

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

For

DEVELOPMENT OF MEDICAL DEVICES PARK (PHASE - II)

By

THE HIMACHAL PRADESH STATE INDUSTRIAL
DEVELOPMENT CORPORATION (HPSIDC)
LIMITED

Expansion in the Site Area from 48.82 Hectares to 121.80 Hectares
(72.98 Hectares for Phase II Development)

Site Address: Khasra No.'s 336/156, 282, 288/2, 289, 290, 289/1, 291,
302, 292, 293, 301, 276, 279, 280, 283/2, 281, 337/156 of Ghihar Village
and 134 & 98/2 of Teliwala Village, Tehsil Nalagarh, District Solan,
Himachal Pradesh

Baseline Data Collected for the period November'2022 to January' 2023

Approved ToR Lr. No. HPSEIAA/2023 - 1302; Dated: 11.05.2023

Industrial Estates/parks/complexes/areas, export processing zone
(EPZs)/Special Economic Zone (SEZ's), Biotech Parks, Leather Complexes
7(c) under 8(b) as per S.O 3067 dt: 1-12-2009

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EXECUTIVE SUMMARY

1.0 Introduction

Government of India approved a scheme called “Promotion of Medical Devices Parks” on 20.03.2020 and this scheme has notified vide Gazette notification no, 31026/08/2020-MD dated: 21.07.2020.

The preliminary proposal submitted by the Himachal Pradesh for setting up Medical Devices Park proposed at Nalagarh Tehsil was in principle approved by Department of Pharmaceutical, Government of India. The proposed Medical Devices Park will attract industries from all segment of medical devices and provision of Common Infrastructural Facilities for all the verticals of medical devices will be available in the park.

Government of Himachal Pradesh Nominated Himachal Pradesh Industrial Development Corporation as State Implementing Agency for implementation and operation of Himachal Pradesh Medical Devices Park. Department of Industries (Section - A) GoHP, issued notification vide No. Ind.A(F)8-1/2019 Dated: 07.05.2022 allotted land area in the Teliwala Village & Ghiher Village of Nalagarh Tehsil for development of Medical Device Park.

Therefore HPSIDC Limited proposed to develop this Medical Devices Park at Khasra No.’s 336/156, 282, 288/2, 289, 290, 289/1, 291, 302, 292, 293, 300, 301, 276, 279, 280, 283/2, 281, 337/156 of Ghihar Village and 134 & 98/2 of Teliwala Village, Tehsil Nalagarh, District Solan in two phases. The total site area of the Medical Device Park is 121.80 Hectares. Earlier HPSIDC obtained Environmental Clearance vide **File No. HPSEIAA/2022/95 Dated: 11.08.2022** for the land area of **48.82 Hectares** and for construction of Common Infrastructural Building with built up area of **26,500 Sq. m** under Phase – I development.

1.1 Project Proposal

The Medical Devices park is being set up in Nalagarh Tehsil near Solan District in an area of 121.80 Hectares (Phase I – 48.82 Ha., & Phase II – 72.98 Ha.,).

This park envisages to have integrated facilities to provide continuous supply of Medical devices or components of the medical devices and ensure delivery of affordable healthcare to the citizens with all the support services, offering forward and backward linkages, within the park to make it a self - reliant Integrated Medical Devices Park.

Himachal Pradesh often referred as “Asia’s Pharmaceutical Hub” feels privileged for availing this opportunity of setting-up a Medical Devices Park, thereby contributing in making India “Atmanirbhar”. Since the medical devices industry is highly power-intensive and process driven, it needs uninterrupted and affordable power. Himachal Pradesh is appropriately positioned, as it is a power surplus State with one of the most affordable power tariffs in India.

