



KARNATAKA INDUSTRIAL AREA DEVELOPMENT BOARD

EXECUTIVE SUMMARY

Proposed EPIP Industrial Area
2nd PHASE at Ganjimutt village,
Mangalore Taluk, Dakshina Kannada
District, Karnataka

ENVIRONMENTAL CONSULTANT



An ISO : 9001, ISO : 14001 & OHSAS :18001 Certified company



Corporate Office:

No.2, 2nd Street, Thangam Colony, Anna Nagar West, Chennai,
Tamil Nadu, India - 600 040.
Ph: +91- 44 - 2616 1123/ 24 /25. Fax: +91 -44 - 2616 3456
HelpLine:+ 91- 94442 60000 Website: www.abctechnolab.com

Branches: *Delhi, Mumbai, Bangalore, Coimbatore, Jaipur, Cochin*

Lab:

N0.95D/3, 3rd Cross Street, Sector 2, South Phase, Ambattur
Industrial Estate, Chennai - 600 058.
Ph: +91- 44 - 2625 7788, 2635 7788 Fax: +91- 44 - 2625 7799

EXECUTIVE SUMMARY

1. Brief Description of the Nature of the Project

Karnataka Industrial Areas Development Board has proposed to establish EPIP Industrial Area 2nd Phase at Ganjimutt village, Mangalore Taluk, Dakshina Kannada District, Karnataka. The total land area of the proposed industrial area is 104.28 acres. The expected cost of the project is 13.60 crores.

Land Use Breakup

S.No	Description	Acres	% of Land Use
1.	Industrial & Residential	59.12	56.69
2.	Amenities & Utilities	5.21	5.00
3.	Commercial	2.92	2.80
4.	Park & Buffer zone	18.63	17.86
5.	Transport & Parking	5.21	5.00
6.	Roads	13.19	12.65
Total Area (Acquired land- 96.05A Government Land – 8.23 A)		104.28	100

2. Identification of Project and Project Proponent

KIADB identified the land and proposed to develop an industrial area with a purpose to promote an orderly development of industries in the state. KIADB as a part of the compliance to the regulatory requirement i.e. to obtain Environment Clearance (EC) from the State Environmental Appraisal Committee (SEAC), Karnataka, have appointed a consultant to carry out the studies for the establishment of EPIP Industrial Area 2nd Phase.

3. Need of the Project

The Mangalore area is probably the industrialized area in the State of Karnataka and as such there is not only influx of industries but also due to creation of new industries more workers and man power have joined this places leading to a substantial increase in the population. The project will generate direct and indirect employment opportunities for the local people. The project will create additional employment during construction & operational phase. Additionally, certain

works like security will be outsourced on contract. The secondary employment in the form of providing services to the employed manpower will also be developed in the neighbouring villages.

- Raw materials can be sourced locally. Hence the cost for procurement is less.
- Increase in Market & Business Establishment facilities.
- The State Government will benefit through revenue recovery from excise duty.

4. Environmental Setting of the Project Site

The salient features and highlights of the proposed site are given below in **Table 1**.

Table 1: Site Salient Features

Selection criteria	Details
Elevation above Mean Sea Level	22 m
Climatic Conditions	Max. Temp. 33.0° C Min. Temp. 22.0° C
	Average Rainfall: 3,409 mm
Land availability	104.28 Acres
Nearest Highway	NH-13 (Solapur to Mangalore) W
Nearest Railway station	<ul style="list-style-type: none"> • Thokur Yard Railway Station is about 12 km (W) • Padil Railway is 13 km (SW)
Nearest airport	Mangalore International Airport- 7.01 Km (W)
Nearest Town / City	<ul style="list-style-type: none"> • Kaikamba- 3.2 Km(SW) • Bajpe – 8 Km (SW)
Topography	Plain
Archaeologically important places	Nil within 15 Km radius
National parks/ Wildlife Sanctuaries	Pilikula Biological park 7.5 m (SW) Kadri park 14 km (SW)
Water Bodies/Rivers	<ul style="list-style-type: none"> • Nandini River 4.1Km (N) • Phalguni (Gurupura) River 2.6 Km (SE) • Nethravathi River 11 Km (S)
Reserved/ Forests	Nil within 15 km radius
Seismicity	The study area falls under seismic zone-III

Selection criteria	Details
Defence Installations	Nil in 10 km radius

The details of the proposed industrial layout plan and topographical map showing the project location are shown in the **Figure 1** and **Figure 2**.

