

No. J-11015/168/2009-IA.II(M)  
Government of India  
Ministry of Environment & Forests

Paryavaran Bhawan,  
CGO Complex,  
New Delhi-110510.

To

Dated: .. August 2009

Shri A.V. Palekar,  
**M/s Goa Industrial Development Corp.**  
Plot No. 13-A-2, EDC Complex,  
Patto Plaza, PANJIM- 403001,  
GOA.

**Sub: Proposed Coal Mining Project Gare Pelma Sector-III Opencast-cum-Underground Coalmine Project (5 MTPA normative and 6.5 MTPA peak) with a pit head Coal washery of 5 mTPA capacity of M/s Goa Industrial Development Corp., dist. Raigarh, Chhattisgarh - Terms of Reference (TOR) – reg.**

Sir,

This is with reference to letter no. Goa IDC/MD/Coal Block/635 dated 25<sup>th</sup> May 2009 regarding the aforesaid new **Gare Pelma Sector-III Opencast-cum-Underground Coalmine Project (5 MTPA normative and 6.5 MTPA peak) with a pit head Coal washery of 5 mTPA capacity Project** proposal of **M/s Goa Industrial Development Corp.**, which was considered in the meeting of the Expert Appraisal Committee (Thermal & Coal Mining Projects) held on 21<sup>st</sup> –22<sup>nd</sup> July 2009. The proposed project is to be located in district Raigarh, in Chhattisgarh over a project area of **714.35 ha** with a peak production capacity of **6.5 MTPA**. It was informed that of the total ML area of 649 ha, 442 ha is for opencast operations. There is no ecologically sensitive area found within 15 km of the core zone (project area). However, the project area has Chote-Bade Jhad Ke Jungle (56 ha) and Protected forest – 158 ha. River Kelo passes through the ML area where UG mining would be carried out and the river would not be disturbed. It was informed that a coal washery and FBC based TPP would form part of the project.

The Committee desired the details of surface rights and mining rights for the UG operations be furnished. The Committee desired that a detailed area drainage study-cum-hydrology of the area be done to study the impact of mining on River Kelo and other surface water bodies such as streams found within and adjoining the ML area. The impact of mining on the hydrogeology should also form a part of the study. The Committee desired that a detailed R&R Plan also be furnished. The Committee desired that impacts on forestland and a detailed flora-fauna inventorisation be carried out by institutions with the relevant expertise. The details of the washery and FBC based TPP should be provided and the integrated impacts-cum-management plan should form a part of the EIA-EMP Report. The Committee decided that an application for the FBC based TPP should be submitted for consideration of the Committee for grant of TOR.

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

- (i) An Integrated EIA-EMP Report would be prepared for the **proposed Gare Pelma Sector-III Opencast-cum-Underground Coalmine Project (5 MTPA normative and 6.5 MTPA peak rated capacity) with a pit head Coal washery of 5 mTPA capacity** in an ML/project area of 714.35 ha based on the generic structure specified in

Appendix III of the EIA Notification 2006. The details of the impacts of the proposed washery and FBC based TPP should be provided and the integrated impacts-cum-management plan should form a part of the EIA-EMP Report.

- (ii) The Integrated EIA-EMP Report prepared for **5 MTPA normative and 6.5 MTPA peak** rated capacity **with a pit head Coal washery of 5 mTPA** capacity would 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 **5 MTPA normative and 6.5 MTPA peak** of coal production based on approval of project/Mining Plan for **5 MTPA normative and 6.5 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. details of surface rights and mining rights for the UG operations be furnished.
- (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<sub>x</sub> , NO<sub>x</sub> 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) Study on 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.
- (xv) 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) Study on subsidence, measures for mitigation/prevention of subsidence, modelling subsidence prediction and its use during mine operation, safety issues.
- (xviii) 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. A detailed area drainage study-cum-hydrology of the area be done to study the impact of mining on River Kelo and other surface water bodies such as streams found within and adjoining the ML area. The impact of mining on the hydrogeology should also form a part of the study.
- (xix) Detailed water balance should be provided. The break up of water requirement for the various mine operations should be given separately.
- (xx) Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-à-vis the competing users.
- (xxi) 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.
- (xxii) Impact of blasting, noise and vibrations.
- (xxiii) Impacts of mining on the AAQ, predictive modelling using the ISCST-3 (Revised) or latest model.
- (xxiv) 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.

- (xxv) 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. OB dump heights and terracing should be based on slope stability studies with a max of 28° angle as the ultimate slope. Sections of dumps (ultimate) (both longitudinal and cross section) with relation to the adjacent area should be shown.
- (xxvi) Impact and management of wastes and issues of rehandling and backfilling and progressive mine closure and reclamation.
- (xxvii) 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.
- (xxviii) 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.
- (xxix) Disaster Management Plan.
- (xxx) Integrating in the Env. Management Plan with measures for minimising use of natural resources  
– water, land, energy, and energy.
- (xxxi) 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.
- (xxxii) 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.
- (xxxiii) 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.
- (xxxiv) Including cost of EMP (capital and recurring) in the project cost and for progressive and final mine closure plan.
- (xxxv) 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.
- (xxxvi) 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.
- (xxxvii) In built mechanism of self-monitoring of compliance of environmental regulations.
- (xxxviii) Status of any litigations/ court cases filed/pending on the project.
- (xxxix) Submission of sample test analysis of:  
Characteristics of coal - this includes grade of coal and other characteristics – ash, S and heavy metals including levels of Hg, As, Pb, Cr etc.

#### **TOR FOR COAL WASHERY**

Based on the presentation made and discussions held, the Committee prescribed the following TOR:

- (i) A brief description of the plant, the technology used, the source of coal, the mode of transport of incoming unwashed coal and the outgoing washed coal. Specific pollution control and mitigative measures for the entire process.

