

Pre-Feasibility Report
for
Proposed Multi-Product Special Economic Zone
(SEZ)
in
Tahsil Saunsar, District Chhindwara,
Madhya Pradesh



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CHAPTER 1

EXECUTIVE SUMMARY

The Multi Product SEZ/Industrial Park has been envisaged as “A PROJECT” supporting, complimenting, and supplementing the efforts of the Government of Madhya Pradesh to achieve industrial growth.

The effort has the sound backing of “Good Governance” of the Government established and meritoriously illustrated in agricultural production.

Special Economic Zone in the backward area has the potential to rewrite the development experience. The land, the population, which has been hitherto unutilized wakes up as linkages, investments, regularly increasing cash flows and the unrelenting efforts of the Government and promoters bear fruits.

Chhindwara Plus Developers Ltd.(CPDL), is a company by three ‘niche’ marketers Haldiram’s Nagpur (Indian Snacks), Sanvijay Steels (Steel for Transmission), SOBISCO (Biscuits). The theory of business is that it is a hypothesis. And it is a hypothesis of things that are in a constant flux-society, markets, customers, technology and so built into the theory of the business is the ability to change.

The company has acquired 3300 acres of land in the villages Khapakarimwar, Kodadongri B1, Kodadongri B2, Kodadongri Dawami, Kodadongri Malgajari, Dudhalakhurd, Satnoor, Sawanga, Gondiwadhona, Gowariwadhona of Tehsil Sausar, and District Chhindwara in Madhya Pradesh.

The aim is to create Special Economic Zone (SEZ)/Industrial Park, the back bone is creating an “International location” which could create benchmarks for climate change mitigation.

Solar power, water recycling and creating reservoirs for rain water harvesting. Promoting floriculture and horticulture in green zones. Good Governance and climate change mitigation being the base. The development proposes to house all facets of Industrialization, commerce dovetailed to create a ‘Quality and Happy’ human habitat.

The Purpose of the Project:

1. The entire development is for seen as an “International Location” for industries. A model for the development for creation of a zone of prosperity and climate change mitigation. The vehicle SEZ/Industrial Park.
2. Secondary development to make the location, sustainable and a zone of prosperity, Commercial, Residential, Floriculture/Horticulture belts, water reservoirs are proposed.
3. A logistic park, (utilizing the central location), to compliment and supplement the production in the park. Give the agricultural production boost in Madhya Pradesh a value plus. Road & Rail to ports an effort to integrate with the NH and the broad gauge Railway under construction.

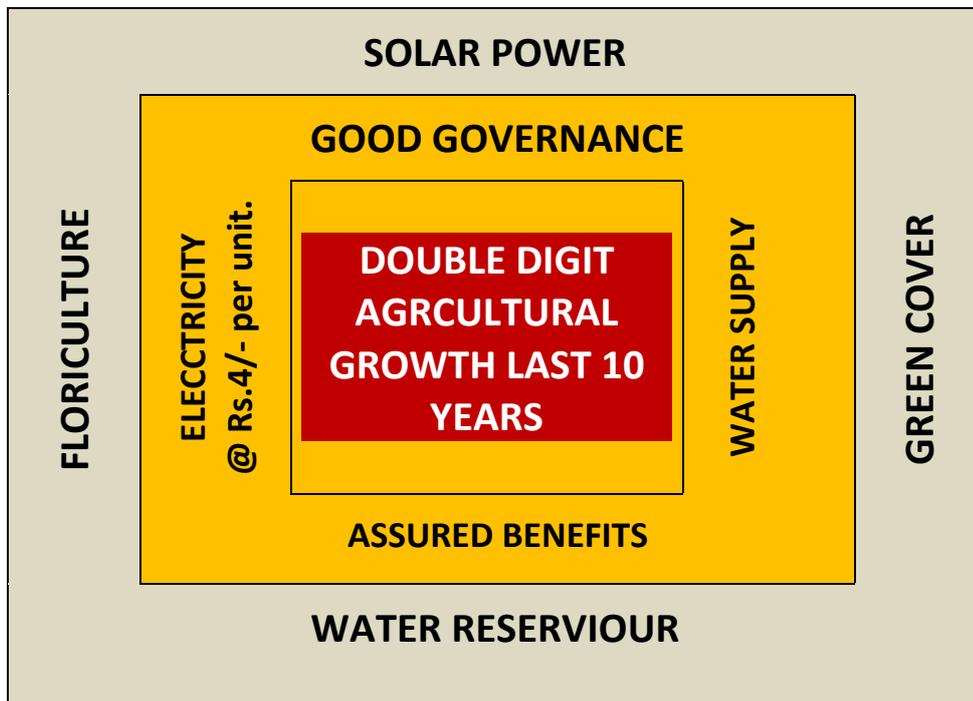


Figure 1.1: The Development Frame Work

- ✚ Development of Chhindwara Plus SEZ and Industrial Park at Sausar 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 CPDL 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 Sausar District, Chhindwara, Madhya Pradesh.

CHAPTER 2

IDENTIFICATION OF THE PROJECT/BACKGROUND INFORMATION

2.1 IDENTIFICATION OF THE PROJECT/BACKGROUND INFORMATION

Spanning over 3300 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., CPDL SEZ project has been envisaged as an integral fit with State Government's vision of enabling sustainable economic and industrial growth in Madhya Pradesh. Madhya Pradesh has the opportunity to grow as a wide spectrum of industrial activities in the region.

Concept of development of Multiproduct SEZ/Industrial Park

THE MAIN DRIVER TO THE FDI ENGINE

The new FDI Horizons - Virgin Areas, CLIMATE CHANGE

Climate change, the annually increasing intensity of effects becoming evident, The Natural Calamities, the occurrences have become a regular feature.

The quality of Air, Water, Hazardous Waste Management, the deterioration is evident in various studies globally.

The next decade is going to see a global relocation, development of virgin areas for trade and industry to locate to maintain and balance the climatic changes.

Each Industry has to spread globally, before concentration in a region and country proves self destructive.