The following major Segments has been identified for Medical Devices Park

1. Medical Electronics:

- a. Mid-Sized Devices: Ultrasound, C- Arm, X Ray Machines, Automated Lab Analyzers
- b. Micro sized home consumer goods like Glucometer, BP Instruments, Thermometer, Oximeters etc.
- c. Wearable devices like wearable patch monitors electrocardiogram (ECG), electromyogram (EMG) and electrooculography (EOG), Fitness wearable devices, Drug delivery wearable devices, wearable heart rate monitors, etc.
- d. Embedded software and Mobile Phone based software applications, data informatics, AI, IOT based technologies etc.

2. Medical Equipment’s

- a. OT and ICU Equipment's
 - b. Diagnostic Equipment's
 - c. Anesthesia or medical oxygen supply systems etc.
3. **Implants:** like IOL (Intraocular Lens) or stainless-steel alloy based orthopedic implants or plastic based like shunts or ceramic based.
 4. **Instruments:** like analytical for testing - electrical or electronic etc., of for Endoscopy or Laparoscopy or surgical instruments that are made from stainless steel.

1.3 Project Location

The proposed project is located at Khasra No.'s 336/156, 282, 288/2, 289, 290, 289/1, 291, 302, 292, 293, 296, 296, 297, 298, 300, 301, 276, 279, 280, 283/2, 281, 337/156 of Ghihar Village and 134 & 98/2 of Teliwala Village, Tehsil Nalagarh, District Solan.

The project site is a part of the Survey of India Toposheet No. 53A/12 & 53A/9. The site fall between Latitude 30°59'22.50"N to 31°00'16.26"N & Longitude 76°37'30.91"E to 76°38'41.65"E with an average altitude of 380 meters above MSL.

