

EXECUTIVE SUMMARY

1.1 Project Description

Vasanthanarasapura industrial area is about 782.22 acres and is located at about 63 Km from North West of Bangalore City and falls under Tumkur district of Karnataka State, with the strong lineage of technological and financial background.

The Project envisaged is an Industrial layout with a vision of providing “Hassle free production environment” for manufacturing of IT/BT Precision & Electronic Industries, Garments and Food Processing/Chemicals, Rubber, Plastic, Foundry & Others/General Industries is located in Vasanthanarasapura Industrial Development Area (IDA), Tumkur District, Karnataka.

The purpose of the project is to:

- Promote Rapid and Orderly development of Industries in the State.
- Assist in implementation of policies of government within the purview of KIAD Act.
- Facilitate for establishing infrastructure projects.
- Function on Corporate lines, with “No Profit – No Loss” policy.

Some of the focused sectors are Information Technology; Biotechnology; Pharmaceuticals; Engineering.; Automobile & Auto Components; Apparel; Research & Development; Agriculture & Food processing; Steel & Metallurgy; Electronics & Telecommunications; Precision Engineering; Machine Tools.

The land use analysis and zone wise land use analysis is as shown in the table 1 & 2:

Table 1: Land use Analysis

Sl. No	Description	Area in Acre	Percentage (%)
1	Industrial Area	559.22	64.62
2	Residential Area	79.44	3.43
3	Civic Amenities	39.24	13.63
4	Park	32.23	03.44
5	Roads	72.09	13.35
Total		782.22	100.00

Table 2: Zone wise Land use Analysis

S. No	Description	Area in Acre	Percentage (%)
1	I.T/B.T Precision& Electronic Industries	114.89	20.54
2	Garments & Food processing	55.20	9.87
3	Chemicals, Rubber, Plastic, Foundry & others	299.33	53.53
4	General Industries	89.80	16.06
Total		559.22	100

The Total water requirement for the proposed project is **4.50 MLD**. The break up of the water use is as shown in the table 3

Table 3: Water Requirement

S.No	Area of Utilization	Quantity of Usage (MLD)
1	Industries	4.50
	a) Process	1.25
	b) Utilities	1.00
	c) Domestic	1.25
	d) Green belt	1.00
2	Total wastewater likely to be generated	2.15
	a) Process	0.95
	b) Utilities	0.20
	c) Domestic	1.00

In view of this, KIADB is planning to allocate 4.5 MLD of water with ground and surface water as source. This quantity of water will be drawn from groundwater and pumped to sumps and then to two number of overhead tanks and then will be supplied to industrial and residential areas by gravity. Water storage requirement for Vasanthanarsapura is as shown in the table 4

Table 4: Water Storage Requirement

Description	MLD
Underground Storage Reservoir	25
Overhead Storage Reservoir	8.5
Total Storage for Zone	33.5

Power will be sourced from “**Karnataka Power Corporation Limited**”. Wastewater collection pipes would run through the length and breadth of the Vasanthanarasapura Industrial Development Area (IDA).

Each industry will establish treatment plant individually for treatment of effluents and dispose as per the prevalent statutory requirements.

All industries will send their hazardous waste after preliminary treatment to the nearest engineered landfill site.

1.2 Description of the Environment

The baseline data was collected for various environmental components viz. Air, Noise, Water, Land and Socio-economic so as to compute the impacts that are likely to be arising out of the industrial activities covering an area of 10 km radially, from the proposed project Vasanthanarasapura Industrial Development Area (IDA) as the nodal center has been

selected for baseline data collection. The salient features of the site are as shown in the table 5:

