

## ***V: PROJECT SCOPING & METHODOLOGY***

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### **5.0 INTRODUCTION**

The scoping exercise is carried out to define the focus and scope of the EIA Study. The scoping exercise is required to understand the type of activities that may be expected within the project cycle, the environmental setting, the interaction between project activities and the surrounding environment.

### **5.1 PROJECT ACTIVITIES**

Considering the total project cycle of the new industrial estate development, all the activities can be grouped under two phases, namely Construction Phase and Operation Phase.

Acquisition of the identified area / land, infrastructure development like roads, water, and electricity are the primary activities associated with the construction phase. During Operation Phase, various industrial units will be established and commence operations resulting in product manufacture and disposal of wastes.

The identified possible impacts on human beings and environment due to the proposed developmental activity is shown in the form of the table given on the last page of this chapter. The existing environmental setting is considered to enlist the possible impacts. This comprehensive list facilitated to understand possible impacts as well throw light on the impact magnitude. Considering their impact magnitude, the impacts are grouped as High, Moderate and Low as well as on the time-scale – Short term & Long term. Each of the identified impacts due to the proposed development are discussed.

## 5.2 CONSTRUCTION PHASE

Most of the activities in the construction phase are short term in nature except like dislocation of the habitation and acquisition of the land. The net results of the impact due to the identified activity under this phase

### Nature of Impacts - Construction Phase

Activity	Impact	Net result
Acquisition of land for IA development	Affect the present land use pattern. The presence of sensitive areas, archaeological sites, human settlements may create conflicts.	Moderate to high impact
Removing undulating ground to facilitate construction	Affects air quality due to increase in SPM levels, impact on flora and fauna, impact on noise quality.	Negligible
Construction of roads and civil engineering structures	Affects air quality due to increase in SPM and NO <sub>x</sub> levels, impact on noise quality.	Negligible
Migration of labour	Impact on infrastructure like housing, creates health hazards due to poor sanitation problems.	Negligible

## 5.3 OPERATION PHASE

During the operation phase, all the activities are long term impacts but vary in their magnitude. The net results of the impact due to the identified activity under this phase

### Nature of Impacts - Operation Phase

Activity	Impact	Net Result
Air emissions	Affects air quality, ecology due to increase in SPM, SO <sub>2</sub> , NO <sub>x</sub> and HC levels depending upon the type of process and energy requirements of an industry	Moderate to high
Effluent discharges	Affects water quality, soil quality of the region due to release of both organic and inorganic pollutants	Moderate to high
Noise emissions	Affects community noise environment of the region due to increase in day-night equivalent noise levels	Moderate to high
Transportation	Impact on existing infrastructure	Moderate to high

## 5.4 SCOPE OF PRESENT EIA STUDY

Results of the Impact identification exercise is applied to determine the focus and scope of the EIA Study. The selection of Priority areas for the EIA study is based on the following considerations.

Priority Rating	Type of Impact
Highest	: Major adverse impacts with long-term effects Moderate adverse impacts with long-term effects Major adverse impacts with short-term effects Moderate adverse impacts with short-term effects
Lowest	: Minor adverse impacts with some long-term implications

It can be concluded that the highest priority impact areas during construction phase are concentrated in land acquisition activity and finalisation of layout and these issues will be addressed in the study. The remaining activities have got very little impact on environment and can be stated as low. However, the environmental impact during operation phase is significant due to release of air emissions, waste water discharges, solid waste disposal and employment generation.

**Rehabilitation & Resettlement:** The land acquisition involves various activities like acquiring of agricultural lands, if any, removing the settlements, paying compensation for the lands and houses.

**Layout:** The Proposed IA will lead to modification of its present land use and will have significant deviation from the original land use.

**Air Quality:** The Environmental Quality Database will be developed based on the monitoring studies which will be used as the baseline to know the net impacts due to the proposed & possible industrial activity.

**Water Quality:** The wastewater generated from the various industries will be complex in nature and will vary in their pollutant load. The present water quality monitored will be used in zoning industrial activity by considering the issues like ground water quality and ground water table.

**Solid Waste:** The Proposed IA will have solid wastes from its various processes and treatment systems and may vary both in terms of quality and quantity. It is known that the solid wastes, if hazardous in nature, will pose major impact on ground water sources. The management of solid wastes shall be discussed

**Employment:** The proposed IA will have clear and decisive beneficial impact on employment and may pose an impact on land use due to increment in quality of life.

These issues are to be addressed to substantiate the proposed developmental activity which in turn have greater role in overall development of the region.

## **5.5 METHODOLOGY OF EIA**

Environmental Impact Assessment study has been conducted within an area of 25 km radius around the proposed Industrial Area. The various steps involved in the study for a particular project are divided into three following phases.