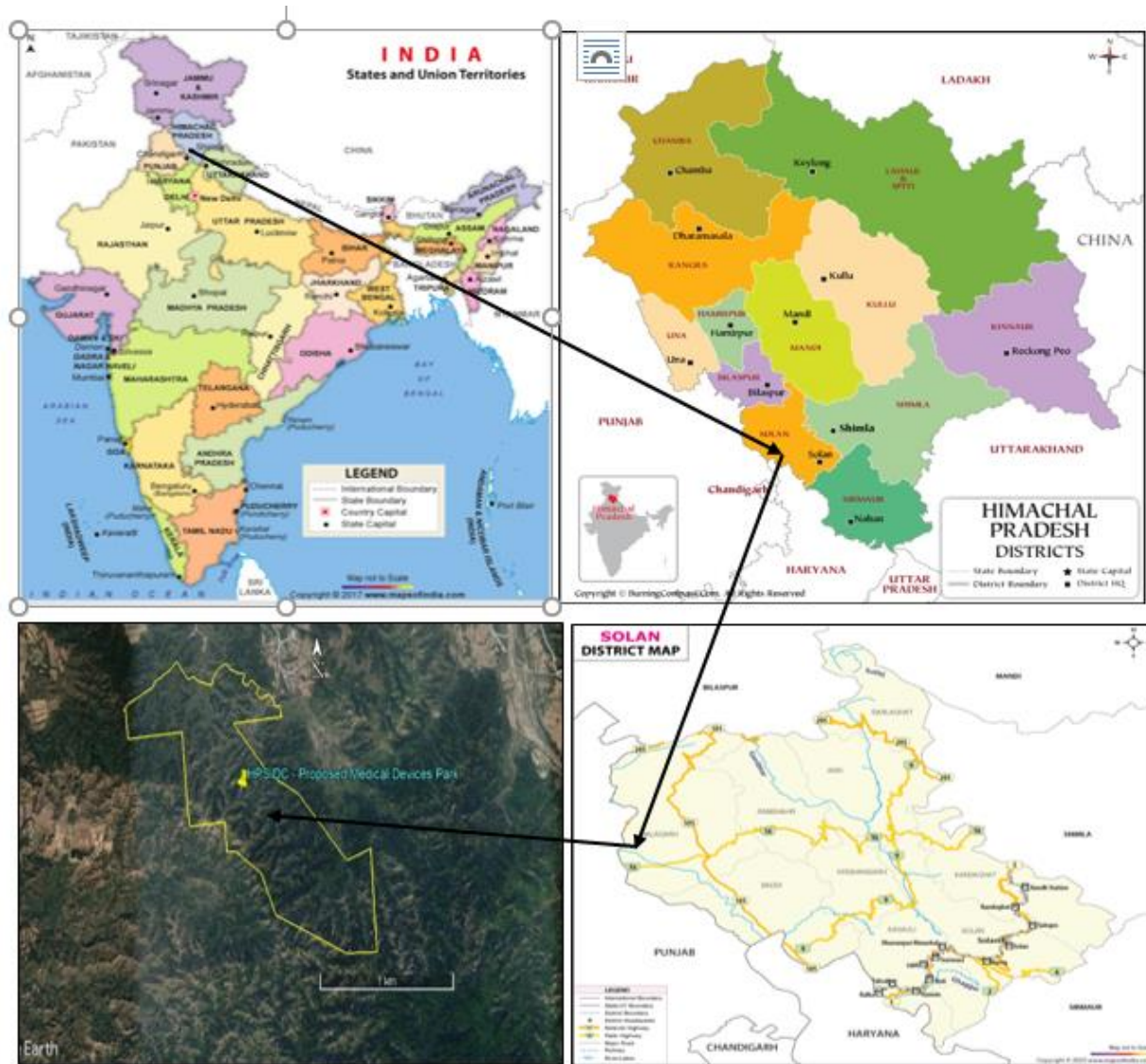


Figure 1: Project Location

1.4 Structure of the EIA Report

As per the EIA Notification 2006 and subsequent amendments the proposed project comes under Activity 7 (c) i.e., Industrial Park and is required to obtain Terms of Reference (TOR) and Environmental Clearance (EC) from State Environmental Impact Assessment Authority (SEIAA).

Accordingly, TOR granted vide F. No. HP SEIAA/2023/1028/1302 Dated: 11.05.2023 with Public Hearing under 7 (c) i.e., Industrial Park. As per ToR baseline has been prepared for the period November' 2022 to January' 2023. The study area comprises of core zone (site area) and buffer zone (10 km radius from the boundary of the core zone). EIA report was prepared based on the Standard ToR issued by MoEF & CC and Additional ToR's issued by SEIAA Himachal Pradesh.

2.0 DESCRIPTION OF THE ENVIRONMENT

Based on TOR approval, the baseline environmental settings have been studied by monitoring for one season within the study area of 10 km radius from the project site boundary. The study area represents the description of the environment within a radius of 10 km from the boundary of the proposed project site.

The baseline environmental quality represents the background landscape of various environmental components in the study area. As part of the Environmental Impact Assessment study, baseline monitoring was carried out for the period from November'2022 to January'2023. Environmental conditions were analyzed by collecting sample data for air and meteorology, noise, water, soil, terrestrial ecology. Flora and Fauna, Marine Physiology, Marine Biology and Socio-Economic Environment.

2.1 Ambient Air Quality

On the perusal of above summary of analysis of ambient air quality in the study area, it is evident that all monitored values in various locations are well within the specified limits as per NAAQS, 2009. The results of the analysis are summarized below:

PM10: The highest PM10 concentration of 60.1 µg/m³ observed in the ambient air was recorded at station A5 whilst the lowest PM10 concentration was found to be 17.7 µg/m³ at station A1.

All the monitored values of PM10 were well within the specified limit of 100 µg/m³.

PM2.5: The highest PM2.5 concentration of 28.2 µg/m³ observed in the ambient air was recorded at station A5 while the lowest PM2.5 concentration was found to be 15.7 µg/m³ at station A1.

All the monitored values of PM2.5 were well within the specified limit of 60 µg/m³.

SO₂: The highest SO₂ concentration of 22.2 µg/m³ observed in the ambient air was recorded at station A4 while the lowest SO₂ concentration was found to be 6.6 µg/m³ at station A1. All the monitored values of SO₂ were well within the specified limit of 80 µg/m³.