LOCATION AN ECONOMIC ANSWER

The results of the econometric analysis would suggest that the decision to select a location is impacted by the size of a country measured by its population and by good governance rather than its GDP per capita. This is mainly the result of multicollinearity among variables. A number of recent studies of governance and corruption, based on simple empirical observations, using available worldwide indices, have shown that, on average, per capita income and the quality of governance are strongly positively correlated across countries.¹⁴ The causality link between income and governance is far from being explained: (a) better governance exerts a powerful effect on per capita income; (b) higher incomes lead to improvements in governance; and (c) there are other factors to be considered. Kaufmann and Kraay (2002) discussed the surprising finding of negative feedback from income to governance attributed, at least partly, to a consequence of State capture by largest institutions (private or public). More research is needed to take into account these causality links in order to determine the factors having a strong positive influence on the choice of locations by the largest TNCs.

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 Sausar. 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 is the TN Index for various industry groups.

Industry composition of the top 100 TNCs, 1993, 1998 and 2003

Industry ranked by number of entries in 2003	Number of entries			Average TNI per industry (Percentage)		
	1993	1998	2003	1993	1998	2003
Petroleum exploration/refining/distribution and mining	12	11	13	50.8	52.7	58.4
Electronics/electrical equipment/computers	21	17	11	44.4	52.6	50.8
Motor vehicles and parts	13	14	11	37.6	49.0	50.0
Telecom	2	6	9	41.4	40.4	49.1
Pharmaceuticals	3	8	8	63.4	64.3	57.2
Utilities	-	3	8	-	26.0	49.9
Retailing	-	3	5	-	52.0	50.9
Food/beverages/tobacco	11	10	4	53.4	74.3	65.8
Trading	7	4	4	29.3	24.6	36.8
Chemicals	7	8	3	43.6	58.5	52.2
Metals	7	2	3	41.8	45.5	58.6
Media	1	2	3	91.3	86.7	83.6
Machinery/engineering	1	-	1	44.2	-	51.9
Construction, building materials	3	1	1	71.9	90.5	95.2
Diversified	2	6	5	33.6	38.0	65.2
Other	10	5	11	49.0	69.9	55.0
Total	100	100	100	47.0	54.0	58.7

Source: UNCTAD database.

2 Brief Description & Nature of the Project

CPDL seeks adherence to the valid theories of a) Cluster Economics, b) Economies of Scale, c) Anchoring, d) Niche Marketing.

Backward area, very low per capita, ineffective economic multiplier, all parameters used in demand assessment is nonexistent. Hence no projections possible by using economics. We need to create demand, and study TNI (Trans Nationality Index) of various sectors has to be studied and prioritisation projected.

The criteria of investment of Trans National Industries is changing and the new location criteria is not economic data and per capita. It is assurance of good governance, and positive outlook.

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 Sausar, Chhindwara District, Madhya Pradesh.

-  To improve the Industrial Infrastructural facilities in Chhindwara district of Madhya Pradesh
-  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.

CPDL 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

Climate change mitigation and governance is the major plank on which the international industrial location is being developed. A relocation programme internationally and nationally has to happen for industries in highly polluted areas which have been disturbing the ecological balance.

The project aims to have Solar Power, Water Reservoirs, Floriculture and Horticulture belts to neutralize carbon emissions. Balancing of underground water resources is a must. The demand is based on need. The environmental crisis that is climate change. The need is urgent.

demand pattern is bound to emerge as the project moves ahead. Quantification and Pricing would be cost based and not dictated by demand. 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.

2.5 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.

2.6 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, Madhya Pradesh & Sausar 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 2018 ~ 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. The assessment of units is based on TNI. The TNI is defined as

TNI is calculated as the average of the following three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment. The simple average value is the sum of the TNI values of all companies, divided by the total number of companies. It shows a slight decline for all TNCs in 2003.

Another approach would be to consider weighting the TNI by the size of each company in the list. This average value would reflect the behavior of the largest companies, which tend to be more transnationalized as shown below (box table). The first 10 firms show a higher TNI value than the next 10 or the last 10 in the top 100. This relationship between the size and the TNI does not seem to exist for TNCs from developing economies.

Relationship between the size and the TNI value

	World's Largest TNCs	TNCs from developing economies
	Average TNI	Average TNI
Top 10 firms	59.7	46.9
Next 10 firms	56.3	46.9
Bottom 10 Firms	52.6	47.8

Source: UNCTAD.

- C. The Y-o-Y demand is based on efforts by Government round the globe and UN climate change organizations and UNCTAD.

- D. The Government of Madhya Pradesh has shown the proponents of good governance and positive outlook by achieving double digit growth in agriculture production in the last 10 years and a big plus making the State Power Surplus.

Increase in area of forest cover. All this argues well for making the area an A+ Industrial Location. The TN Index of various industries as available is as shown in the table and forms the basis of dividing approaches to be made at the micro level. A list of TOP 100 TNI is enclosed.

Detailed area distribution as Table 1.1.

Table: 1.1 Details of the Area statement of the proposed project

S.No	LANDUSE	Area (Ac)	Area (Ha)	%
1	Food & Beverages	207.47	84	6.363
2	Textiles and Wearing Apparel	46.09	18.66	1.414
3	Chemical, Pharma, Rubber and Plastics	319.16	129.21	9.788
4	Construction Material and Minerals Products	68.53	27.74	2.102
5	Fabrication and Engineering	689.50	279.15	21.147
6	Electrical, Electronics & IT	171.46	69.42	5.259
7	Jems & Jewellery	45.29	18.34	1.389
8	Logistics	136.67	55.33	4.192
9	Check Gates	16.61	6.72	0.509
	TOTAL PROCESSING AREA	1700.78	688.57	52.16
10	Residential & Dormitory	209.58	84.85	6.428
11	Amenity	106.48	43.11	3.266
12	Institution	45.90	18.58	1.408
	COMMON USE			
13	Open Space --- Green Area	324.42	131.34	9.950
14	Utilities	61.23	24.79	1.878
17	Road Terminals & Railway Terminals	419.75	169.94	12.874
18	Road	339.26	137.35	10.405
19	Heavy Vehicle Parking	53.16	21.52	1.630
	TOTAL AREA	3260.56	1320.065	100.00

The demand assessment is based on approaches made, to various sources. UNO climate change wings requesting relocation of Industries from critical areas/highly polluted areas to CPDL (40% of the sale from this sector). The demand would come through pitching by the State Government, NEERI, and Government of India, Ministry of Environment.

