

No. J-11015/423/2008-IA.II(M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
CGO Complex,
New Delhi-110510.

To

Dated: 29th December 2008

Chief General Manger,
M/s Mahanadi Coalfields Ltd.,
P.O. Jagruti Viah, Burla,
Sambalpur- 768 020.

Sub: Lajkura OCP Expn. (3 MTPA) of **M/s MCL**, Talcher Coalfields , District Jharsuguda, Orissa
- Terms of Reference (TOR) – reg.

Sir,

This is with reference to letter no. 43011/104/2008-CPAM dated 23rd September regarding the above-mentioned proposal, which was considered in the meeting of the Expert Appraisal Committee (Thermal & Coal Mining Projects) held on 20th –21st October 2008. It was noted that the proposal is for expansion of the Lajkura opencast mine of 2.5 MTPA capacity (normative) and 3 MTPA (peak).

The proponent made a detailed presentation. It was informed that the original project does not involve any PF or RF, however, the expansion project includes 147.56 ha of forestland. No external OB dump is proposed as it is planned to rehandle the waste for backfilling. The project does not involve diversion/modification of natural drainage. R&R involves 90 PAFs from existing project (which has been completed) and 15 PAFs form the expansion project.

The Committee after discussions decided that the project would require conduct of P.H. The Committee also desired for flora-fauna inventorisation and Conservation Plan for the endangered species found in the expansion project.

Based on the application along with documents and presentation thereon and discussions held, the Committee prescribed the following TOR:

- (i) An EIA-EMP Report would be prepared for **2.5 MTPA capacity (normative) and 3 MTPA (peak)** rated capacity based on the generic structure specified in Appendix III of the EIA Notification 2006.
- (ii) An EIA-EMP Report would be prepared for 2.5 MTPA capacity (normative) and 3 MTPA (peak) rated capacity cover the impacts and management plan for the project specific activities on the environment of the region, and the environmental quality – air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modelling for 2.5 MTPA capacity (normative) and 3 MTPA (peak) of coal production based on approval of project/Mining Plan for 2.5 MTPA capacity (normative) and 3 MTPA (peak). Baseline data collection can be for any season except monsoon.
- (iii) A map specifying locations of the State, District and Project location.
- (iv) A Study area map of the core zone and 10km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage of rivers/streams/nalas/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries/mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km area of the buffer zone should be given.
- (v) Land use map (1: 50,000 scale) based on a recent satellite imagery of the study area may also be provided with explanatory note of the land use. Satellite imagery per se is not required.

- (vi) Map showing the core zone delineating the agricultural land (irrigated and unirrigated, uncultivable land (as defined in the revenue records), forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
- (vii) A contour map showing the area drainage of the core zone and 2-5 km of the buffer zone (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated as a separate map.
- (viii) A detailed Site plan of the mine showing the various proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, CHP, ETP, Stockyard, township/colony (within and adjacent to the ML), undisturbed area and if any, in topography such as existing roads, drains/natural water bodies are to be left undisturbed along with any natural drainage adjoining the lease /project and modification of thereof in terms of construction of embankments/bunds, proposed diversion/rechannelling of the water courses, etc., approach roads, major haul roads, etc.

In case of any proposed diversion of nallah/canal/river, the proposed route of diversion/modification of drainage and their realignment, construction of embankment etc. should also be shown on the map.

Similarly if the project involves diversion of any road/railway line passing through the ML/project area, the proposed route of diversion and its realignment should be shown.

- (ix) Break up of lease/project area as per different land uses and their stage of acquisition.
- (x) Break-up of lease/project area as per mining operations.
- (xi) Impact of changes in the land use due to the start of the projects if much of the land being acquired is agricultural land/forestland/grazing land.
- (xii) Collection of one-season (non-monsoon) primary baseline data on environmental quality - air (SPM, RSPM, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As. etc), noise, water (surface and groundwater), soil.
- (xiii) Map of the study area (1: 50, 000 scale) (core and buffer zone clearly delineating the location of various stations superimposed with location of habitats, other industries/mines, polluting sources. The number and location of the stations in both core zone and buffer zone should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable.
- (xiv) Detailed inventory of the existing flora and fauna in the study area (10km) carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna. If the study area has endangered flora and fauna, or if the project falls within 15 km of an ecologically sensitive area, then a comprehensive Conservation Plan should be prepared and furnished along with comments from the CWLW of the State Govt.
- (xv) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until end of mine life should be reflected on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The progressive mine development and final mine closure plan should also be shown in figures.
- (xvi) Details of mining methods, technology, equipment to be used, etc., rationale for selection of that technology and equipment proposed to be used vis-à-vis the potential impacts.
- (xvii) Impact of mining on hydrology, modification of natural drainage, diversion and channelling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (xviii) Detailed water balance should be provided. The break up of water requirement for the various mine operations should be given separately.
- (xix) Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-à-vis the competing users.
- (xx) Impact of mining and water abstraction use in mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term modelling studies on. Details of

rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.