NO_x: The highest NO_x concentration of 17.4 µg/m³ observed in the ambient air was recorded at station A3 while the lowest NO_x concentration was found to be 10.8 µg/m³ at A1. All the monitored values of NO_x were well within the specified limit of 80 µg/m³.

Lead (Pb), Benzene (C₆H₆), Benzo(a)pyrene (BaP), Arsenic (As), Nickel (Ni), HC (Methane and non-methane hydrocarbons), Volatile Organic Carbon (VOC) – remained below the detection limit (BDL) in the study area.

Summary of Ambient Air Quality Analysis in the Study Area

monitoring location	number of	PM ₁₀ (µg/m ³)				PM _{2.5} (µg/m ³)				SO ₂ (µg/m ³)				NO _x (µg/m ³)			
		Maximum	min	Meaning	98th -	Maximum	min	Meaning	98th -	Maximum	min	Meaning	98th -	Maximum	min	Meaning	98th -
A 1	26	41.2	17.7	30.3	40.4	19.4	15.7	17.5	18.4	10.8	6.6	9.6	10.4	16.9	10.8	14.3	10.4
A2	26	49.2	21.2	36.2	48.4	23.1	18.7	20.9	22.0	11.6	7.1	10.3	11.2	18.1	11.6	15.3	11.2
A3	26	43.5	18.7	32.0	42.7	20.4	16.6	18.5	19.4	11.9	7.2	10.5	11.5	18.5	11.9	15.7	11.5
A4	26	49.7	21.4	36.6	48.9	23.4	18.9	21.1	22.2	14.2	8.7	12.6	13.8	22.2	14.2	18.7	13.8
A5	26	60.1	25.8	44.3	59.3	28.2	22.9	25.6	26.8	12.2	7.4	10.8	11.8	19.8	12.7	16.7	11.8
A6	26	53.6	23.0	39.5	52.8	25.2	20.4	22.8	23.9	12.2	7.4	10.8	11.8	19.0	12.1	16.0	11.8
A7	26	54.9	23.6	40.4	54.1	25.8	20.9	23.4	24.5	11.0	6.7	9.7	10.6	17.2	11.0	14.5	10.6
A8	26	57.8	24.9	42.6	56.9	27.2	22.0	24.6	25.8	14.2	8.6	12.5	13.8	22.1	14.1	18.7	13.8
NAAQ Standards		100(µg/m³)				60(µg/m³)				80 (µg/m³)				80 (µg/m³)			

Note: Hydrocarbons and VOCs are detected below the detectable limit

2.2 Water Environment:

2.2.1 Ground Water Quality:

- The pH limit fixed for drinking water samples as per IS: 10500 is 6.5 to 8.5. During the study period, the pH of the groundwater was found to be varying between 7.12 to 8.14
- The desirable limit for total dissolved solids as per IS: 10500 is 500 milligrams per liter (mg/l). In groundwater samples collected from the study area, the total dissolved solids (TDS) was found to be varying between 197mg/l and 741 mg/l. The TDS of all the samples were below the permissible limit of 2000 mg/l.
- The desirable limit for Chloride is 250 mg/l as per IS: 10500. The Chloride levels in the groundwater samples collected in the study area were ranging from 8.89 to 32.3 mg/l.
- The desirable limit as per IS:10500 for hardness is 300 mg/l where as the permissible limit for the same is 600 mg/l. In the groundwater samples collected from the study area, the hardness was found to be varying from 76 mg/l to 378 mg/l.
- Fluoride is the other important parameter, which has the desirable limit of 1 mg/l and permissible limit of 1.5 mg/l. In the groundwater samples of study area, the fluoride values were found to be within a range of 0.01 mg/l to 0.63 mg/l.