Figure 1: Layout Plan

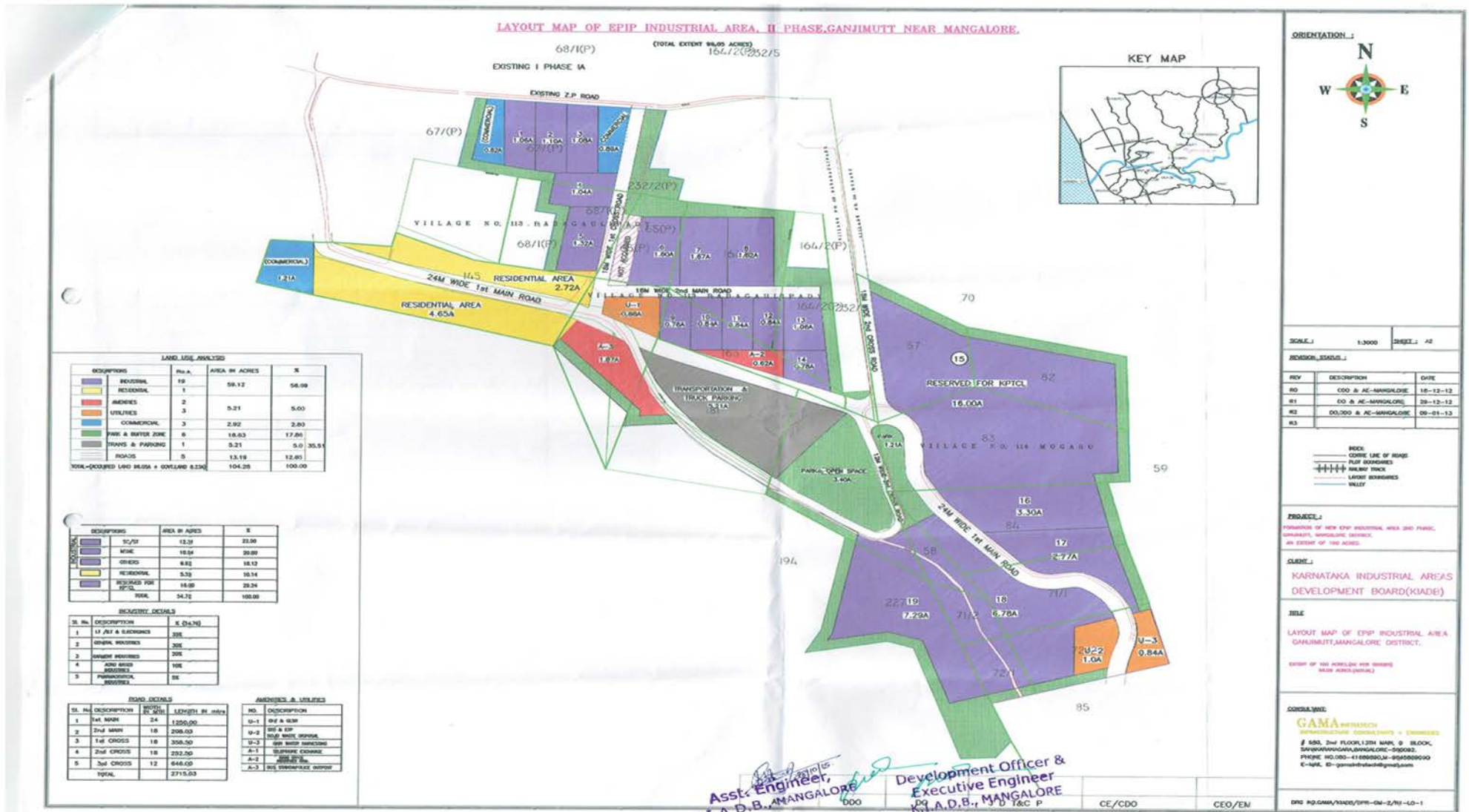
