environmental Infrastructure
- Other Infrastructure - Industry Specific and social

The basic infrastructure covers the main requirements like

- Water - Water treatment facility
- Power
- Roads
- Street lights

The environment infrastructure covers:

- Green Belt
- Storm Water drains
- Wastewater treatment facilities
- Solid waste collection and disposal facilities

Other Infrastructure – Industry specific

- Fire fighting facilities
- Security etc.
- First aid facilities
- Canteen
Inline to the above the social infrastructure or Common Facility Centers (C.F.C) would be provided by the TATA Steel Ltd., in order to make the facility ready for occupation by the industries as early as possible. The following facilities will be provided as part of the social infrastructure development:

6.1 Industrial Area

Due to the proposed project the following infrastructure development takes place:

1. **Road improvement:**
   - To provide a clear and adequate network of primary roads connecting the main hubs of the development with strategic external routes.
   - To provide adequate secondary and local roads within the site to ensure efficient distribution of traffic between individual developments and the primary roads.
   - To discourage through or rat-running traffic routes through the local land parcel developments.
   - A hierarchy of roads is being proposed with defined right of way for the lane widths; service corridors and tree planting strips.

2. The road network consists of three types depending upon the traffic flow. However:
   - **Approach road:** A suitable approach road from the national highway to the proposed site & the exits road are planned with connection to the internal road network. Suitable horticulture development is also planned.

3. **Storm water drainage:** storm water drainage is planned along the roads with suitable catch drains & discharged outside at a suitable point.
   - Surface runoff will be discharged into the proposed roadside drains (on both sides of the road) and subsequently channelled to retention ponds for each sub-catchment prior discharging into the existing natural rivers downstream.
   - The detention pond serve as a flood prevention measures to the downstream of the rivers.
   - Closed concrete rectangular drain system is adopted for the roadside drain for ease of maintenance and more effective use of land as it serve as a pedestrian footpath. However open drains are used for big outlet drains.
   - The following return periods are adopted for various drainage component:
     - Local Drain: 2 years
     - Main Drain: 10 Years
     - Retention ponds: 20 years
   - The proposed drainage system caters only for the surface runoff generated within the project site. Thus, cut-off drains need to be provided along the development boundary to divert the outside runoff. Strom water drainage system is shown in fig: 1.8 & Initiatives for storm water drainage is shown in fig: 1.9.
**Fig 1.8: Storm water drainage system**

**Storm Water Drainage System**

<table>
<thead>
<tr>
<th>Retention Pond No.</th>
<th>Area (ha)</th>
<th>Depth (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RP 1</td>
<td>2.2</td>
<td>3.8</td>
</tr>
<tr>
<td>RP 2</td>
<td>8.0</td>
<td>3.0</td>
</tr>
<tr>
<td>RP 3</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>RP 4</td>
<td>2.4</td>
<td>3.8</td>
</tr>
<tr>
<td>RP 5</td>
<td>9.7</td>
<td>3.0</td>
</tr>
<tr>
<td>RP 6</td>
<td>2.1</td>
<td>4.1</td>
</tr>
<tr>
<td>RP 7</td>
<td>3.3</td>
<td>5.0</td>
</tr>
</tbody>
</table>

*Excess surface water from retention pond can be discharged to nearest water bodies via spillway / overflow weir structure, if levels permit.*

Typical Section for Retention Pond*
Fig: 1.9. Initiatives for storm water drainage:

Sustainable Initiatives for Storm Water Drainage System

Surface Runoff
- Buildings
- Catchment
- Paths/roads

Treatment Features
- Vegetated Swales
- Bioretention Basin
- Bioretention Swales
- Constructed Wetland
- Planter Box/Roof Garden

Roadside Drain

Retention Pond

Waterbody
4. **Water supply:** External water supply scheme is planned with GLSR located at a highest point as per the contour & is used for feeding the distribution network.

5. **Electrification:** External electrification is provided.

6. **Green belt development:** Total 34% Green Belt Land will be developing for the proposed project all along the boundary of the industrial area, open space, green services corridor. Also landscaping will be done along the roads.

7. **Rainwater harvesting:** Rainwater harvesting pits will be provided at an interval of 5m all along the storm water drains.

8. **Compound wall:** A compound wall of 2.89m high barbed wiring, with goose neck overhang is planned all around the operational area with gates.

9. **Fire station:** A suitable land for fire station for rescue & firefighting services is proposed along with other facilities for catering to emergency services. A storage water sump, pumping facilities facility for filling the fire tenders & other equipment’s etc., are also planned.

### 6.2 Residential Area (Non – Processing Area)

Residential area, Workers housing Amenity & commercial, checkpoint & Institution will be proposed in SEZ non Processing area.

### 6.4 Social Infrastructure

Provision of plots for police station, STP, canteen/Amenity centres, electric grid and public transport etc., along with the relevant environment protection requirements will be taken care of.

### 6.5 Drinking water management

**Ground water demand & source:**

Required amount of water around 33.5MLD will be drawn from the surface water sources and proposed De-salination plant. Run-off water post monsoon shall be used through the rain water harvesting structures proposed for the SEZ. Feasibility study for drawing of water from Gopalpur Tampara – I reservoir is being undertaken. Ground water for domestic and drinking purpose will be drawn through bore wells.

### 6.7 Sewerage System

A well planned common effluent treatment plan for the proposed multi-product industries effluents from the each industries and also common sewerage network are being planned for the domestic water treatment within the industrial park to treat the effluents and sewage generated.
Planning criteria: All industries are pre-treat the waste water to the required effluent standard before discharging to the CETP.