2.2.2 Surface water quality:

- pH of the surface water samples ranged between 7.29 to 8.1 .
- TDS was found to be between 368 to 554 mg/l. The tolerance limit of 1,500 mg/l as per IS:2296.
- The values of Total hardness ranged between 256 to was 342 mg/l.
- Heavy metals such as Zinc (0.11mg/l), Aluminium (0.27 mg/l) and Arsenic (0.013 mg/l) were detected at SW1 station.

- At SW1, SW2, SW 3 stations all the heavy metals were found to be within below detectable limits.

2.3 Soil Quality:

The analytical results of the soil samples collected during the study period are summarized below.

- The pH of the soil is an important property; vegetation cannot grow in low and high pH value soils. The normal range of pH in the soils is 6.0 to 8.5. The pH values in the study area are varying from 8.45 to 9.09 indicating that the soils are falling in neutral to slightly alkaline soil category.
- The other important parameters for characterization of soil for irrigation are the primary nutrients – Nitrogen, Phosphorus and Potassium (N, P, K) and the secondary nutrients— Calcium, Magnesium and Sulphur (Ca, Mg, S). The primary and secondary nutrient elements are known as major elements. This classification is based on their relative abundance, and not on their relative importance.
- Nitrogen encourages the vegetative development of plants by imparting a healthy green color to the leaves. The available Nitrogen as N in the study area is varying from 104 to 236 kg/ha. This range is considered to be good to sufficient compared to the soil standards
- Phosphorus influences the vigour of plants and improves the quality of crops. In the study area available, Phosphorus was found in varying quantities of 42.4 to 377 kg/ha. This range is considered to be average when compared with soil standards.
- Potassium enhances the ability of the plants to resist diseases, insect attacks, cold and other adverse conditions. The available potassium in the study area varies between 158 to 588 mg/kg. The above range is considered to be medium to more than sufficient when compared with the soil standards.
- Organic Carbon in the study area ranges from 0.33 to 3%. This level is more than sufficient for crops.

2.4 Noise Environment:

Ambient noise equivalent levels were measured at eight locations in and around the project site. The noise equivalent level varied from 31.2 to 50.8 Leq dB(A) during day time and 24.3 to 39.6 Leq dB(A) during night time.

2.5 Biological Environment:

The study area falls in the Western Himalayas of India which has hilly terrains with steep mountain slopes and valleys. The region has considerable land cover under forest and it has many rivers forming the source for one of the major river-Satluj. The major source of water in this region is the Himalayan snow melt and monsoonal precipitation. Being a part of Himalayan ranges, this region harbours rich biodiversity and wealth of natural resources.

The forests of the State have been classified on an ecological basis as laid down by Champion and Seth, and can be broadly classified into Coniferous Forests and broad-leaved forests. Distribution of various species follows fairly regular altitudinal stratification. The vegetation varies from Dry Scrub Forests at lower altitudes to Alpine Pastures at higher altitudes. In between these two extremes, distinct vegetation zones of Mixed Deciduous Forests, Bamboo, Chil, Oaks, Deodar, Kail, Fir and Spruce, are found. The richness and diversity of flora can be gauged from the fact that, out of total 45,000 species found in the country as many as 3,295 species (7.32%) are reported in the State.

The major portion of the study area belongs to Nalagarh Forest division of Soaln district. Due to wide variations in altitude, aspect of soil depth and texture and available moisture, the vegetation met with in the tract also shows great variations. Chil, Khair, bamboos and other broad-leaved species like Chhal, Simbal, Jhingam etc are the most important species met in the area. Biotic interference like excessive grazing, fires, grass cutting and felling of trees also bring about great changes in the vegetation even within a limited area. Natural regeneration of all the species is generally deficit, though good patches of Chil plantations are met within area brought under artificial regeneration and the areas are away from habitations and are not subjected to adverse biotic influences.