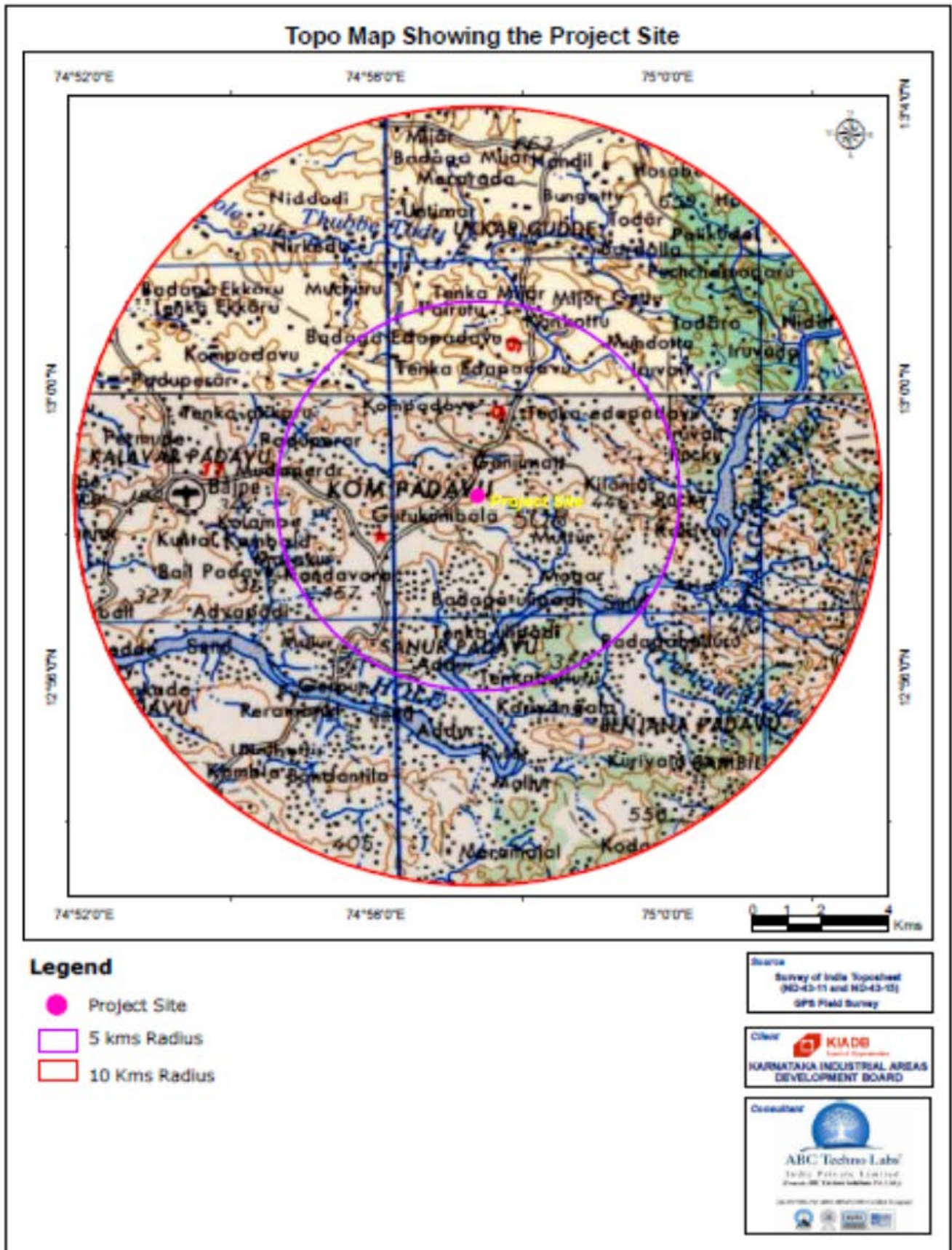