Semi-conductor Fab, water and power are the major inputs, which the location promises we will adopt the hard sell approach to get anchor units. Engineering, manufacture of Rail Rolling Stock would anchor. The take off achieved it would create an environment with the establishment of an overall eco system in the region and the 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.

2.7 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.

Employment Potential

[Has been arrived at using TNC figures on Sales to Employment Ratio.(Refer Table 3 of Marketing Report) The Second method is assuming an employment of 22 persons/acre based on the Indian experience in SEZ].

I. Transnational Corporation (TNC's) Sales to Employment Ratio	
Average Across industries is 422/1000 as per Table - 3 of TNC Report	
Total Anticipated Sales = Rs.15,600 Crores/.422	
Total Employee Potential	39,966
II. Indian Experience on SEZ 22 employees/acre	40,771
Proposed Processing Area is 750 Hect. i.e.=1853 Acres x22 Number Equal	
Total Employment Assumptions is	40,000
III. Employment is parallel to investment, hence employment is taken from 1st year of investment.	

CHAPTER 3

PROJECT DESCRIPTION

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

CPDL is planning to develop multi product industrial park, identified 3300 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 Chhindwara Plus Developers 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. the layout of the proposed multiproduct SEZ is shown in the Figure 1.1.

3.2 Location:

Chhindwara Plus SEZ is located in the centre of India on confluence of two rivers Kanhan & Jam. The site is on the foothills of the Satpuda range. The site is located about 40 kms from India’s Zero Mile, the intersection point for major highways connecting north-south and east-west of India. The SEZ area is surrounded by scenic hills, rivers and landscapes that are motivating and inspiring. The area is well connected by road & railway and the nearest airport (Nagpur airport) is just 45 minutes away. N.H.547 bisects the Site. Four lane connectivity.

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 & 10 km Radius of the project shown in topographical map in Fig: 1.6

1.2 GPS for Proposed Project

S.No	Latitude N			Longitude E		
	Deg.	Min.	Sec.	Deg.	Min.	Sec.
1	21	29	37	78	50	49
2	21	31	19	78	52	7
3	21	32	3	78	52	7
4	21	29	43	78	52	15
5	21	30	30	78	52	9
6	21	29	26	78	53	14
7	21	30	14	78	51	0
8	21	7	20	77	49	11
9	21	30	43	78	49	40
10	21	29	54	78	48	37

