JK ENVIRONMENT IMPACT ASSESSMENT AUTHORITY

Ministry of Environment, Forest & Climate Change

Government of India

Department of Ecology, Environment, & Remote Sensing

Paryavaran Bhawan, Transport Nagar, Narwal, Jammu

1. Mr.Nagar Singh,
   S/O: Shri Koula Ram,
   R/O: 51 B/D, Gandhi Nagar,
   Jammu.

2. Mr. Rakesh Kumar Choudhary
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3. Mr. Balbir Singh
   S/O: Shri Jagar Singh
   R/O: 25-C, Gandhi Nagar
   Jammu

No.JKEIAA/2019/III/106/113-18. Dated: 29- 11 - 2019

Subject:- Issuance of T.O.R.(Terms of Reference) for preparation of Environment Impact Assessment Report/Environment Management plan – Environmental clearance thereof

Enclosed please find herewith the copy of T.O.R. (Terms of Reference) for preparation & submission of Environment Impact Assessment Report/Environment Management plan of River bed mining projects as per list enclosed at an earliest.

Further, you are advised to inform the consultant viz, Globus Environment Engineering Services to enrich the EIA report by consulting the local stakeholder departments.

The validity of T.O.R.s are for three years.

(Pr.CCF/Director)
Ecology, Environment & Remote Sensing
Member-Secretary, JKEIAA

Encl:- As above.

Copy to:

1. Hon'ble Chairman, JKEIAA for favour of information please.
2. The Secretary, JKEAC for information
3. Mr. Ashok Singh, Computer Analyst, JKEIA. He is advised to upload the TOR on Parivesh portal.

Received on behalf of Balbir Singh 29/11/19

JK ENVIRONMENT IMPACT ASSESSMENT AUTHORITY

Ministry of Environment, Forest & Climate Change

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Department of Ecology, Environment, & Remote Sensing

Paryavaran Bhawan, Transport Nagar, Narwal, Jammu

The Managing Director,
J&K Minerals Ltd.,
JLN Udyog Bhawan,
Rail Head Complex,
Jammu

No: JKEIAA/2019/104/109-12 Dated 29-11 - 2019

Subject: - Issuance of T.O.R. (Term of Reference) in favour J&K Minerals Ltd. for Gypsum Mining Project at Ramban, J&K- Reg. Environment Clearance thereof.

Sir,

Kindly refer your letter No: BO: 27(2)/2019-243 dated: 26-11-2019 under proposal No: SIA/JK/MIN/43352/2019 regarding the subject cited above. In this regard, enclosed please find herewith TOR's (Terms of Reference) for preparation & submission of Environment Impact Assessment Report/ Environment Management Plan at an earliest.

As already conveyed, vide this office letter No: JKEIAA/2019/104/92 dated: 25-11-2019 you are advised to also include the following two points in the EIA/EMP reports.

i. Impact of the project on the river Chenab be included in the EIA as it flows in the close vicinity of the site and to recommend appropriate mitigative measures in the EMP.
ii. Appropriate mining technology suitable for ecologically fragile site be recommended to lower the risks of destabilization of the hills and pollution of the river system and other social impacts with prescriptions be included in the EIA/EMP.

The validity of T.O.R. s are for three years.

Yours faithfully

(Pr.CCF/Director)
Ecology, Environment & Remote Sensing
Member-Secretary, JKEIAA

Encl:- As above.

Copy to:

1. Hon'ble Chairman, JKEIAA for favour of information please.
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3. Mr. Ashok Singh, Computer Analyst, JKEIA. He is advised to upload the TOR on Parivesh portal.

Received on 30/11/19.

TERMS OF REFERENCE
FOR
ENVIRONMENTAL IMPACT ASSESSMENT OF
MINING OF MINERALS SECTOR

Objectives

Terms of Reference (TOR) for preparation of Environmental Impact Assessment (EIA) and Environmental Management Plan for "Mining of Minerals" as per the EIA Notification, 2006 has been devised to improve the quality of the reports and facilitate decision-making transparent and easy. TOR will help the project proponents and consultants to prepare report with relevant project specific data and easily interpretable information. TOR for mining of minerals is expected to cover all environmental related features.

General Information

Mining of stone and metals has been done since pre-historic times. Mining is the extraction of valuable minerals or other geological materials from the earth, which are processed and/ or used for production of materials of economic value. Mining of minerals plays a positive role in the process of country's economic development. In addition to the contribution towards economic growth, mining can also be a major source of degradation of physical as well as social environment, unless it is properly managed.