- Ø Identification of significant environmental parameters and assessing the status within the impact zone
- Ø Prediction of Impacts envisaged due to proposed scheme on various environmental parameters
- Ø Evaluation of impacts after superimposing the predicted scenario over the baseline scenario to prepare Environmental Management Plan

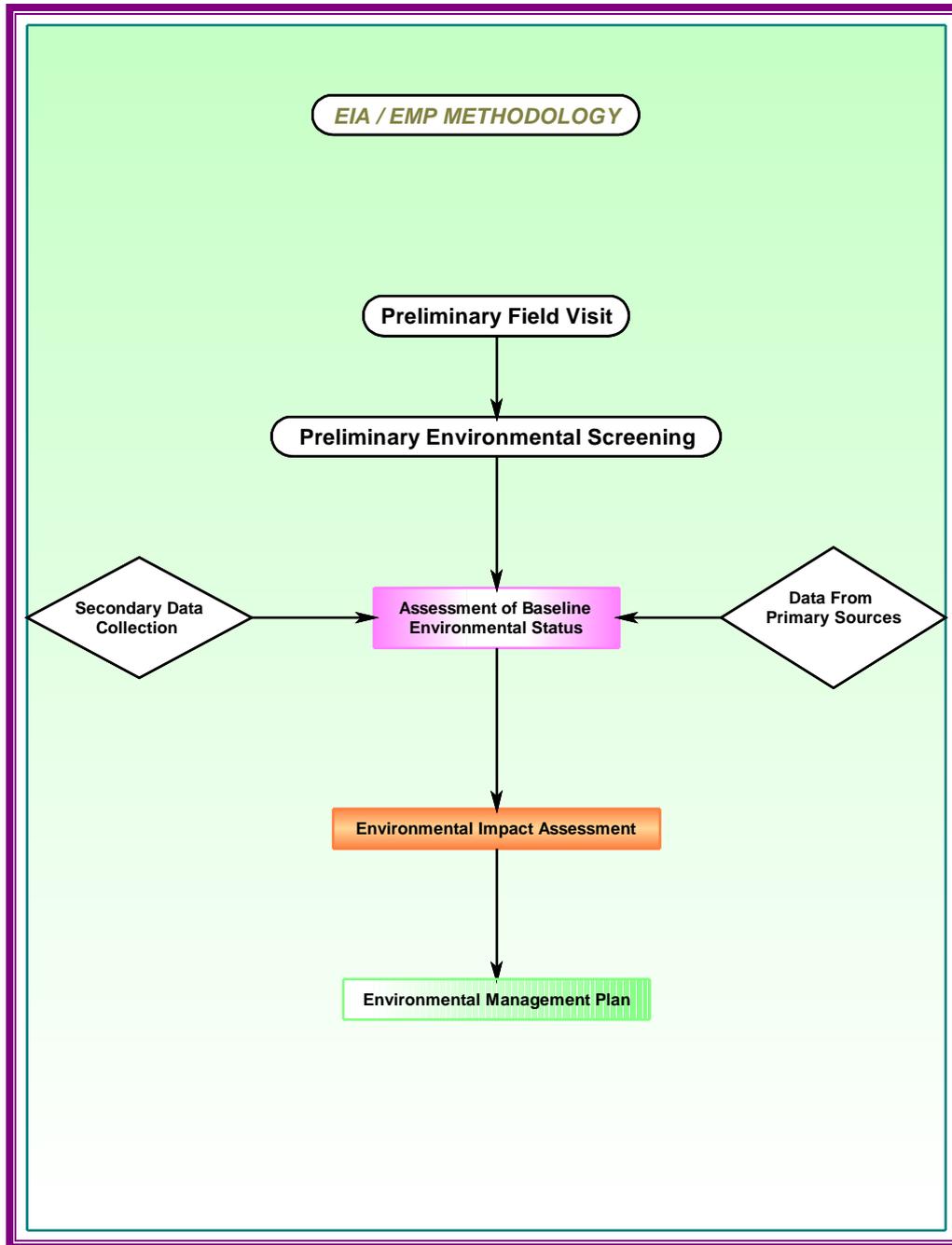
Accordingly, field studies were carried out during study period to establish the existing conditions.

## **5.6 APPROACH**

To determine the magnitude of significant potential impacts and to ensure that the environmental considerations are given adequate weightage. Subsequently, a preliminary environmental screening was carried out. The environmental screening was based on the available secondary data supplemented by regular field visits. During screening, significant environmental issues were examined for all the alternatives. Primary and secondary data were collected to describe the existing environmental set-up.