The common crops in crops land ecosystem in study area are *Oryzasativa Sativa*, *Elusine coracona*, *Zea mays*, *Triticum vulgare*, *Triticum diococcum*, *Sorghum vulgare*, which are mainly dependent on rainwater during monsoon season, canal irrigation and river. In this crop land ecosystem in addition to the crop raised, a number of weeds like *Cynodon dactylon*, *Euphorbia hirta*, *Cyperus rotundus*, *Digetaria sp.* and *Alyscicarpus sp.* also occur in the fields. Apart from that commercial crops like ground nut sunflower and several vegetable crops are also grown in this region.

Natural vegetation is mostly restricted to herb layer having drought resistance. Other than herb layer the area is almost devoid of major forest type tree except agroforestry types and commercial plantations such as *Eucalyptus hybrid*, *Acacia leucopholoe*, *Leucena leucophloe*, *Phoenix aculis*, *Azadirachta indica*, *Ficus sp.*, *Acacia sp* and *Zizyphus jujube*, *Euphorbia sp.* which are mainly restricted to waste and culturable waste lands and near villages and agricultural lands, *Delonix regia*, *Peltoforrum ferrusinum*, *Albizia procera*, *Albizia lebbeck*, *Dalbergia sissoo*, *Terminalia catapa*, and *Tamarindus indica* are predominant.

2.6 Socio-Economic Environment:

Teliwala is a small Village/hamlet in Nalagarh Tehsil in Solan District of Himachal Pradesh State, India. It comes under Teliwala Panchayath. It is located 41 KM towards west from District headquarters Solan. 13 KM from Nalagarh. 49 KM from State capital Shimla. Kishanpura (2 KM) , Khera (4 KM) , Barian (5 KM) , Thana (6 KM) , Nandpur (6 KM) are the nearby Villages to Teliwala. Teliwala is surrounded by Majri Tehsil towards South, Rupnagar Tehsil towards west, Dharampur Tehsil towards East, Kurali Tehsil towards South. Baddi, Rupnagar, Karoran, Kurali are the nearby Cities to Teliwala. The project site is in the border of the Solan District and Rupnagar District. Rupnagar District Rupnagar is west

towards this place. It is near to the Punjab State Border. Nalagarh is a city in Solan District of Himachal Pradesh. It was the seat of the eponymous Rajput Princely state, founded in medieval period as the state of Hindur. At present Nalagarh is an emerging town for industries as it hosts production units for leather, steel, chemicals, thread mills and breweries .

The total household in these 58 villages is 6977 and total population is 35077. The male population is 54.14% and female population is 45.86%. The child population is 13.04%. Literacy rate is 68.24%, which is considerably lower than the overall state figure, which is around 83.78%. The SC population is 20.56% and ST population is only 9.30% in these villages. Dhana and Bhatian have maximum population of ST, which is between 604-605 peoples. However, Androla Nihal, Palasi Boota, Bhattan wala, Sori and Brahman Beli Villages have not the SC/ST population. There are only 32 villages having ST population. The rest of 26 villages are without ST population. Therefore, we can say that the study area has negligible population from ST community. Far working population is concerned 46.58%. Populations from main workers are considered as 37.83%. The marginal Workers are 8.74% and Non- workers are 53.42%. The Occupational Pattern of the study area in 58 villages is based on Agriculture.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

In order to predict the Ground Level Concentrations (GLCs) at various distances from the source of the above-mentioned pollutants, an air modeling exercise has been undertaken and is discussed in the impact prediction section below. In the present case, AERMOD dispersion model based on steady state gaussian plume dispersion, designed for multiple point sources for short term and developed by United States Environmental Protection Agency [USEPA] has been used for simulations from point sources. Air quality dispersion modeling is done

through AERMOD to predict the ground level concentration of emissions in 10 KM radius of project activity.