Figure 2: Topomap



5. Connectivity of the Project Site

The project site is well connected by road, rail and airport. Mangalore International Airport is around 7.01 Km (W) from the project site.

- Thokur Yard Railway Station is about 12 km (W)
- Padil Railway is 13 km (SW) from the project site.

a) The Existing roadconnectivity

Site is well connected with the following National Highways

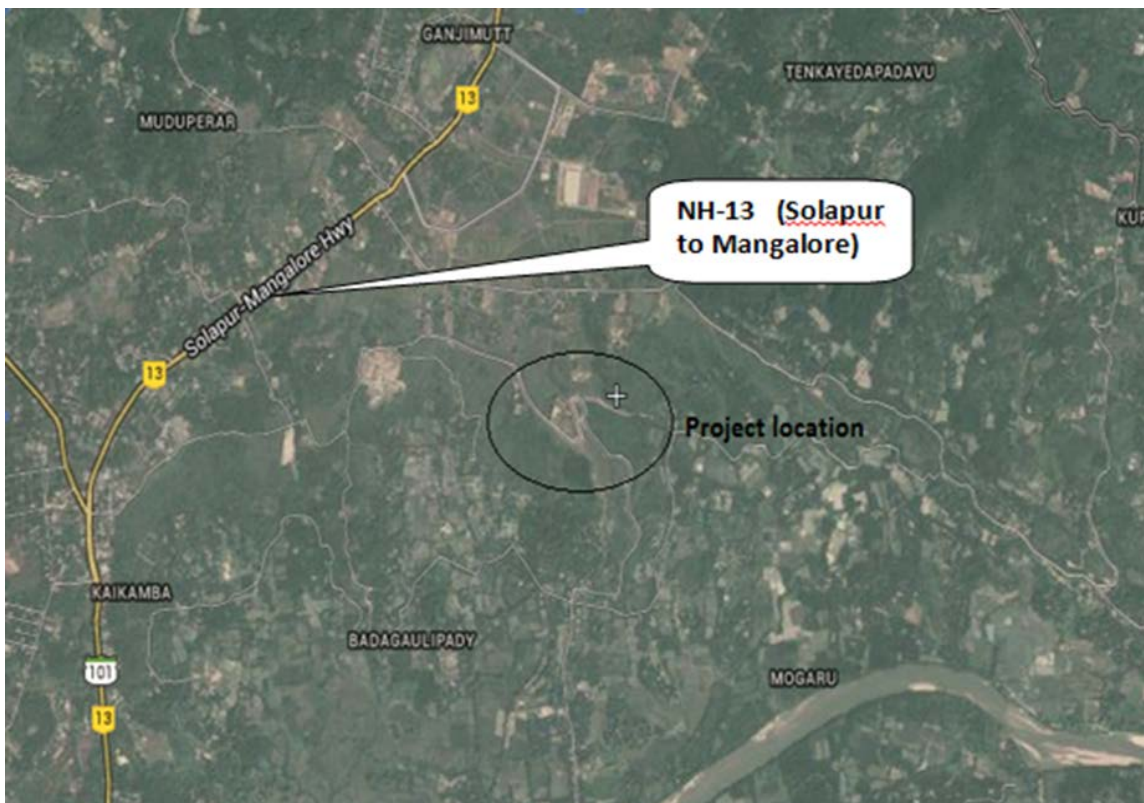
- NH-13 (Solapur to Mangalore).

b) Internal Roads

The development of industrial area includes 24 m wide roads, 18 m wide roads and 12 m wide roads. The minor roads 18 m wide are connected to 24 m wide roads and Existing ZP Road, 12 m wide roads is connected to 24 m wide roads.