Environmental impacts can arise during all activities of the mining process. Minimizing the damage due to mining operations depends on sound environmental practices in a framework of balanced environmental legislation. The potential adverse effects of mining activities include air pollution, surface and groundwater pollution, noise and vibration, damage to local ecology, natural topography and drainage, depletion of water resources etc. All these environmental components are required to be considered while selecting a proper methodology of mining, mitigation measures to reduce pollution load, conservation of natural resources etc.

1.0 Introduction

This chapter should cover purpose of the project, project proponent, brief description of the project name, nature, size, location of the project and its importance to the region/country.

As per the EIA Notification, 2006 under Environment (Protection) Act, 1986, the mining of minerals with more than 50 hectare of mining lease area (Asbestos mining irrespective of mining area) are categorized as Category-A projects.

In case of coal mining projects, mining lease area more than150 hectares are categorized as category-A projects.

Mining lease areas of 5-50 hectare are classified as Category-B projects. In case of coal projects mining lease area of 5-150 hectares are classified as Category- B projects. Both the above categories are subject to the applicability of General Conditions.

All these mining projects are statutorily required to conduct Environmental Impact Assessment study for obtaining environmental clearance.

Mining Lease area less than 5 hectare is not covered under the EIA Notification, 2006.

Profile of the Project Proponent, name and contact address, Implementing Organization, Organizational Chart, Project Consultants etc., should be mentioned clearly.

Land description- plot/ survey / khasra numbers, village, tehsil, district, state and extent of the land must be mentioned clearly. The project site should conform to the CRZ guideline or modifications or stipulations made by the Central / State Govt., as applicable.

The proponent should confirm that the project meets all Centre / State / Local regulations and standards applicable for mining of minerals and allied activities.

Any litigations pending against the proposed project and / or any directions or orders passed by any court of law/any statutory authority against the project are to be detailed out.

In case of expansion / modernization of the project, the environmental compliance status for the existing project should be explained.

The EIA-EMP report should be based on maximum mineral extraction capacity and it should be based on generic structure given in Appendix III of EIA Notification, 2006 for the project or its expansion based on the proposed maximum mineral extraction capacity.

The mining projects linked to associated projects such as coal to power plant, limestone to cement plant etc., located within the impact zone are required to take up integrated EIA.

The report, the page numbers of various chapters, sections and sub-sections, tables, appendices, drawings and figures, source of data incorporated should be clearly mentioned etc., with titles should be clearly indicated under the heading contents.

2.0 Project Description

The chapter contains the broader details of the basic activities, location, lay out and implementation schedule of the project.

Background of the project:

- Location of the project (Longitude, Latitude, revenue village, Tehesil, District, State, nearest Railway station, airport, and MSL)
- Objective of the project (captive mine, standalone etc) whether it is new or expansion (Increase in ML area or increase in annual production) or modernization. Proposed use of minerals (sale, use as intermediates or raw materials). Any change in technology proposed should be specified.
- Significance and relevance of the project highlighting the benefit to surrounding area and economic development of the Local/State/ Country.
- Location of National Park, Wildlife sanctuary, migratory routes of wild animals etc. with in 10 km of mine lease area should be authenticated by the Chief Wildlife Warden.

Project details should include:

- Overall note on mineral reserves, rated capacity, life of the mine
- If the lease area/buffer zone is ecologically fragile, a detailed justification is to be given.
- Period of mining lease and calendar programme of ore and waste production.
- Status and stages of other regulatory clearances like approval of mining plan, forest clearance, consent to establish from State Pollution Control Board etc.
- In case of expansion/modernization, compliance of the statutory conditions given by SPCB, MoEF, DGMS, FC etc.
- Solid waste dumping strategy and management
- Energy demand/specific energy consumption
- Water requirement and reliability of its supply
- Manpower recruitment
- Capital cost estimate

- Market conditions vis a vis validity of the project

Essential Toposheets / Maps to be provided with TOR application

Topographical map

A topographical map 1:25,000 scale (if not available in 1:50000) of the study area (core zone and 10 km area of the buffer zone from boundary of the core zone) delineating the major topographical features such as land use, drainage, locations of habitats, major constructions including roads, railways, pipelines, major industries if any in the area are to be mentioned.