Fig 1.4 – Site Photograph





Fig 1.5 – Location of the Project Site in District Map

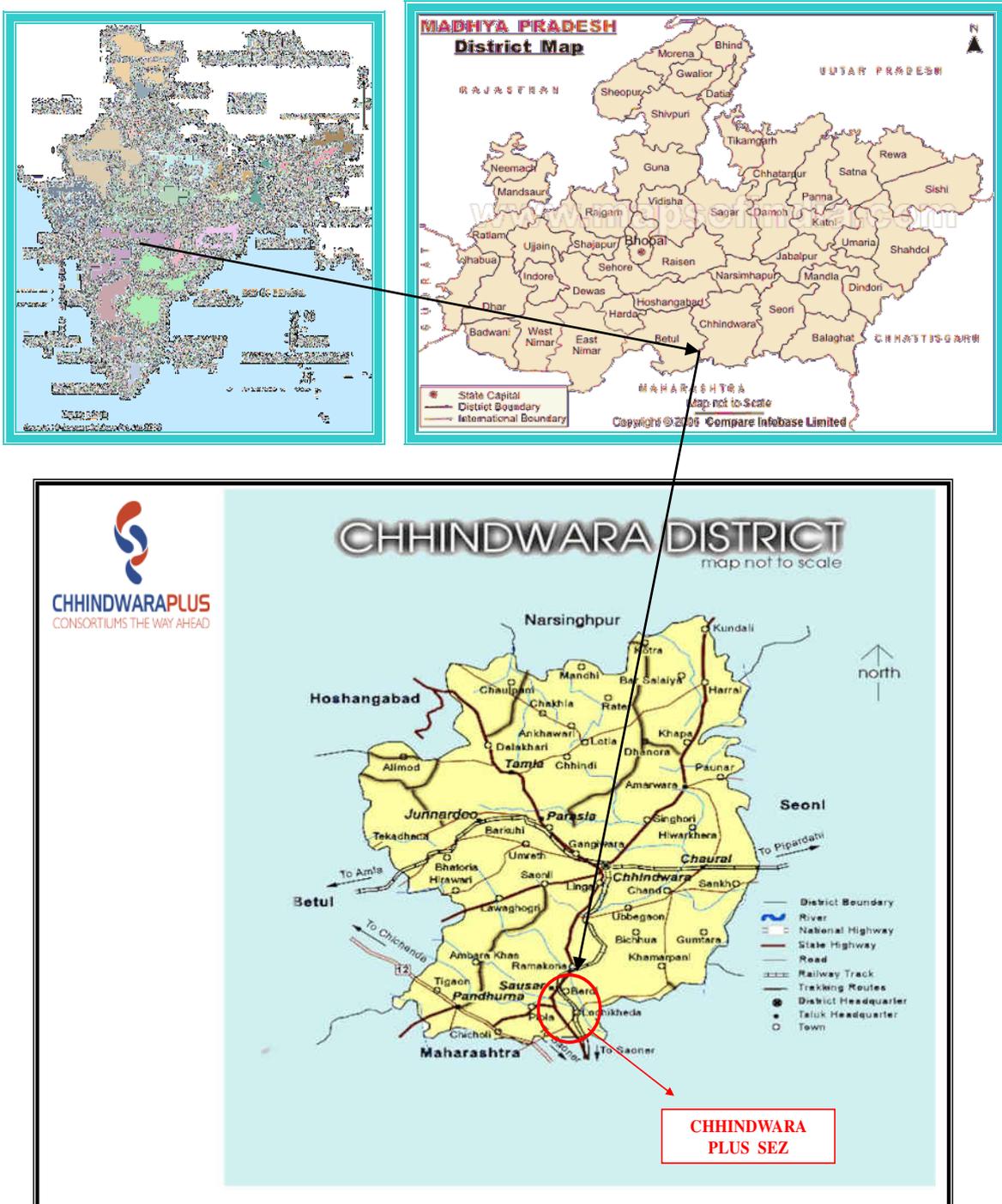
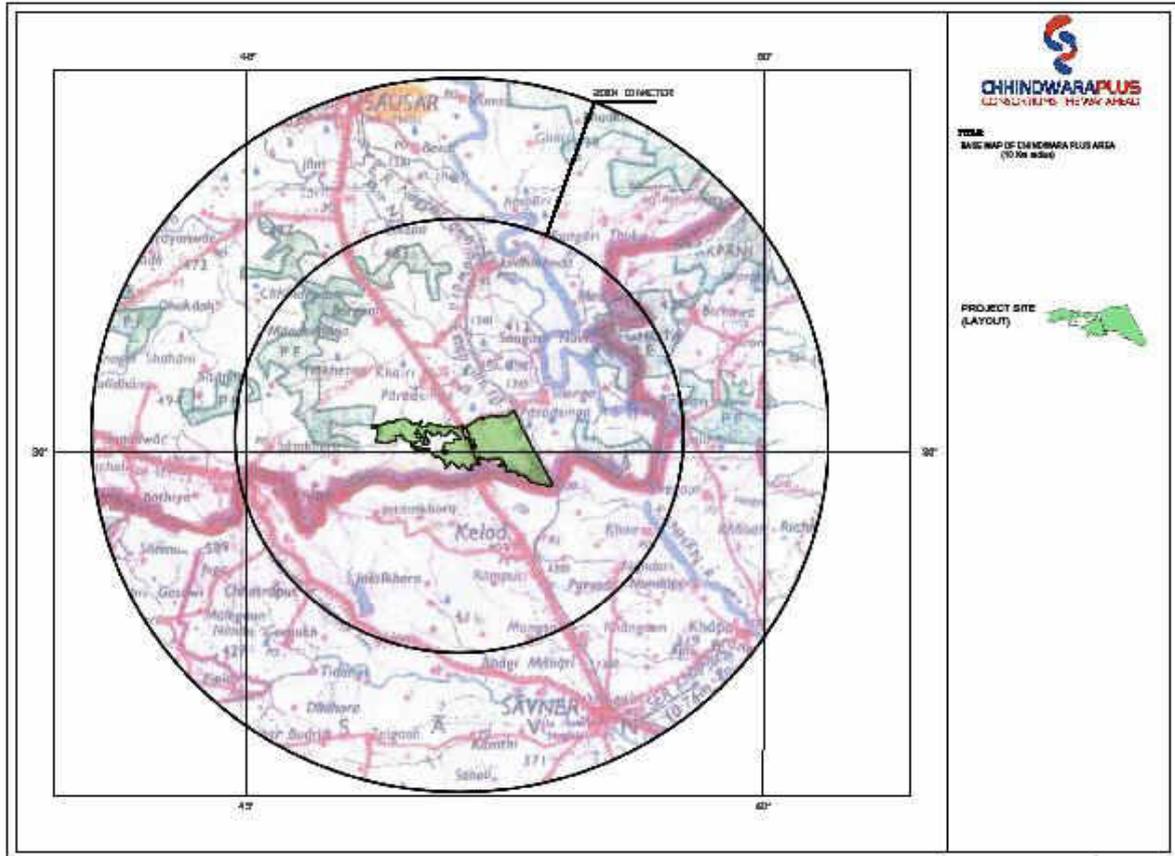


Fig 1.6 – Topographical Map Showing 10 km Radius of Proposed Project Site.

Latitude: 21°, 30' North
Longitude: 78°, 50' East



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 Chhindwara Plus Developers Limited. The proposed project location is ideal in all aspects.

3.4 Size or Magnitude of Operation

The role of the Chhindwara Plus Developers Ltd. for the proposed multiproduct SEZ/Industrial park will consist 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 Co- Developer

The Co-developers groups have been proposed as the segments which supplements balance and support each other. The cross over lines are submerged. The skills requirements are similar.

Electrical, Electronics and I.T.	Co-Developer - 1.
Pharmaceutical and Bio Industries.	Co-Developer - 2.
Fabrication and Engineering	Co-Developer - 3.
Construction Material and Minerals Products	Co-Developer - 4.
Food Industries.	Co-Developer - 5.
Gems & Jewelry	Co-Developer - 6.
Textile and Wearing Apparel	Co-Developer - 7.

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.

CPDL 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 27 MLD

Power Source: MP State Electricity Board (MPEB)

Tentative power demand: The total power required around 500 MW

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 land filling 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 measure

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

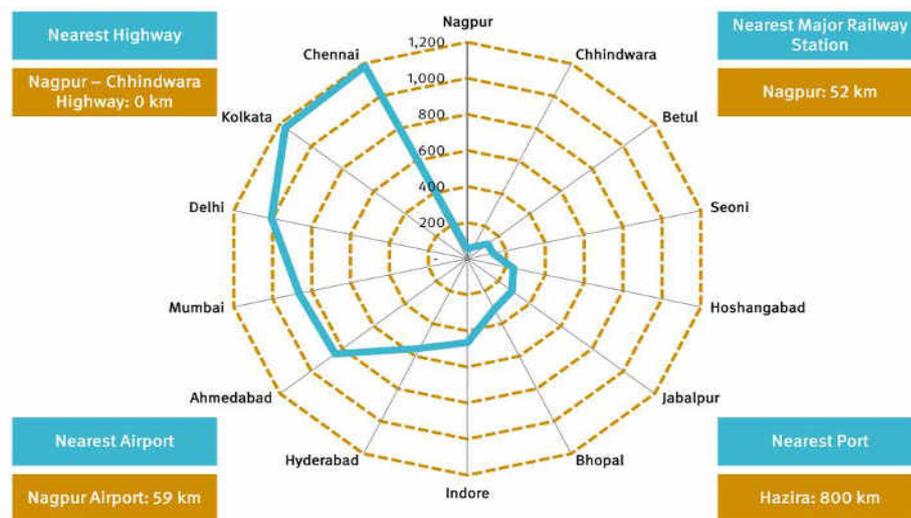
SITE ANALYSIS

4.1 Connectivity

Year 1932, the point of intersection of two major National Highways, Chennai to Delhi (NH 7) and the other Calcutta to Mumbai was christened (NH 6) Zero Mile. A point from where all distances were measured and indicated. Yes the location is in the vicinity of Zero Mile (Nagpur).