National Highway NH 13 and is about 0.8 km towards the west direction from the project site. The road connectivity layout is given in **Figure 3**.

Figure 3: Connectivity to the site



6. Power Requirement

The power requirement for the proposed development is 6.95 MW. The source of power will be from Mangalore Electricity Supply Company Limited (MESCOM). For emergency purpose DG set is proposed. A 650 KVA DG set will be operated to meet the emergency power requirements with an assumption of 80 litres/hr of HSD.

7. Water and Wastewater Generation

The estimated water demand during the construction phase is 173 KLD (approx.), 23 KLD for labours and 150 KLD for construction activities and water demand during the operation phase is 3.78 MLD. During construction phase the water required will be sourced from tanker supply and the water for the operation phase is drawn from Gurupura (Phalguni) River for project needs.

Quantity of sewage generated during the construction phase will be 18.4 KLD. Sewage during construction phase will be treated in smaller size/package (portable type) Sewage Treatment Plant (STP) which will be based on Submerged Aerobic Fixed Film Reactor (SAFF). During operation phase sewage generated will be treated in the Sewage Treatment Plant (STP) 0.8 MLD capacity. The estimated Sewage generations during operation phase is 0.72 MLD. The treated water shall be reused in toilet flushing, gardening etc. and the wastewater generated from the industries is 2.3 MLD, which is treated in their respective Effluent Treatment Plants (ETP) on the basis of advance and zero discharge concept. The treated water is reuse for industries like cooling, heat exchangers, boilers, cleaning equipment's etc.

8. Solid Waste Estimation

The EPIP Industrial area 2nd Phase at Ganjimutt Village Development will also generate Municipal Solid Waste (MSW) from Non-Manufacturing/ non-production sections of the Industrial Units such as Administration blocks, Canteen, Toilets, Utilities, etc. due to the working population in that area along with waste generated from Green spaces, roads, parking areas.

The estimated quantity of Municipal waste likely to be generated from EPIP Industrial area 2nd Phase is 375 Kg/day and 125 Kg/day sludge from STP.

Table 2: Estimated Solid Waste Quantity from EPIP Industrial area 2nd Phase

S. No	Solid Waste	Bio- Degradable, in Kg/day	Recyclable, in Kg/day	Non-biodegradable, in Kg/day	Total waste from different phases, in Kg/day
1.	Industrial Waste	40	15	45	100
2.	Municipal Waste	150	67	158	375
3.	STP Sludge	125			125
Total Solid Waste, in Kg/day		315	82	203	600

9. Baseline Environmental Status

The baseline environmental data was collected from 10km radius around the site (study area) to assess the impacts arising from proposed industrial area.

a) Meteorological (Climate)

Climatologically data were collected from the nearest Mangalore IMD station to understand the wind pattern of the area. High relative humidity of 93% to 52 % prevail throughout the year. Higher rates of relative humidity are observed between June and October i.e., 92 to 86 %. In the months of Feb, the humidity is lower i.e., around 53 %. The minimum and maximum temperature is 20.8°C & 34.1°C. The annual rainfall ranges from 3010.9-4694.4 mm of which 80 % is received in monsoon season.

b) Air Quality

Around 7 air quality locations were monitored for SO₂, NO_x and Particulate matter (PM)

<2.5µm and <10µm in the study area.

- PM₁₀: A maximum value of 64µg/m³ was observed at Bajpe and a minimum of 38µg/m³ was observed at kuppepadavu.
- PM_{2.5}: The maximum value of 31µg/m³ was observed at Bajpe and a minimum of 15µg/m³ was observed at Kuppepadavu.
- SO₂: The maximum value of 8.1µg/m³ was observed at Permude and a minimum of 5.0µg/m³ was observed at Tankaulipady and Kuppepadavu.