A topographical map, covering aerial distance of 15 km from the proposed project location and delineating environmental sensitive areas as specified in Form I of EIA Notification dated 14th Sep 06. In the same map the details of environmental sensitive areas present within a radial distance of 1 km from the project boundary should be specifically shown

Remote sensing imagery

Land use and land cover map of the study area in 1: 25,000 scales based on recent satellite imagery of 5.6 m or higher resolution of multispectral sensor delineating double crop, single crop, agricultural plantation, scrub land , land with or without shrub, forest land - dense, open, degraded, forest blank, waste land, water bodies, builtup area is to be shown.

Digital Elevation Model (DEM) / slope / Contour maps

Contour / slope map, as required for the study of core zone and site plan of the area showing the various proposed break-up of the land.

- Description of the project site, geology, topography, hydrology, climate, transport and connectivity, demographic aspects, socio-cultural and economic aspects, villages, settlements, meteorological data.

- Notified restrictions and limitations from environmental considerations etc., if any.

- Environmental data relating to history of natural calamity such as cyclones, storms surges Coastal areas), tornado, flood, etc. should be discussed,

Underground Mining

- Deposit conditions
- Mode of entry to the mine (Shaft, Adit, Incline)
- Details of machineries in underground and on surface
- Method of mine development and stoping
- Subsidence (Maximum predicted subsidence, max. slope change, impact on surface features like natural drainage pattern, houses water bodies, water table etc.)
- Mine drainage water management details
- Ventilation system for adequate control of quality and quantity of air underground

General Features

- Surface drainage pattern at mine site (modification/diversion in the existing drainage pattern)
- Mineral transportation outside mining lease area (road, rail, conveyor, Rope way, waterway, pipeline, others etc.)
- Beneficiation, Crushing, Processing etc. (process flow)
- Township description, (area, dwelling units, distance from mine, distance of water bodies)
- Power and water supply

3.0 Analysis of alternatives

This should be project specific and decided during the scoping process.

3.0 Description of the Environment/ Baseline Environmental Status

Environmental data to be collected in relation to proposed mining would be: (a) land (b) water (c) air (d) biological (e) noise and vibration (f) socio economic (g) health environment etc.

Study area:

Study area for the mining projects should be defined as follows:

- Mine lease area should be the "core zone"
- 10 km radius from the boundary limits of the mine lease area of more than 50 hectares should be the "buffer zone".
- 5km radius from the boundary limits of mine lease area of 5-50 hectares should be "buffer zone".

- Maps (appropriate scale) of the study area (core and buffer zone), clearly delineating the locations of various monitoring stations (air/water/noise/soil), superimposed on locations of habitats are to be shown.
- Indicate 2km, 5km distance from the boundary limits of mine lease by appropriate line.
- Monitoring and testing should be done as per guidelines of CPCB/MOEF.

Baseline information is required to be collected by field survey, monitoring etc. Secondary data with source should be clearly mentioned. Normally, one season monitoring data (excluding monsoon) are to be collected. However, Expert Appraisal Committee (EPC) may specify collection of baseline data for a longer period base on the nature, size and location of the project.

4.1 Land Environment

Pre-mining land use pattern of (agricultural land/ forest land/ grazing land/ wasteland / water bodies/settlement) of the area is to be detailed out. Details of mineral resources, geological status of the study area and the deposit to be worked, ultimate working depth and progressive stage wise working plan / scheme until the end of the mine life should be mentioned on the basis of the approved rates capacity and calendar plan (s) of production. From the approved mining plan, geological maps should be drawn.

4.1.a Land

Baseline data on land, of mine leased-area is to be described. Total land available and proposed utilization for different purposes including built-up area be given. Justification of the use of area is to be given.

4.1.b Topography

Topography the study area through topographical maps (1: 50000), showing all relevant details required for assessment of the proposed activities. Description in relation to following be given

- Slope and elevation
- Natural drainage pattern and water bodies
- Land use pattern (habitation, cropping, forest cover, ecologically sensitive features etc. by employing remote sensing techniques (If available)

4.1.c Geology

4.3. a. Surface Water

The study should cover the following;

- Locations of representative monitoring stations showing direction and distance from the mine lease site
- Details of rivers, springs, lakes, reservoirs and drains up to first order in study area.
- Physio-chemical analysis including heavy metals, biological, bacteriological characterization for assessment of water quality. Water quality of water body with respect to upstream and downstream should be covered.
- Delineation of water sheds and water drainage pattern in the study area using remote sensing satellite imageries
- Surface water balance (Withdrawal of surface water and release of mine drainage water)
- Lean season flow of the nallah from where water is drawn

4.3.b Groundwater

Since the mining is excavation of the earth, the groundwater is affected to a great extent.