Location	Distance from Key Nodes (Km.)
Jabalpur	280.
Aurangabad	506
Bhopal	290
Hyderabad	532
Raipur	352
Nagpur	40

Location	Distance from Key Nodes (Km.)
Inland Container Depot (ICD) - Nagpur	50
Railway Station -Nagpur	52
International Airport and Cargo hub (Nagpur)	59
NH – 547	0

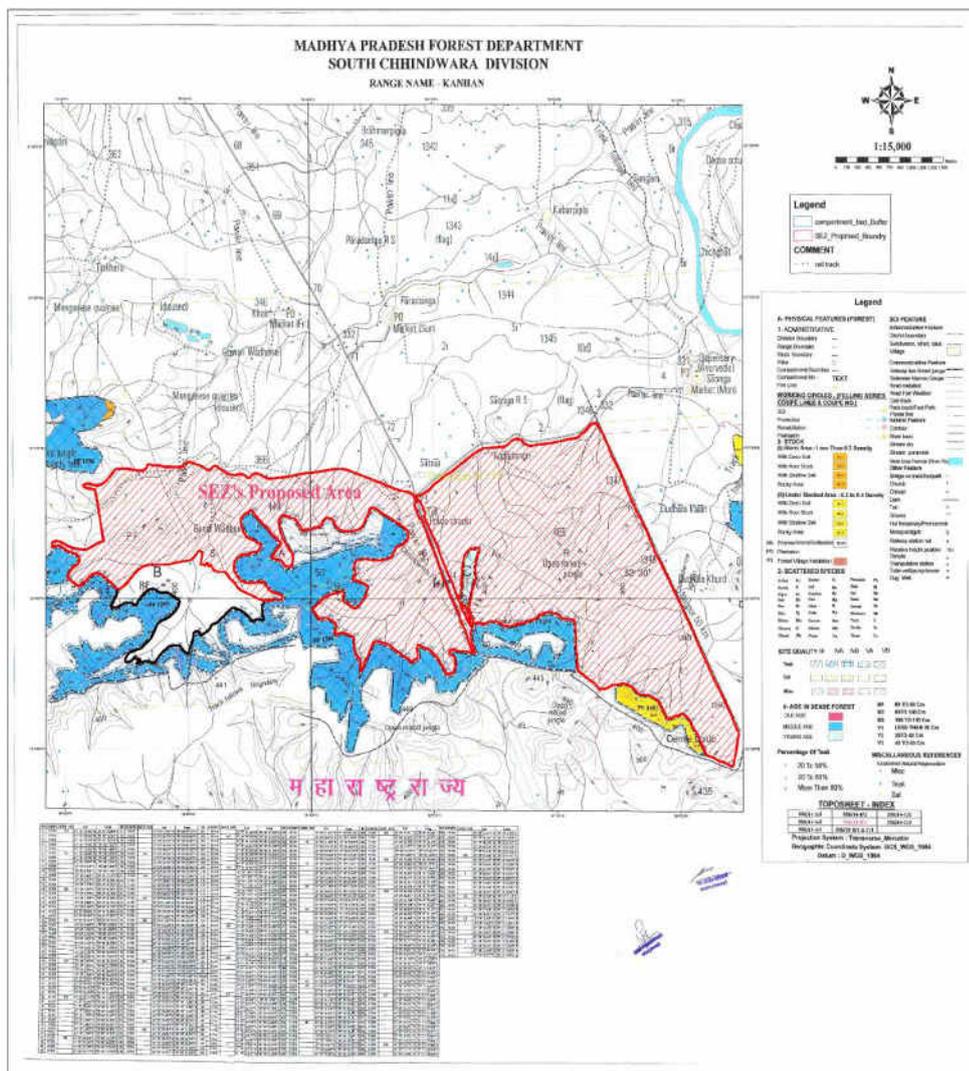


2 Transportation

Chhindwara is well connected to its neighboring districts by rail and road. The nearest airport is Nagpur Airport (130 km). A small air strip is also available at Chhindwara for landing small airplanes of 5 to 10 passengers. Chhindwara is connected to nearby big cities like Nagpur, Jabalpur and Bhopal with frequent buses and taxi services round the clock.

4.3 Topography

Sausar is located at 21.65°N 78.78°E in central India. It has an elevation of 352 meters (1154 feet). The Jam and Kanhan Rivers are the main rivers in Sausar. The town is situated between the two rivers. There are two hilly patches in the site. These hilly patches in the area are be proposed to create valley of flowers. There are many dry streams running through the site. Generally the existing terrain profile will be retained.



4.4 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.

4.5 Soil Classification

The soils in the District are generally of three types Viz, Black cotton soil, sandy loam soil and clayey loam soils. The black cotton soil occurs mainly in Sausar Tehsil.

4.6 Climatic data from Secondary Sources

The climate at Sausar is always moderate and the temperature ranges from Min. 25 degree Celsius to Max. 39 degree Celsius in summer. Temperature in winter ranges from Min. 6 degree Celsius to Max. 23 degree Celsius. Relative humidity ranges from 40% to 80%. The normal annual rainfall of the Chhindwara District is 10827.2mm. The District receives maximum rainfall during South-West monsoon period i.e. June to September. About 85.7% of the annual rainfall falls during monsoon season. The wind velocity is higher during the pre-monsoon period as compared to post-monsoon period. The maximum wind velocity, 9.5 km/hr observed during the month of June and minimum, 3.3km/hr during the month of November. The average annual wind velocity in is 5.4 km/hr.