The methodology adopted is presented in the form of a flow chart

### Flow Chart -- EIA / EMP Methodology



The work carried out is briefly reported below

### 5.6.1 AIR ENVIRONMENT

The study on air environment broadly covers the following

- ü Determination of Impact Zone and developing a monitoring network (using screening model and available meteorological data)
- ü Monitoring the existing status of ambient air quality within the impacted region of the proposed Industrial Area
- ü Monitoring site-specific meteorological data viz. wind speed & direction, humidity, ambient temperature etc.,
- ü Estimation of quantities of air emissions including fugitive emissions
- ü Identification, quantification and evaluation of other potential emissions including those of vehicles within the study area and estimation of cumulative effects
- ü Prediction of changes in the ambient air quality due to point, line and area source emissions through appropriate air quality models
- ü Evaluation of adequacy of the pollution control measures
- ü Delineation of mitigation measures at source and pathways

The prevailing ambient air quality status of the study region was assessed through a network of ambient air-monitoring stations during pre-monsoon season 2006. The monitoring stations have been selected in accordance with the Ministry of Environment and Forest (MoEF) guidelines applicable pertaining to IS – 5182 (Part-14), 1985, past meteorological data and the surrounding land use pattern.

Different pollution parameters viz. Suspended Particulate Matter (SPM), Respirable Suspended Particulate Matter (RSPM), Sulphur Dioxide (SO<sub>2</sub>) and Oxides of Nitrogen (NO<sub>x</sub>) were measured for representing the baseline status of ambient air quality within the study region. High Volume Samplers and Respirable Dust Samplers have been used for continuous monitoring of these parameters.

Micro-meteorological parameters like wind speed & direction were continuously recorded using an automatic weather station during study period. The recorded data were used to determine predominant meteorological conditions, which are useful in characterizing the baseline air quality status and in prediction of impacts on air environment.

### **5.6.2 NOISE ENVIRONMENT**

Noise is generated by many activities. Noise pollution survey has been carried out in the study area to assess the impacts of the industrial and associated activities. Noise level surveys were carried out in the study area. Spot Noise Levels (A-weighted) were measured using a Portable Noise Level Meter

The study of noise environment broadly covers the following:

- ü Monitoring the present status of noise levels within the study area and prediction of future noise levels resulting from the increase in production and other related activities including increase in vehicular movement etc.,
- ü Identification of impacts due to any anticipated rise in noise levels on the surrounding environment
- ü Recommendations on mitigation measures for noise pollution

### **5.6.3 WATER ENVIRONMENT**

The study on water environment broadly covers the following:

- ü Study of existing ground and surface water resources with respect to quality & quantity within the study area.
- ü The parameters of prime importance selected under physico-chemical characteristics were estimated to describe the baseline environmental status of the water resources during pre-monsoon season 2006.

#### **5.6.4 LAND ENVIRONMENT**

The study on land environment broadly covers the following:

- ü Studies on soil characteristics, existing land use and topography, landscape and drainage pattern within the study area
- ü Estimation of impacts of mining on land use, landscape etc
- ü Estimation and characterization of solid waste, disposal methods and delineation of management options
- ü Estimation of impacts of mining on the agricultural lands in the vicinity

#### **5.6.5 BIOLOGICAL ENVIRONMENT**

The study on Biological environment broadly covers the following:

- ü Data on flora & fauna within core zone and as well as buffer zone
- ü Evaluation of impacts & habitat disturbances due to mining activities etc
- ü Delineation of mitigation / conservational measures to prevent and / or reduce the damage

#### **5.6.6 SOCIO-ECONOMIC ENVIRONMENT**

The study on socio-economic environment broadly covers the following:

- ü Collection of demographic and related socio-economic data
- ü Collection of epidemiological data
- ü Projection of anticipated changes in the socio-economic conditions and health due to mining and mine related activities including traffic congestion and delineation of measures to minimize adverse impacts
- ü Assessment of impacts on significant historical, cultural and archaeological sites/places
- ü Assessment of economic benefits arising out of the project

## Environmental Attributes & Frequency of Monitoring

Attribute	Parameters	Frequency of Monitoring
Ambient Air Quality	SPM, RPM	24 hourly samples twice a week for twelve weeks
Ambient Air Quality	SO <sub>2</sub> , NO <sub>x</sub>	8 hourly samples average to 24 hrs for twelve weeks
Meteorology	Surface: Wind Speed and direction, temperature, relative humidity and rainfall	Surface: Continuous monitoring station for study period on hourly basis and also data collection from secondary sources.
Water Quality	Physical, Chemical and Bacteriological Parameters	Once during the study season
Ecology	Existing Flora and Fauna	Through field visit during the study period and substantiated through secondary sources.
Noise Levels	Noise levels in db (A)	Hourly observations for 24 hours per location
Soil Characteristics	Parameters related to agricultural and afforestation potential	Once during the season
Land Use	Trend of land use change for different categories	Data from various government agencies
Socio-economic aspects	Socio-economic Characteristics, labour force characteristics, population statistics and existing amenities in the study area.	Based on area surveys and data collected from secondary sources (Census Handbooks).