Table 5: Features of the Site

Features	Details
Latitude & Longitude	13° 28' N Latitude And 77° 2'E Longitude
Mean Elevation of the site	940 MSL
Climatic conditions	Hot and humid Annual Max. Temp is 34°C Annual min. Temp is 14°C Annual average rainfall is 849 mm Predominant wind flow is West to East
Land area	782.22 acre
Land use	Land having degraded vegetation
Present Land use	Land having degraded vegetation
Staple Food	Ragi
Major crops in the study area	Maize, Ragi & pulses
Nearest Highway	Proposed site is along the alignment of NH4 and is 8 Km from the Tumkur.
Access Road	NH4
Nearest Railway Station	Tumkur
Nearest Airport	Devanahalli – 60 Km
Port	None
Nearest Town/City	Tumkur
Major Settlements	Tumkur
Minor settlements	Nil
Water bodies and dams, canals	No water bodies found in & around the project site.
Hills and Mountains	Shivaganga hills – 16 Km
Reserve forests	None
Ecologically sensitive zones	None
Monuments	None
Socio-economic	Rural Area
Major important industries in study area of 10 km	Only one industry Named Visaka at present existing. Roof sheet making.

The climate in the study region is generally hot and humid and is characterized with seasonal variations as below

Winter : Dec to Feb.
 Summer : March to May
 Monsoon : June to August
 Post Monsoon : Sep to Nov

The climate setting of the area has been arrived by collecting the existing secondary data from IMD station Bangalore among other sources and by generation of primary data to ascertain the values. The nearest IMD station is Bangalore located 45 kms aeri ally from the proposed project site.

The temperature varies from 15 to 34⁰ C. The air is generally humid in the region during the monsoon season when the relative humidity at 0830 hr was observed to be with a minimum and a maximum of 58% and 70% respectively. Similarly, at 1730hr, the value was observed to be with a minimum and maximum of 35% and 65% respectively. Generally, the weather during the other seasons was observed to be dry.

The district annual normal rainfall is 859 mm. Some of the salient features related to rainfall are as follows.

Predominant rainy season (Monsoon)	: July and October
Average annual total or mean rainfall	: 859 mm
Most rainy Month	: October
Most number of rainfall occurrences	: October

Most predominant wind direction is E (38 to 46%). Calm conditions prevailed for 9.00 to 10.00% of the total time.

Overall, the water samples collected from the study area were found to be fit for human consumption. All the parameters are within the desirable limit except TDS which is within the permissible limit and above the desirable limit. Most of ground water samples are above the desirable limit but are well within the permissible limits. Most of the heavy metals in all samples are below detectable limits. The MPN count of the surface waters is very high.

The 24 hourly average values of NO_x and SO_x were compared with the national ambient air quality standards and it was found that all the sampling stations recorded values much lower than the applicable limit of 80 µg/m³ for residential and rural areas. The 24 hourly average values of SPM and RSPM were compared with the National Ambient Air Quality Standards and found that all sampling stations recorded values are within the applicable limits of residential and rural areas for all locations in study area.

The main sources of noise in the study area are domestic activities, industrial activities and vehicular traffic. Assessment of day and night noise levels around the study area are ranging between 35.9 to 58.6 dB(A) during study period. The day equivalents during the study period are ranging between 52 to 54.20 dB(A). Where as the night equivalents were in the range of 39.4 to 42.1 dB(A). From the results it can be seen that the Day equivalents and the Night equivalents were within the Ambient Noise standards of residential areas standards.

The terrain of the project area is very undulating and has many rocky out crops in the Eastern region as well as Northern region. The terrain is sloping towards Northwest, Southwest direction and has central dip. Major nallas pass through the industrial area which emerges to tank near Nelahalu and Sorakunte.

The soils of Tumkur district are broadly classified into: (i) Red loamy soil, (ii) Red sandy soil (iii) Laterite soil and (iv) Laterite gravelly soil. The common soil is reddish to brown colored comprising red sandy-to-sandy loam soils. The pH values of the soil in the study area are varying from 7.26– 8.02 indicating that the soils are falling in normal to saline class.

Geographic profile of the district is as shown in the table 6

Table 6: Geographical Profile of District

Area	Sq.km.	10,598	Census 2001
Population	Lakh	25,84,711	
Urban Area	%	19.62	
Rural Area	%	80.38	
Literacy	%	76.88	
Forest Area	Hectares	10,64,755	
Irrigated Area	%	52 - 63	
Unirrigated Area	%	4.22	
Total Villages	-	3485	

1.3 Anticipated Environmental impacts and mitigation measures

The potential impacts of this project, that is, each combination of project activity and environmental parameter of the impact matrix, are classified into one of five possible categories:

Table 7: Impact Matrix

Sl. No	Impact Matrix	Description
1	No Impact	-----
2	Significant Impact	Land and Water
3	Insignificant Impact	Air , Soil, Noise and Land
4	Unknown Impact	Socio – Economic Conditions
5	Mitigated Impact	Air, Water, Soil, Noise and Land

1.4 Environmental Monitoring Programme

The attributes, which merit regular monitoring, are specified underneath

- Air quality
- Water and wastewater quality
- Noise levels
- Soil quality
- Ecological preservation and forestation
- Socio Economic aspects and community development

The post - project monitoring to be carried out at the industry level is involves the following stages:

1. **Environmental Management Plan (EMP):** An Environmental Management Department (EMD) will be formed in order to assess and review the progress of the various mitigation measures suggested in the Environmental Management Plan.

2. **Areas of Concern:** Based on the findings of the Environmental Impact Assessment study in various Environmental Management Plan the important parameter viz. Catchments Area Treatment, Biodiversity Conservation & Management, Public Health Delivery System, Restoration of Dumping Sites, Quarry areas, Landscaping and Restoration of Construction Area, Green Belt Development etc. have been proposed.
3. **Monitoring Mechanism (Measurement methodologies, frequency, location and data analysis):** The project authority will engage neutral agency or organization for supervision and monitoring of the environmental management components. The project authority will also depute a full time staff to look and co-ordinate the progress of the environmental management activities.
4. **Disaster Management Plan:** The Disaster Management Plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities.
5. **Emergency Actions:** Communication of emergency would be made familiar to the personnel inside the plant and people outside. An emergency warning system will be established.
6. **Life and Fire Safety (L&FS) Alarm System:** The fire alarm system will be designed in accordance to Indian Code of Practice for fire safety of buildings.

1.5 Additional Studies:

The additional studies carried out are as follows:

1. **Introduction to Hazard Identification:** Identification of hazards in an Industrial Development Area (IDA) is of primary significance in the analysis, quantification and cost effective control of accidents involving chemicals and process.
2. **Identification of Major Hazardous Units:** Hazardous substances may be Flammable substances such as high speed diesel.
3. **Identification of Major Hazard Installations Based on MSIHC Rules 1989 and the Amended Rules in October '1994:** Following accidents in the industry in India over the past few decades a specific legislation covering major hazard activities has been enforced by Govt. of India in 1989 in conjunction with Environment Protection Act, 1986. This is referred here as MSIHC Rules 1989.
4. **Social Impact Assessment:** The social impacts due to the proposed project are:
 - a. More employment will be created hence there will be change in the economic status of the people.
 - b. Land use pattern will change due to the development of industrial area i.e. infrastructure development such as roads, drainages, hotels etc. takes place.
 - c. People from different districts migrate towards the industrial area for employment hence changes in cultural activities can be seen in the surrounding areas of the project vicinity.
5. **R&R Action Plan:** There is no rehabilitation and resettlement involved in the proposed project.

1.6 Project Benefits:

The benefits of the proposed project are briefly explained under this section.

The following changes in socio-economic status are expected to take place with this project.

1. The project shall have positive impact on consumption behavior by way of raising average consumption and income through effective Effluent Recycling Systems.
2. The project shall bring about changes in the pattern of demand from food to non-food items.
3. The treated water can be used for agricultural purpose which influence indirectly for the economic growth of company.
4. Due to the corporate social responsibility activities of Industrial Development Area (IDA), the socio economic condition of the people will be improved.
5. People perceive that the project will help in the development of social infrastructures/such as.
 - Education facilities
 - Post offices and Communication facilities
 - Medical facilities
 - Recreation facilities
 - Plantation and parks
 - Community facilities

Industrial development and consequent economic development should lead to improvement of environment through better living and greater social awareness. On the other hand, the proposed project is likely to have several benefits like improvement in indirect employment generation and economic growth of the area, by way of improved infrastructure facilities and better socio-economic conditions.

Improvement in Physical Infrastructure

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

1. Developments of roads
2. Laying of UGD lines.
3. Improvement in transportation facilities such as government buses.
4. Business Establishments.
5. Improvement in street lightings.
6. Improvement in water supply system.