CHAPTER 5

PLANNING BRIEF

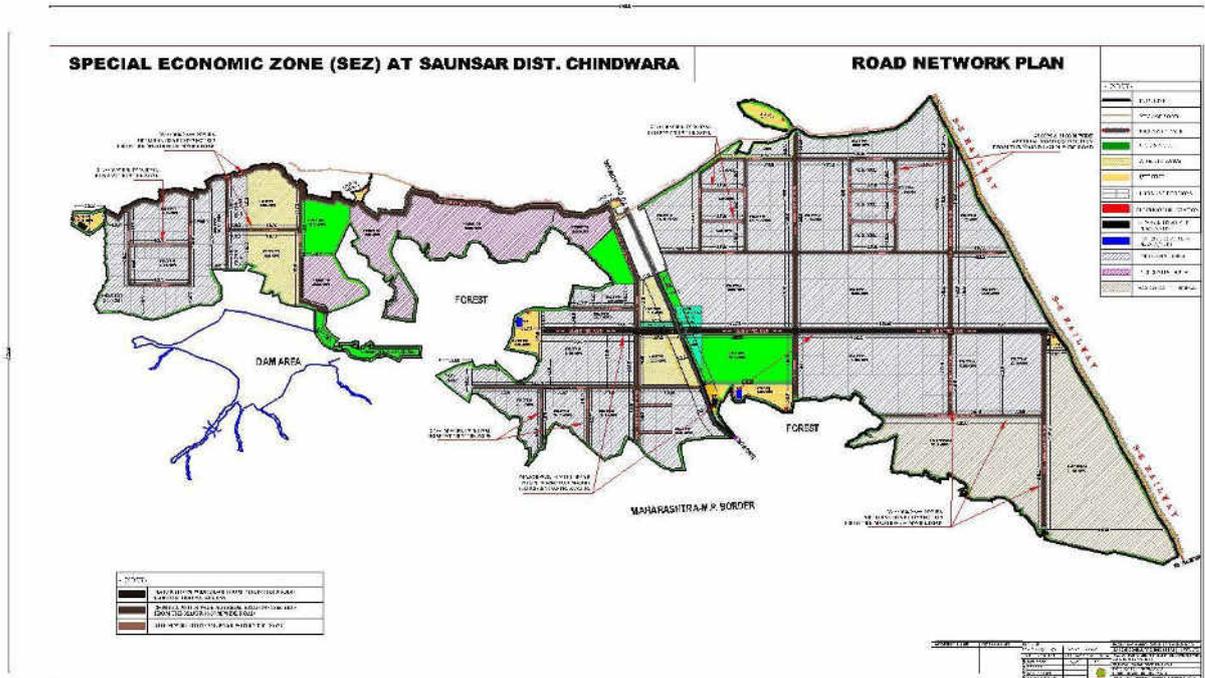
5.1 Planning Concept

As the subject site is a SEZ/Industrial park development; the planning concept has to comply with the SEZ development norms in India. Chhindwara Plus Developers Ltd. has acquired land for the proposed project extent 3300 acres.

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 Chhindwara Comprehensive Development Plan (CDP).
- e. The site's flooding problem during the monsoon period where the low-lying land 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. It is recommended to protect the land with thick foliage trees to allow a natural purification of the polluted air. There is a forest land at south side. It is recommended to protect this forest area hence 20mtr green buffer area is provided all along the forest and Railway line i.e. on east side. 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 north and north-western part.



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

Water storage and supply	
Power supply	
Roads Network and Street Lighting	
Storm water drainage system	

5.2 Population Projection

Basing on the land use; it is estimated that the total industrial workforce (direct workers) is estimated to be about 40,000 when the park is fully operational.

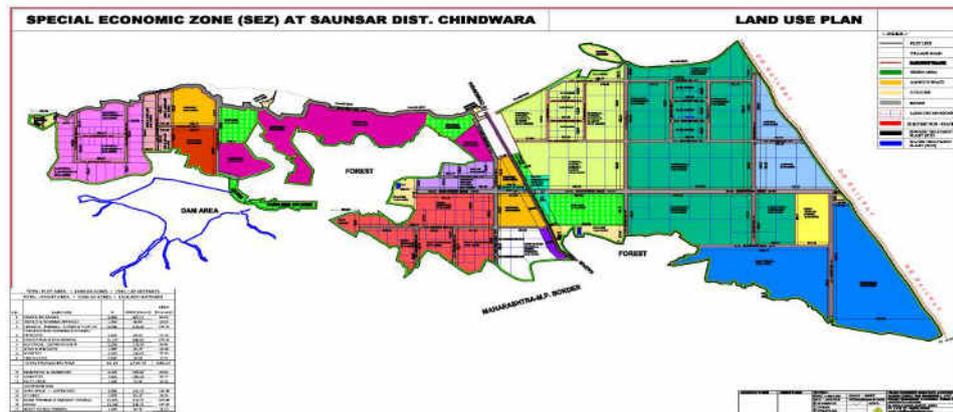
Sr. No.	Particular	(Persons)	Year				
			2018	2019	2020	2021	2022
			5%	10%	15%	25%	35%
A)	Employment Potential	40000					
	Employment		2000	4000	6000	10000	14000
B)	Population A X 3*		6000	12000	18000	30000	42000

Note : * Family size assumed at 3 Person.

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.