- (xxi) Impact of blasting, noise and vibrations.
- (xxii) Impacts of mining on the AAQ, predictive modelling using the ISCST-3 (Revised) or latest model.
- (xxiii) Impacts of mineral transportation – within and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop, management plan for maintenance of HEMM, machinery, equipment. Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities.
- (xxiv) Details of waste generation – OB, topsoil – as per the approved calendar programme, and their management shown in figures as well explanatory chapter with tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use. No external OB dump is proposed as it is planned to rehandle the waste for backfilling.
- (xxv) Impact and management of wastes and issues of rehandling and backfilling and progressive mine closure and reclamation.
- (xxv) Flow chart of water balance. Treatment of effluents from workshop, township, domestic wastewater, mine water discharge, etc. Details of STP in colony and ETP in mine. Recycling of water to the max. possible extent.
- (xxvi) Occupational health issues. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine.
- (xxvii) Disaster Management Plan.
- (xxviii) Integrating in the Env. Management Plan with measures for minimising use of natural resources - water, land, energy, etc.
- (xxix) Progressive Green belt and afforestation plan (both in text, figures as well as in tables prepared by MOEF). and selection of species (local) for the afforestation/plantation programme based on original survey/landuse.
- (xxx) 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 using the study area as a migratory corridor.
- (xxxi) Final Mine closure issues, post mining land use and restoration of land/habitat to pre- mining. A Plan for the ecological restoration of the area post mining and for land use should be prepared with detailed cost provisions.
- (xxxii) Including cost of EMP (capital and recurring) in the project cost and for progressive and final mine closure plan.
- (xxxiii) Details of R&R. Detailed project specific R&R Plan with data on the existing socio-economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan.
- (xxxiv) Public Hearing should cover the details of notices issued in the newspaper, proceedings/minutes of public hearing, the points raised by the general public and commitments made by the proponent should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
- (xxxv) In built mechanism of self-monitoring of compliance of environmental regulations.
- (xxxvi) Status of any litigations/ court cases filed/pending on the project.
- (xxxvii) Submission of sample test analysis of:
- (xxxviii) Characteristics of coal to be washed- this includes grade of coal and other characteristics – ash, S and heavy metals including levels of Hg, As, Pb, Cr etc.

The following general points should be noted:

- (i) All documents should be properly indexed, page numbered.
- (ii) Period/date of data collection should be clearly indicated.
- (iii) Authenticated English translation of all material provided in Regional languages.

- (iv) After the preparation of the draft EIA-EMP Report as per the aforesaid TOR, the proponent shall get the Public Hearing conducted as prescribed in the EIA Notification 2006 and take necessary action for obtaining environmental clearance under the provisions of the EIA Notification 2006.
- (v) The letter/application for EC should quote the MOEF file No. and also attach a copy of the letter prescribing the TOR.
- (vi) The copy of the letter received from the Ministry on the TOR prescribed for the project should be attached as an annexure to the final EIA-EMP Report.
- (vii) The final EIA-EMP report submitted to the Ministry must incorporate the issues in TOR and that raised in Public Hearing. The index of the final EIA-EMP report, must indicate the specific chapter and page no. of the EIA-EMP Report where the specific TOR prescribed by Ministry and the issue raised in the P.H. have been incorporated. Mining Questionnaire (posted on MOEF website) with all sections duly filled in shall also be submitted at the time of applying for EC.

After the preparation of the draft EIA-EMP Report as per the aforesaid TOR, and the public Hearing conducted as prescribed in the EIA Notification 2006 and the proponent will take necessary action for obtaining environmental clearance under provisions of the EIA Notification 2006.

Yours faithfully,

(Dr.T.Chandini)
Director

Copy to: Orissa State Pollution Control Board, Parivesh Bhawan, A/118, Nilkanthanagar, Unit VIII, Bhubaneswar – 751012.