The study should include;

- Groundwater potential, recharge and budgeting
- Hydrogeology and aquifer characteristics of the area
- Groundwater quality, groundwater potential of the area and its availability, groundwater table (pre monsoon and post monsoon)
- The details of locations of groundwater observation wells with respect to core zone should be described.
- The monitoring stations should cover the whole study area

4.3.c Additional Information

- Water bodies existing and water bodies likely to be created due to mining activities
- Water requirement and waste water generation from various activities of mine, including township, beneficiation etc.
- Waste water treatment, recycling and reuse

4.4 Noise Environment

The study should include

- Locations of monitoring stations for noise measurements in accordance with the direction and distance from the sources and habitations.
- Day-time and night-time noise level monitoring (leq)
- Vibration and air over pressure, caused due to blasting, transport and process equipments, wherever applicable

4.5 Biological Environment

Information on flora and fauna within the study area should be given separately

4.5(a) Flora

- Detail description of vegetation type in core and buffer zone (include photograph)
- Assessment of plant species with respect to their dominance, density, frequency, abundance, diversity index, similarity index, importance value Index.
- Quantitative estimation of forest and non-forest flora
- Type of forest in study area and its conservation status.
- Information on the dependence of local people on minor forest products
- Location of National Parks, Sanctuary, Biosphere Reserve, Tiger Reserve, Elephant Reserve, wild life migratory routes in core and buffer zones

4.5(b) Fauna

- Assessment of fauna and avi-fauna.
- List out endangered and endemic species as per the schedule of the Wildlife Protection Act, 1972
- Information on breeding and hibernating sites in core and buffer zone.

4.6 Socio- Economic Environment

The baseline study should cover the following

- Data on demography, traditional skills, sources of livelihood within the study area
- Socio-economic profile of the people with in 2, 5 and 10 km from the mine.
- Human settlement, health status, sources of livelihood

- Data relating to historically, culturally and ecologically important places in core as well as buffer areas
- Information on notified tribal settlements, if any
- Details of private lands with ownership in the core area indicating financial loss annually
- Health status of the population in the study area

4.7 Waste Generation

The report should cover the following

- Solid waste from mining and processing operations, their quality and quantity (overburden, low-grade ore etc.) Quantity and quality of associated minerals and possible recovery
- Top soil quantity , quality and its management
- If waste contain any hazardous/toxic/radioactive substances or heavy metals, then details
- Recovery and recycling possibilities
- Site features of locations of waste storage and disposal
- Leaching properties of overburden and other solid waste
- Solid waste generation from Effluent Treatment Plant township, hospitals etc.

4.8 Any specific inputs which are likely to be added the site and its surroundings. Salient feature of the area, which require specific study.

Specific Condition	Study Required
Nearness to Water Body/reservoir	Detail Hydrogeology and Hydrology
Nearness to Forest/	Detail Conservation Plan
Nearness to Township	Blasting Vibration Study
Groundwater Scarcity Area	Details of Groundwater Recharge

5.0 Anticipated Impacts and Mitigation Measures

This chapter should describe the likely impact on each of the identified environmental component by adopting methods such as mathematical model, empirical method, reference of previous studies etc., Details of mitigation measures proposed in the project (site specific) to minimize the adverse effect, should be discussed. The information should cover mine development, operation and closure phases of the project, as applicable.

5.1 Land Environment

Anticipated Impacts:

- Impact on topography, drainage pattern, land use with respect to agriculture, forestry, built-up area etc.
- Impact on soil quality and agriculture
- Soil erosion
- Subsidence
- Visual Impact on surrounding environment

Mitigation Measures:

- Plan for restoration/rehabilitation of mined-out area
- Technological measures to prevent soil erosion from core and buffer zones
- Plantation/afforestation of local varieties of plants
- Measures to control and conserve runoff from various locations.
- Landscaping, plantation, aforestation to minimize adverse visual and noise impact

5.2 Air Environment

Impact of mineral transportation within and outside the lease. The entire sequence of mineral production, transportation, handling, transfer and storage of minerals and wastes and the impacts on air quality is to be shown in a flowchart with specific points where fugitive emissions can arise and specific pollution control / mitigative measures are proposed to be put in place. The adequacy of roads existing in the area and if new roads are to be laid the impact of the construction of roads particularly if it is crossing forest lands.