S.No	LANDUSE	Area (Ac)	Area (Ha)	%
1	Food & Beverages	207.47	84	6.363
2	Textiles and Wearing Apparel	46.09	18.66	1.414
3	Chemical, Pharma, Rubber and Plastics	319.16	129.21	9.788
4	Construction Material and Minerals Products	68.53	27.74	2.102
5	Fabrication and Engineering	689.50	279.15	21.147
6	Electrical, Electronics & IT	171.46	69.42	5.259
7	Jems & Jewellery	45.29	18.34	1.389
8	Logistics	136.67	55.33	4.192
9	Check Gates	16.61	6.72	0.509
	TOTAL PROCESSING AREA	1700.78	688.57	52.16
10	Residential & Dormatory	209.58	84.85	6.428
11	Amenity	106.48	43.11	3.266
12	Institution	45.90	18.58	1.408
	COMMON USE			
13	Open Space --- Green Area	324.42	131.34	9.950
14	Utilities	61.23	24.79	1.878
17	Road Terminals & Railway Terminals	419.75	169.94	12.874
18	Road	339.26	137.35	10.405
19	Heavy Vehicle Parking	53.16	21.52	1.630
	TOTAL AREA	3260.56	1320.065	100.00

5.4 Assessment of Infrastructure Demand (Physical & Social)

The summary for all the utilities demand projection is appended in table below; Utility Demand Projection:

Utility	Total Demand
Average Water Demand*	27,000 m ³ /d
Sewage Generated	17,000 m ³ /d
Power Demand	500 MW

*Water Demand

This water demand includes all forms of water use such as water required for production units, water required for workers, commercial use and landscape irrigation. In addition the multi product SEZ would also require adequate provision of water for fire fighting. The primary

source of water is boreholes along various Villages or infiltration well/Jackwell along Kanhan River & Gondiwadhona Dam. Table below shows the water demand for the proposed Multi Product SEZ

Water Demand	m3/day
Process, Utilities (Boiler, Cooling Tower etc) & Domestic.	15000
Greenbelt (Floriculture)	12000
Total	27000
Note:	
Water per acre considered : Approx. 7 KLD (for 2200 Acre land)	
Greenbelt requirement : Approx. 11 KLD (for 1100 Acre land)	

5.5 Amenities/Facilities

The total estimated residential population of the NPA is about 1, 20,000. 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 in amenity area is being proposed near 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 Chhindwara Plus Developers 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 define 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 components:

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. Storm water drainage system is shown in fig: 1.8.

2 Road Design Criteria

Roads of the Multiproduct SEZ are generally catering for:

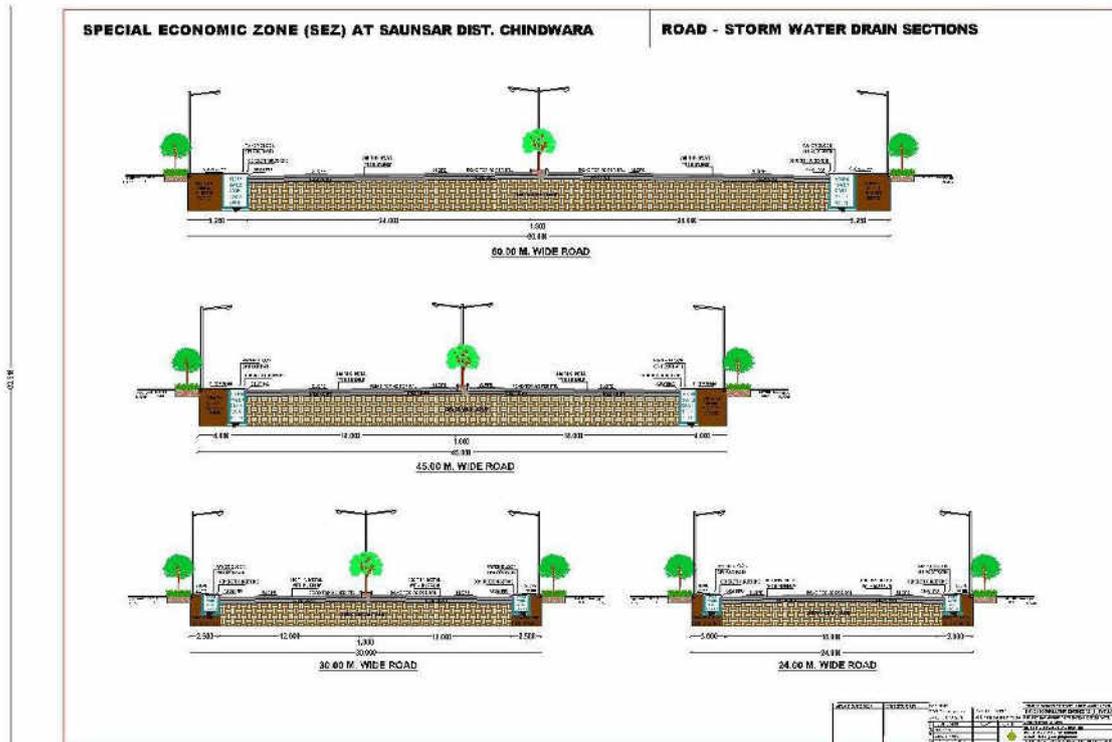
-  Movement of goods/machinery/finished products through heavy vehicles.
-  Movement of persons through light vehicles including cyclist/pedestrian. Other roads around parking area shall be considered for aesthetic and pleasing lighting systems.

3 Basic requirement of road lighting shall be as follows:

- a. Adequate level of illuminations for heavy vehicles/light vehicles/cyclist
- b. Uniform illumination level over the carriage way with minimum glare.
- c. Safety of movement
- d. Minimum disturbance during dust conditions.

- e. Use of high efficiency lighting fixtures with high lumen output and low power consumption
- f. Aesthetic look Power supply to road lighting system shall be fed through underground PVC insulated armored, aluminum conductor cables.

Fig 1.8: Storm water drainage system



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.

6.3 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.

6.4 Water management

Water is one of the major resources for industries coming up in the proposed Multi Product SEZ. It is directly used in the process and also other uses like floor washings, domestic purposes, utilities and green belt development etc.

As a part of the Multi product SEZ a storage reservoir has been proposed. The reservoir shall be fed with the water supply and will be the ultimate source of water for the proposed Multi Product SEZ. The water for the proposed Multi Product SEZ is sourced from the following sources identified given below:

Details of the various water sources identified

Sr.No.	Source of Water	M.C.M./Annum	M3/Day
1.	Kanhan River	9.602	26,306.00
2.	Gondiwadhona Dam	0.34	931.00.00
	Total	9.942	27,237.00

6.5 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.