- NO_x: The maximum value of 15.6µg/m³ was observed at Bajpe and a minimum of 7.8µg/m³ was observed at Kuppepadavu.

The observed air pollutants were within the limits as per NAAQ standards.

c) Water Quality

Water samples were collected from five Ground Water sampling locations and one from surface water. The ground water samples were drawn from the hand pumps and open wells of villages being used for domestic needs.

Ground water:

The analysis results of ground water samples indicate that the average pH ranges in between 5.77 – 7.0 and TDS ranges from 32 – 109 mg/l of which 109 mg/l was found in Bajpe (W2), correspondingly the hardness, alkalinity, chlorides & sulphates were also average. The groundwater at project site is comparatively good and with some treatment, can be used for domestic purpose.

d) Noise Quality

A preliminary reconnaissance survey was undertaken to identify the major noise generating sources in the area. The noise monitoring has been conducted at seven locations in the study area.

Day Time Noise Level:Noise levels during day time were found to be in the range 46.4 – 52.8 dB (A). The maximum noise level was observed to be 52.8 dB (A) at Bajpe (N2) and a minimum of 46.4 dB (A) was observed at Kuppepadavu (N5). The monitored locations during the Day time are under the prescribed limit.

Night Time Noise Levels:Noise levels observed to fall in the range 40.8- 43.1 dB (A) during the night time. Maximum noise level of 43.1 dB (A) was observed at Bajpe (N2) and a minimum of 40.8 dB (A) at Kuppepadavu (N5). The monitored locations during the night time are under the prescribed limit.

e) Soil Quality

Soil samplings were taken from six locations. It has been observed that the pH of the soil ranges from 5.08 – 6.0 indicating that the soil is ideal for plant growth. The nitrogen values are in the

range of 28.4-62.5 mg/kg and the potassium values range between 174-318 mg/kg, which indicate that the soil have good quantities of potassium. The soil from the study area shows good fertile.

f) Socio Economic

Sample survey was done to collect qualitative information about the socio economic environment of the area. Agriculture is the main occupation for the people living in the surrounding areas of the project site within 10 km radius.

g) Ecological Environment

The ecological survey has been done to establish the baseline ecological conditions of the study area to assess the potential ecological impacts of the proposed project on ecology, to develop adequate and feasible mitigation measures to keep ecological impacts within acceptable limits, and to prepare comprehensive management plan.

There are no wild life sanctuaries/parks within 15 km radius of the project site. The area did not record the presence of any critically threatened species. The records of Botanical Survey of India and Forest Department also did not indicate presence of any high endemic or vulnerable species in this area.

10. Anticipated Environmental Impacts and Mitigation Measures

a) Impact on Air Quality

The emissions from the vehicles can change the ambient air quality. Construction activities like cutting and levelling activity to provide roads, sewage networks, storm water system cause air pollution in the site.

Mitigation Measures

- Sprinkling of water regularly will avoid dust particles entering into the atmosphere and the sprinkling of water will be increased during windy days.
- The movement of vehicles which cause pollution will be minimized by scheduling.
- All the vehicles used for the transportation of raw materials will be covered with tarpaulin/plastic sheet.
- Plantation of trees will reduce pollution.

b) Impact on Water Quality

Construction phase requires large quantities of water to be used in various processing such as material preparation in equipment's. Change in quality of water forms an important concern associated the project particularly during the construction phase. Earth works, crushing of stones, cutting and modification of the terrain, alteration of drainage systems and soil erosion are the major factors that affect the water quality during construction phase.