Anticipated Impacts:

- Emission Inventory of SPM, RSPM, SO2, NOX, and site specific pollutants
- Prediction of fugitive dust emissions due to mining activities, crushing and cleaning plants, loading and unloading, transportation by rail, road or conveyor.
- Impact of fugitive dust emission on flora and fauna
  Prediction of impact on ambient air quality using appropriate mathematical model (area, point and line sources). Description of model, input requirements and reference of derivation. Isopleths distribution of major pollutants and their analysis and presentation in tabular form/base map.

6.0 Environmental Monitoring Program

In order to focus on environmental management during project implementation and execution stage, the project proponent is required to spell out detailed plan and should include the following;

- Monitoring of quality of water, air, noise, vibration and occupational health status of project personnel and surrounding habitations.
- Planned monitoring program to evaluate the effectiveness of various / specific aspects of technological / mitigation measures.
- Environmental audit of various activities including budgeting and financial management with reference to environmental management.
- Hydrogeological monitoring for the entire mine life and restrictive monitoring during reclamation.
- Plantation monitoring programme to ensure survival and growth rate of plantations.
- Analysis of data, its interpretation and evaluation (any additional studies to be carried out if required)
- Mine closure plan along with the fund requirement for implementation of the activities proposed there under.

7.0 Additional Studies

7.1 Public consultation

Public hearing with the issues raised by the public and the response of the project proponent in tabular form should be discussed

7.2 Risk Assessment (RA) and Disaster Management Plan (DMP)

Mining activities are always associated with risk relating to hazards and accidents. Therefore risk analysis and risk mitigation should be clearly indicated in the report. This should include the following:

- Identification and type of risk associated with mining (slope failure, subsidence, fly rock fragments, fires, toxic / hazardous / flammable gas release / explosion, inundation etc.)
- Details of safety measures to prevent accident and disaster
- Disaster management plan and emergency response system with proper organizational setup to deal with such situation.
- Disaster management plan for safe mining particularly for underground mines where toxic fumes and other risks are involved.
- Occupational health risks

EIA ... of India, Hyde...

7.3 Natural resource conservation

Plan of action for conservation of natural resources and recycle waste materials due to the project activity in the construction and operational phase of the project is to be discussed. Energy efficiency measures in the activity are to be drawn up.

7.4 R & R Action Plan

Detailed R & R plan with data on the existing socio-economic status of the population in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternative livelihood concerns/employment for the displaced people, civil and housing amenities being offered, etc and the schedule of the implementation of the project specific R & R Plan if any is to be given. Details of provisions (capital and recurring) for the project specific R & R Plan and monitoring mechanism for the implementation of the plan.

Details of Corporate Social Responsibility activities and cost provisions (capital and recurrent per annum over the life of the project)

8.0 Project benefits

This section describes the improvements in physical and social infrastructure. It details out the employment potential and other benefits that are accrued.

9.0 Environmental cost-benefit analysis

The environmental cost-benefit analysis is to be taken up if recommended in the scoping stage.

10.0 Environmental Management Plan (EMP)

- Administrative and technical set up for management of environment
- Mechanism of self monitoring for compliance with environmental regulations
- Institutional arrangements proposed with other organizations/ Govt. authorities for effective implementation of proposed environmental management plan
- Conservation plan for the endangered / endemic flora and fauna found in the study area and for safety of animals visiting / residing in the study area and also those in the migratory corridor.
- Integrating in the environmental management plan measures for minimising use of natural resources – water, land, energy etc.

11.0 Summary and Conclusion (Summary EIA)

The summary should be a clear presentation of the finding of critical environmental issues and their resolutions. Whenever possible, the summary should make use of base maps, tables and figures. Information should be succinct with meaningful presentations. It must be able to stand alone as a document. It should necessarily cover the following:

- Introduction
- Project description and Project benefits
- Anticipated environmental impacts and mitigation measures
- Additional studies
- Environmental Monitoring Program
- Environmental Management Plan
- Risk Assessment (RA) and Disaster Management Plan (DMP)

12.0 Disclosure of consultants engaged

The team of consultants engaged in this project is to be given.

Enclosures

Feasibility Report /Questionnaire / Photos and plate of the Project Site