6.6 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

6.7 Power Requirement & Supply/Source

Planning Criteria:

- ✚ Power supply is proposed to be tapped from the existing Boregaon substation which is 7 km away.
- ✚ Twin 220Kv overhead lines can be laid along a 32m wide corridor.
- ✚ This substation is installed with spare capacity of 600 MW.
- ✚ Two power plants for 1000 MW each are under construction in Chhindwara district. Any additional supply needed /enhancement of capacity is immediately possible.
- ✚ The power rates are bound to move southwards as MP would be a power surplus state in the next 18 months.

CHAPTER 7

REHABILITATION & RESETTLEMENT (R&R) PLAN

Approved by Government of Madhya Pradesh based on the Land Acquisition Act 2013. The highlight of the R&R is the Tribals have been offered land in the neighboring villages. There has been no displacement of population. Land acquired 386 hectare- 79% Barren land.

CHAPTER 8

PROJECT COST ESTIMATES

A. LAND		(Area in Hect.)	(Rs. In Crores)
Sr.No.	LAND	AREA	TOTAL COST
1	Private Land	573.200	92.35
2	Acquired Land	498.653	122.45
3	Revnue Government Land	167.405	16.36
4	Revnue Forest Land	80.740	18.84
TOTAL COST		1320.00	250.00

B. INFRASTRUCTURE			
Sr.No.	PARTICULAR		
1	SITE DEVELOPMENT		
	Total Land 1320 Hectare = 1,32,00,000 Sqr. Mtr.		
	Survey to identify physical features, establish contours of ground level & soil Investigations of the area. Site clearance - Removal of unwanted vegetation & unwanted structures.Land filling - Using soil from burrow pits & using dredged soil.		
	Rs. 100/- Per Square Meter for above mentioned works.		
	1,32,00,000 Sqr. Mtr. X 100 Per Sqr. Mtr.	132.00	132.00
2	BOUNDARY WALL		
	Total Length 27000 Running Meter Bondary Wall.		
	Height of Wall 2.43 Mtr. + 0.91 Mtr. Barbed Wire Fencing.		
	A. Bondary Wall of Precast Panel, Precast Column & Footing		
	27000 X 2900 Per Running Mtr.	7.85	
	B. Barbed Wire of 0.90 Mtr.Height		
	27000 X 1000 Per Running Mtr.	2.95	
	C. D.G. J.CB, Poklain Machine, Electricity cost etc.		
	27000 X 200 Per Running Mtr.	0.55	
	D.Supervision, Overhead & Taxes.		
	27000 X 1350 Per Running Mtr.	3.65	15.00
3	INTERNAL ROADS		
	A. Total Road 30 Mtr. Width		
	5 Km Length Road - 2 : 10 Km Road		
	4 Km Length Road - 4 : 16 Km Road		
	Total Road 26000 Mtr X 30 Mtr = 780000 Mtr X 1200/- Per Mtr.	93.00	
	B. Artery Roads - 10 Km.		
	Width of Road - 20 Mtr.		
	Total Road 10000 Mtr X 20 Mtr = 200000 Mtr X 1200/- Per Mtr.	24.00	117.00
4	POWER		
	A. 500 MW X 2 Relay Station with tranformer (1100 MW).	98.00	
	B. H.T. Line from Borgoan, M.P.E.B. 6 Km X 3.5 Crore/Km.	21.00	
	C. Street Light.		
	30 Mtr. With Road - 26 Km + 20 Mtr. Width Road - 10 Km.		
	Total Road 36 Km. X 7 Lakhs Per Km.	2.00	121.00

Sr.No.	PARTICULAR		
5	WATER		
	A. Jackwell/Pumphouse at Village Swanga	4.00	
	B. Storage Tank 600 Kl @ 18000 Per Kl.	1.50	
	C. Pipe Line 6 Km Water Supply	8.00	
	D. Laying water pipe line	40.50	54.00
6	DRAINAGE		
	A. 25 Lakhs Per Km X 36 Km.	9.00	
	B. Effluent Discharge Pipeline. 30 Lakh Per Km. X 36 Km.	11.00	20.00
7	COMMON EFFLUENT TREATMENT PLANT		
	Planning, Design, Engineering, Construction, Testing, Commissioning cost of of Common Effluent Treatment Plant (CETP) of 12.5MLD Capacity based on Primary, Physico-Chemical, Biological (extended ASP), Tertiary Treatment and allied works. - Estamates Enclosed as per CETP Scheme.	24.00	24.00
8	SEWAGE WATER TREATMENT PLANT	7.00	7.00
9	TELCOM FACILITIES	20.00	20.00
	WI-FI TOWERS		
10	INDUSTRY SPECIFIC		
	Pharmaceuticals, I.T., Bio-Industries, Aerospace, Semi Conductors FAB, Food, Engineering, Rail Rollings Stocks, Electronic Equipment, Electricals and others. (Proposed Investment with Co-Developers for above mentioned sectors. Each sector would be negotiated with Co-Developer).	700.0	700.00
11	COMMERCIAL		
	Exhibition Centre, Banking Insurance and Trading	400.00	
	(Proposed Investment with Co-Developers for above mentioned sectors. Each sector would be negotiated with Co-Developer).		400.00
12	GLOBAL TRADING HUB		
	Warehouses and Cold Storages	400.00	400.00
	(Proposed Investment with Co-Developers for above mentioned sectors. Each sector would be negotiated with Co-Developer).		
	B.TOTAL INFRASTRUCTURE COST		2010.00
	A. Land		250.00
	B. Infrastructutre Cost.		2010
	C. Preliminary and Preoperative Expenditure.		240.00
	GRAND TOTAL		2500.00

CHAPTER 9

ANALYSIS OF PROPOSAL (FINAL RECCOMENDATIONS)

Spanning over 3300 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 CPDL 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 Sausar, Chhindwara District, Madhya Pradesh.

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.