Mitigation Measures

- Excavation can be avoided during monsoon season.
- Check dams shall be provided to prevent construction runoff from the site to the surrounding water bodies.
- Pit latrines and community toilets with temporary soak pits and septic tanks shall be constructed on the site during construction phase to prevent wastewater from entering the ground water or surrounding water bodies.
- To prevent surface and ground water contamination by oil/grease, leak proof containers shall be used for storage and transportation of oil/grease.
- Controlled withdrawal of groundwater during construction.

c) Impact on Noise

Foundation work will involve land excavation, affecting environment by noise. Structural work, deployment of machinery, approach of road construction and erection of roads will result in noise and vehicular traffic. Material handling and transportation would also lead to significant noise pollution. Continuous Exposure of workers to high sound levels may result in annoyance, fatigue. Albeit annoying, this negative impact will be short-term (limited to the duration of the road construction works) and is not considered to be a significant threat to the health or wellbeing of humans. Distance will help to ameliorate noises.

Mitigation Measures

- Construction activities that will generate disturbing sounds should be restricted to normal working hours.
- Workers operating equipment that generates noise should be equipped with noise protection gear. Workers operating equipment generating noise levels greater than 70 dBA continuously for 8 hours or more should use earmuffs. Workers experiencing prolonged noise levels of 70 – 80 dBA should wear earplugs.

- The construction activities will be restricted to the daytime and no construction will be practiced during night.
- Barricades will be provided around the construction site to confine noise within the site.

d) Storm Water Management

Storm water drains would be provided to collect rain water all along the road network with adequate size to prevent flooding of the site. Rainwater harvesting structures are proposed for recharge of water from roof top and paved surface at buildings. The storm water drains will be acting as recharge trench as the bottom will not be lined and intermittent check dams will be provided in the storm water drains, so that maximum amount of rainwater infiltrate into the ground. Treatment for silt, oil & grease removal will be provided to rainwater harvesting recharging pit.

e) Solid Waste Management

The solid waste generated during operation phase will affect the natural environment of the project site. But the wastes to be generated by the proposed activity are non-hazardous in nature. So, there will not be any serious issues due to the generation of solid waste.

Mitigation Measures

- Segregation and recycling of waste will be done.
- Solid waste will be collected, treated and disposed properly.
- Biodegradable and Non-Biodegradable waste will be separated and disposed properly.

11. Environmental Monitoring Programme

The proposed project envisages setting up of major components (mechanical and electrical equipment) for common utilities. The constructional activities are expected to last for a short period and would involve Clearing of vegetation, mobilization of constructional material and equipment. Dust suppression will be done by regular sprinkling of water and providing mobile STP for treating domestic water at the site during construction phase. During operational phase wastewater generation is expected. STP with SBR system will be provided to treat the wastewater, quality of wastewater will be regulated and treated water will be utilized for green belt development.

12. Project Benefits

The major benefit during the construction phase and operation phase of the proposed project will be generating temporary and permanent employment for the people in the nearby villages. The proponent will give job opportunities to local people in order to reduce the need for additional infrastructure. During operations phase industries will provide employment opportunity to the people. The proposed project will develop necessary infrastructure facilities like accommodation, water supply, sewerage, medical facility, etc.

Socio economic conditions of the villages due to the proposed industrial area are predicted to improve. The people in the rural areas will get better educational facilities. The economic conditions of the rural areas likely to improve directly/indirectly triggering the growth of infrastructural development etc. Therefore, the overall impact on socio-economic condition will be positive for this project.

13. Physical Infrastructure Development

The proposed industrial area will include following infrastructure facilities:

- Industrial Plots
- Power Sub-Stations
- Approach roads
- Solid Waste treatment plant
- Internal roads with storm water drains
- Rain Water Harvesting System
- Power supply and street lighting
- Public utilities
- Water supply network
- Parking/Buffer zone area.
- Green Belt Development
- Housing
- Commercial Complex

Due to the proposed project the following physical infrastructure improvements takes place:

1. The objective of the project is to develop Industries. During the operation phase of the project, there will be rigorous movement of vehicles hence road improvement will take place. However, the roads adjacent to the project site are in good condition.

2. Residential improvements such as development of apartments, villas and individual houses etc., will take place.

3. Water supply and sewerage lines connections will be improved.

Considering the above points, it can be concluded that the proposed project site is best suited for the commercial activity.