80% of the water consumed is considered as effluent flow, in addition to that, 10% of average flow is considered as infiltration.

Water Quality Limit:

Individual industries will pre-treat their waste water to acceptable standard prior to discharging into the proposed CETP and same with domestic waste water into CSTP.

6.8 Industrial & Solid Waste Management

The major sources of solid waste from the proposed multiproduct SEZ can be studied under the following heads:

- Process Residues from industrial units
- Solid waste from common infrastructure

The main solid waste generated from the proposed Multi product SEZ/Industrial park is dry waste in the form of cut yarn, fiber and chemicals used in the process.

Disposable methods:

- Industrial waste- TSDF/Sale,
- Chemical waste- TSDF,
- Domestic Waste-Municipal bin
- Waste Oil-TSDF
- Used Batteries –Buy back

6.10 Power Requirement & Supply/Source

Planning Criteria:

- Power supply is proposed to be tapped from the existing narendrapur 220Kv substation which is 7km away.
- Twin 220Kv overhead lines can be laid along a 32m wide corridor.
- This substation is installed with 320MVA; spare capacity of 150 to 200MVA
- The power supply authority is planning for a 400kV substation to boost up the Narendrapur 220Kv substation.
Planning Concept:
Broad network concept: The main power intake point for the industrial park is the ferrochrome 220 kV substation which supplies downstream transmission and distribution network consisting of

- A standalone 132kV substation (in addition to another one integrated with Ferrochrome 220kV substation)
- 8 units of 33kV substations to set down to 11kV for the various load centre.
- A network of 11kV/0.4kV infrastructure substations including 11kV/LV substations which can be standalone packaged type, and a network of feeder pillars
- 11kV network is in ring configuration, and 33kV network initially radial.
CHAPTER 7

REHABILITATION & RESETTLEMENT (R&R) PLAN

The land acquisition process has been completed during 1996-2000 with implementation of R&R compensations at Gopalpur. There was a State level R&R implementation guideline specially designed for Gopalpur Project, which was implemented in totality. However considering no feasibility of Steel Plant, engagement opportunities were provided to very few outside Gopalpur.

Apart from the already executed R&R package, a goodwill package has been recently announced to extend further benefits to the project displaced and affected families considering the delay in project execution. In this package, additional benefits for land, cash in lieu of job and maintenance allowances etc. has been provided for all the Displaced and affected families. A Gopalpur Project specific recruitment guideline also is being finalized jointly with the District Administration, so that the local people can be given suitable opportunities as the Industrial Park develops.

In order to support Skill development, Tata Steel has opened a 3 Year Diploma Training center, J N Tata Technical Training Institute and every year more than 200 students pass out with almost 100% placement records. Apart from that about 1000 students from local community have been extended various job linked training programs so far and currently the plan is to train @ 5000 students every year. In order to meet the training needs, two more training centers have been opened catering to about 200 students per year in the field of hospitality, apparel and computer education with partners like Pratham, Taj Group, Sahi Exports and NIIT respectively.

Many Livelihood interventions have been taken up and are planned further in the field of fishery, dairy, farming etc. Active interventions in the field of education, health and entrepreneurship have been initiated.
CHAPTER 8
PROJECT SCHEDULE & COST ESTIMATES

After getting approvals from regulatory Authority for Environmental Clearance, CFE etc.,
The SEZ / Industrial Park is expected to be developed into a fully integrated industrial park in few phases with a systematic sequencing of common infrastructure, Units within the Industrial park and social infrastructure. The overall development of the Industrial Park as envisaged is indicated below:

Phase I: (40% of area developed & utilized) : By 2022
Phase II (Reach 80% of area developed & utilized) : By 2025
Phase III (Completion of final phase & reach 100% utilization of land) : By 2027

Estimated Project Cost: Rs 2500 Crores
Projected Investment expected by different investors: Rs 15000 Crore
CHAPTER 9

ANALYSIS OF PROPOSAL (FINAL RECOMMENDATIONS)

Spanning over 2493 acres of land the development of multi-product industrial park includes a SEZ/Industrial park processing and non-processing area with proper internal infrastructure facilities including greenbelt and roads etc.,

Establishment of a Multiproduct SEZ promises to change the existing scenario and cluster the scattered community in and around the region. The setting up of the SEZ is expected to provide a major boost to the state’s multiproduct sector by ensuring a fair share of export revenues and also by raising the living standard of workers. The setting up of the Multi product SEZ/IP is also expected to bring about a marked improvement in the operational efficiency of the units in the state and reduce the monopoly of merchant exporters.

Any activity aimed at development will have repercussions on the environment, both positive and negative. Environmental Impact Assessment study is a management tool, which enables the proponent to identify the negative impacts and to mitigate the negative impacts through appropriate Environmental Management Plans. Hence TATA STEEL as a part of the compliance to the regulatory requirement i.e. to obtain environment clearance from MOEF, have appointed a consultant to carry out the “Environmental Impact Assessment (EIA) Study for the Proposed SEZ/IP at Gopalpur, Ganjam District, Odisha.

Green and clean industries are also considered for downstream or high-tech manufacturing which has low or nil environmental impact. The entire project will be comprehensive in terms of land uses as it includes ample residential areas and public amenities. Worker dormitories will be carefully located with pleasing environments for Work, Live and Play.

Vision towards a sustainable development