Employment Potential –Skilled; Semi-Skilled and Unskilled: Indirect employment opportunities to local people in contractual works like transportations, sanitation, for supply of goods and services to the project and also other community services will be developed.

Other Tangible Benefits

- Additional housing demand for rental accommodation will increase
- Market and business establishment facilities will also increase.
- Cultural, recreation and aesthetic facilities will also improve.
- Improvement in communication, transport, education, community development and medical facilities.

- Overall change in employment and income opportunity.
- The State Government will also benefit directly from the proposed project, through increased revenue from royalties, excise duty and stowing duty.

1.7 Environment Management Plan

The purpose of the Environmental Management Plan (EMP) is to minimize the potential environmental impacts from the proposed Vasanthanarasapura Industrial Development Area (IDA) as to mitigate the consequences. EMP reflects the commitment of the Industrial Development Area (IDA) management to protect the environment as well as the neighbouring population.

The potential Environmental Impacts from the project are summarized below:

- Air pollution due to Emissions from Process, boiler, DG sets etc from individual industries.
- Air pollution due to operation of CETP, Hazardous Waste Disposal unit, etc.
- Water pollution due to the disposal of wastewater (after treatment) from CETP.
- Soil Pollution due to disposal of solid waste.

Pre-project Environmental Management includes Environmental Management during the site clearance and during construction phase of the Vasanthanarasapura Industrial Development Area (IDA). The impacts will be felt on the air, water, noise and socio-economic environments.

Environmental Management during Operation

1. EMP for air pollution control: The various control measures adopted at KIADB is summarised in below Table 8.

Table 8: Air Pollution Control Measures

Sl.No.	Air pollutant	Source	Control
Common Facilities			
1	Dust, SO ₂ , NO _x , Acid Mist	Incinerator	Bag house, Scrubber and Stack height of 30 m minimum will be maintained.
At industry			
1	SPM, SO ₂ , NO _x	Boilers (Industries)	Multi-clone/Bag filters, Stack height meeting MoEF regulations. Minimum stack height of 30 m.
2	SO _x , NO _x , Acid Mist etc.,	Unit Operations (industries)	Scrubbers
3	Chemical and Hazardous Air Pollutants	Fugitive in nature during material flow	Standardization of Equipments and accessories (Engineering Standards)
4	Odorous compounds	Unit Operations	Collection and Thermal Destruction

2. EMP for noise pollution

All the equipment in the proposed industries inside the Vasanth Narasapura Industrial Development Area (IDA) would be designed to have a total noise level not exceeding 85-90 dB (A) as per the requirement of OSHA (Occupational Safety and Health Administration) Standards.

- There are few potential sources (machinery's/equipment's) in the industries that would generate noise levels above 85 dB (A) continuously. Therefore, adequate protective measures in the form of ear muffs/ earplugs to the workers working in high noise areas should be provided.
- The proposed greenbelt within the individual industries will attenuate the noise generated from the respective industries.
- The green belt planted around the perimeter of the proposed Industrial Development Area (IDA) and along the corridors of the internal roads will further soothe the noise emitted.
- The noise levels in the workspace environment will be monitored periodically and if necessary corrective action will be taken.
- All necessary modern noise reducing gadgets will be attached like silencers, anti vibration pads; closed room enclosures will be arranged.

3. EMP for water pollution: In order to negate the impacts on the water environment, infrastructural facilities like provision of adequate storm water drains, effluent collection and conveyance including treatment and disposal have been planned in the Vasanthnarasapura Industrial Development Area (IDA).

4. Solid and Hazardous Waste Management: With respect to the hazardous waste, industries have to store in temporary onsite storage facilities. The disposal of hazardous waste is undertaken by entering into an agreement with the **Common Hazardous Waste Treatment, Storage and Disposal Facility (CHWTSDF)**. The CHWTSDF will be designed meeting the hazardous waste treatment and disposal requirements of all its member industries located near by the Vasanthnarasapura Industrial Development Area (IDA) ie. (KWMP site) meeting the stipulations/requirements of KSPCB. Accordingly a site for solid waste disposal has been selected in the Vasantharasapura Industrial Development Area (IDA).