Predicted GLC Results During Drilling phase

Particular	Baseline Scenario* (Max) ($\mu\text{g}/\text{m}^3$)	Predicted Max. GLC ($\mu\text{g}/\text{m}^3$)	Overall scenario ($\mu\text{g}/\text{m}^3$)	Distance from the project boundary
PM10	60.1*	1.82	61.92	0.90 Km
SO ₂	22.4**	0.44	22.84	0.91 Km
NO _x	17.4***	5.93	23.33	0.90 Km

Note: * AAQ5 station; * AAQ4 station; * AAQ3 station

4.0 ENVIRONMENTAL MONITORING PROGRAM

Environmental Management Plan (EMP) is an implementation plan that includes mitigation measures, environmental monitoring programs and institutional measures that are required to be adopted during construction and operation phases to minimize adverse environmental and social impacts.

In order to maintain the environment in good condition, periodic environmental monitoring program has been suggested for various activities involved during construction and operation phase . A monitoring program has been prepared in respect of Ambient Air Quality, Waste Water Quality, Noise Quality as per SPCB/CPCB/MoEF&CC guidelines.

5.0 ENVIRONMENTAL MANAGEMENT PLAN

Environment Management Plan (EMP) is the planning and implementation of various pollution prevention measures for any proposed project. The EMP lists all these measures for the planning phase, construction phase and operational phase of the port.

The proposed project will be designed keeping in view all the laws/regulations and as per the instructions of the environment clearance documents. Control of environmental pollution during the construction phase, even if for a short period, is of utmost importance. In order to develop effective mitigation measures, the necessary mitigation measures have been considered with full details.

Therefore the Environmental Management Plan during the operational phase of the port will be directed towards the following:

- Air emissions management
- Noise control
- Waste water management
- Waste management
- Dredged Material Management
- Hazardous Materials and Oil Management
- Biodiversity Management
- Green belt development
- Energy conservation measures
- Environment Management Cell

6. PROJECT BENEFITS

6.1 Employment

The major benefit in developing the proposed medical park is infrastructure to be developed like service building, roads, storm water drainage, water supply system etc., which will generate temporary employment to personnel residing the nearby areas. About 1500 - 2000 persons will be deployed at site inclusive of workers, supervisors, engineers etc.,

6.2 Community Services:

The proponent will provide employment to the local people in order to reduce the need for additional infrastructure. The local people will be indirectly benefited by these developments.

6.3 Demographic Benefits:

The project will have the infrastructure like accommodation, educational institutions, health facilities, water supply, sewerage etc., for catering the needs of the project proponent and their families. The skilled personnel required for the proposed project would be deployed from outside the study area and semiskilled/un-skilled personnel will be within the study area. This park will provide the holistic and balance life style for all its residents.

6.4 Employment

The proposed project will provide employment to the 15000 persons directly and indirectly. The park has been planned as an integrated ecosystem and will incorporated manufacturing and other activities like R & D, training etc., which will utilize the skilled youth. In addition to the direct employment, there will be indirect employment of local people by utilizing their expertise in developing the study area. Preference shall be given to the local people based on their qualification, skill and availability. The park may sponsor eligible candidates for skill development programmes.

6.5 Other Developmental Activities

This will include providing water supply, sanitation facilities, conducting medical camps, knowledge centres in government skills, skill development programmes and socio economic developmental activities in the nearby areas commercial complex will cater needs and will benefit the existing nearby communities.

6.5 CER BUDGET

A per the MoEF guidelines, 1% of the capital investment shall be used for CER activities in the various locations in and around site, which will include infrastructure creation for drinking water supply, sanitation, health education, skill development centers, roads, electrifications including solar power, solid waste management facilities, scientific support and awareness to local farmers, avenue plantation, plantation in community areas etc.,

HPSIDC shall allocate a budget of 3.70 crores to fulfill its corporate environmental responsibility (CER).

7.0 PROJECT COST

Total Project Cost – 349.83 Crores

Phase I – 157.0 Crores

EC accorded for Phase – I for developing 48.82 Hectares of land area and construction CIF building with built up area of 26500 Sq. m.

Phase II – 192.83 Crores - For developing 72.98 Hectares of land area