PROPOSED TERMS OF REFERENCE (TOR) FOR EIA STUDIES

Mining operations such as drilling, blasting, loading, hauling, and dumping result in adverse impacts on environment in the form of air pollution, water pollution, noise pollution, vibration, soil erosion and land degradation. It is, therefore, planned to generate baseline data as per CPCB/MoEF&CC guidelines to describe the present environmental scenario. Then anticipated environmental impacts will be identified. Projections will be made using appropriate mathematical models. Based on their evaluation, environmental component-wise measures for minimizing the identified impacts will be suggested. The structure of the EIA report will be as outlined in the EIA notification of 14th September, 2006. Post project environmental monitoring program will also be detailed in the EIA/EMP to ensure that the recommended mitigative measures are implemented and their effectiveness is monitored. The study will be confined to an area falling within 10 km around the project site. The following criteria will be considered for Terms of Reference:

CRITERIA FOR TERMS OF REFERENCE

CRITERIA	ASPECTS CONSIDERED
Environmental setting of area taking 10 km radius around the proposed project site as impact zone	a) Geographic location of the project site b) Physiography of 10 km radius around the project site c) The location of the project with respect to sensitive areas, populated areas, places of historical importance, bio-reserves, major water bodies, tourist spots and other specific site features
The nature of the project, its activities and their interaction with the environment	a) Nature of the project relates to the product envisaged and its capacity b) Category of the project: small/medium/large and hazardous and non hazardous c) The production capacity envisaged d) By products production e) Operations involved and their interaction with the environmental components
Statutory requirement	a) Applicable Acts (legal requirement) b) Guidelines c) Environmental standards specific to the project stipulated by Government of India

The following terms of reference will be followed while preparing the EIA report for **one Season data.**

1.0 LOCATION DETAILS

The project location will be shown on a map depicting the District and State in India. A key map showing the vicinity of the project site depicting the nearest feature will be included. The study area map covering an area of 10 km radius around the project site will be included to indicate the physical features.

2.0 PROJECT RELATED ACTIVITIES

The mining project related activities will be studied to identify the interaction of various operations with environmental components:

Considering the environmental setting of the project, project activities & their interaction, environmental regulations & standards, following environmental attributes are incorporated in EIA study.

3.0 ENVIRONMENTAL BASELINE DATA GENERATION

Baseline environmental data will be collected for one season (non-monsoon) to study existing status of significant environmental parameters within the impact zone with respect to air, water, noise, soil and socioeconomic components of environment.

3.1 METEOROLOGY

Micro meteorological data by installing a temporary auto weather monitoring station. The following meteorological parameters were recorded:

- Wind speed
- Wind direction
- Temperature
- Relative humidity
- Rainfall

Frequency of collection: hourly data

3.2 AMBIENT ENVIRONMENT

Ambient air quality data was collected through a network of AAQ stations which was decided based on the following

a) Topography/Terrain of the study area.
b) Populated areas within the study area.
c) Residential and sensitive areas within the study area.
d) Magnitude of the surrounding industries.
e) Representation of regional background levels.
f) Representation of cross sectional distribution in downward direction.

The following parameters were monitored using Respirable Dust Sampler at each station:

- Particulate Matter (PM_{10})
- Particulate Matter ($PM_{2.5}$)
- Sulphur dioxide (SO_2)
- Oxides of Nitrogen (NOx)
- Carbon monoxide (CO)

3.3 NOISE ENVIRONMENT

Noise Levels were measured within 10 km radius to identify the impact due to the existing sources on the surroundings in the study area

The collected data was processed to obtain the day and night equivalent values for checking the compliance with Noise standards

3.4 WATER ENVIRONMENT

The following areas was covered pertaining to water environment

- Surface Water Sources and quality
- Ground Water Sources and quality

3.5 LAND ENVIRONMENT

The following areas were covered pertaining to Land environment

- Physiography of the Area
- Regional Landscape Setting
- Geological Setting of the Area
- Hydrology
- Land Use Pattern of core and buffer zones
- Soil Quality
- Forests
- Flora and Fauna

3.6 SOCIO ECONOMY

Details on economic status of various villages within 10 km study area around the mining site. Information on amenities following aspects in the area, developmental activities to be undertaken by project authorities in future:

- Demography of the Study Area
- Occupational Pattern
- Social Setting
- Agricultural Pattern

- Infrastructural Facilities

3.7 BIOLOGICAL ENVIRONMENT

Details of the flora and fauna existing within the 10 Km buffer zone

4.0 IDENTIFICATION AND QUANTIFICATION OF ENVIRONMENTAL IMPACTS

The areas likely to cause impacts will be identified and the identified impacts will be quantified. The quantified incremental impacts will be superimposed on the baseline status of various environmental components to have an overall scenario. The overall scenario estimated will be checked for compliance with various statutory requirements/standards. Details of quantification procedure to each of environmental components are given below:

4.1 Air Environment

- Identification of various sources of dust emission
- Quantification of emission details
- Processing of metrological data as per the modeling requirement
- Quantification of environmental impacts adopting mathematical model ISCST3 Model for quantification of the impacts evaluation of the impacts based on the applicable statutory norms.

4.2 Noise Environment

- Various noise sources were identified
- The noise levels in the vicinity of the process units due to various sources will be estimated using point source model

4.3 Water, Land, Biological and Socio-Economic Environments

In case of water, land, biological and socio-economic environments, the impacts were assessed based on scientific knowledge and judgments of the core experts. The areas covered include:

4.3.1 Water Environment

Water consumption and waste water generation

4.3.2 Land Environment

- Land Environment
- Solid waste generation from the mining operations

4.3.3 Socio-Economic Environment

Impact on the community in the vicinity

Impact on the Occupational Health and Safety

5.0 FORMULATION OF ENVIRONMENTAL MANAGEMENT PLAN

Based on the existing environmental status & quantified impacts, a detailed Environmental Management Plan will be formulated for implementation. The detailed environmental monitoring

programme drawn for implementation by proponent during in the operation phase includes the following.

5.1 Environmental Management Plan

- Air Pollution Control Measures
- Noise Pollution Control Measures
- Water and Waste water Management
- Waste water Generation and Disposal
- Solid Waste Management
- Green Belt Development
- Social Welfare measures
- Occupational Safety & Health Management
- Post Project Monitoring Programme detailing the Environmental Cell, Environmental Monitoring and Environmental Laboratory
- Expenditure on The Environmental Management Plan