- (ii) The EIA-EMP report should cover the impacts and management plan for the project of the capacity for EC is sought and the impacts of 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 for the rated capacity. If the washery is captive to a coal mine/TPP/Plant the cumulative impacts on the environment and usage of water should be brought out along with the EMP.
- (iii) A Study area map of the core zone and 10km area of the buffer showing major industries/mines and other polluting sources, which shall also indicate the migratory corridors of fauna, if any and the areas where endangered fauna and plants of medicinal and economic importance are found in the area. If there are any ecologically sensitive areas found within the 15km buffer zone, the shortest distance from the National Park/WL Sanctuary Tiger Reserve, etc should be shown and the comments of the Chief Wildlife Warden of the State Government should be furnished.
- (iv) Collection of one-season (non-monsoon) primary base-line data on environmental quality – air (SPM, RSPM, SO<sub>x</sub> and NO<sub>x</sub>), noise, water (surface and groundwater), soil.
- (v) Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations vis-à-vis washery should be given separately. Source of water for use in mine, sanction of the competent authority in the State Govt.. and examine if the unit can be zero discharge including recycling and reuse of the wastewater for other uses such as green belt, etc.
- (vi) Impact of choice of the selected use of technology and impact on air quality and waste generation (emissions and effluents).
- (vii) Impacts of mineral transportation - the entire sequence of mineral production, transportation, handling, transfer and storage of mineral and waste, if any, and their impacts on air quality should be shown in a flow chart with the specific points where fugitive emissions can arise and the specific pollution control/mitigative measures proposed to be put in place.
- (viii) Details of various facilities to be provided for the personnel involved in mineral transportation in terms of parking, rest areas, canteen, and effluents/pollution load from these activities. Examine whether existing roads are adequate to take care of the additional load of mineral [and rejects] transportation, their impacts. Details of workshop, if any, and treatment of workshop effluents.
- (ix) Impacts of CHP, if any on air and water quality. A flow chart of water use and whether the unit can be made a zero-discharge unit.
- (x) Details of green belt development.
- (xi) Including cost of EMP (capital and recurring) in the project cost.
- (xii) Public Hearing details of the coal washery to include details of notices issued in the newspaper, proceedings/minutes of public hearing, the points raised by the general public and commitments made in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
- (xiii) Status of any litigations/ court cases filed/pending on the project.
- (xiv) Submission of sample test analysis of:
  - I 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.
  - II Characteristics and quantum of washed coal.
  - III Characteristics and quantum of coal waste rejects.
- (xv) Management/disposal/Use of coal waste rejects
- (xvi) Copies of MOU/Agreement with linkages (for stand alone washery) for the capacity for which EC has been sought.

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 on the opencast-cum-underground coal mine cum-coal washery 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 details of the Integrated EIA-EMP Report should be summarised in the Mining Sector Questionnaire posted on the MOEF website with all sections duly filled in and furnished along with the EIA-EMP (Final) Report.
- (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.

Yours faithfully,

(Dr.T.Chandini)  
Director

Copy to: Chairman, Chhattisgarh Environment, Conservation Board, 1-Tilak Nagar, Shiv Mandir Chowk, Main Road, Avanti Vihar, RAIPUR-Chhattisgarh – 492001.

No. J-11015/168/2009-IA.II(M)  
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Paryavaran Bhawan,  
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New Delhi-110510.

To

Dated: 23<sup>rd</sup> June 2011

Shri A.V. Palekar,  
**M/s Goa Industrial Development Corp.**  
Plot No. 13-A-2, EDC Complex,  
Patto Plaza, PANJIM- 403001,  
GOA.

### **MODIFICATION OF TOR**

**Sub: Proposed Gare Pelma Sector-III Coal Mine Project (5 MTPA normative and 6.5 MTPA Peak) with a pit-head coal washery (5 MTPA) of M/s Goa Industrial Development Corp., dist. Raigarh, Chhattisgarh (Further consideration of TOR – letter dated 30.03.2011)**

Sir,

This is with reference to further consideration of the aforesaid proposal on the issues raised in the EAC (T&C) meeting held on 24<sup>th</sup> -25<sup>th</sup> January 2011 regarding an application for modification of TOR submitted on 19.02.2010 and 07.06.2010 for preparation of an integrated EIA/EMP of mines and washery alone and for deletion of establishing the FBC based TPP which was a condition in the TOR. It was informed that the coal block has been allotted to Goa Industrial Development Corp. It was clarified that no surplus power would be available over that to be allocated to Goa and Chhattisgarh as per MOU and MOC Allocation Letter. It was informed that Goa Industrial Dev. Corp. was the lessee and a SPV, namely KSK Mahandai Power Co. Ltd. would be created for the establishment and operation of the TPP being established in Bilaspur, Chhattisgarh, and its construction was started 8 months earlier. It was stated that the entire washed coal from the mine would be consumed by the 3x600 MW TPP. The coal rejects would be sold to M/s SV Power for their FBC based TPP, which is being commissioned outside Raigarh in about 3 months and in view of this, requested for deletion of the TOR condition for establishing an FBC based TPP. The PP informed that an MOU would be entered with SV Power for use of coal rejects. It was informed that Mining Plan has been approved and until the mine is operational, the proponent would seek a tapering linkage for the linked TPP until the mine reaches its rated capacity.

The Committee after discussions agreed for deletion of the TOR condition for an application for establishment of a FBC based TPP for use of coal rejects from the mine-cum-washery. Accordingly, the words- 'cum-FBC based TPP' stand deleted from TOR condition No. (i) and wherever they appear.

All other conditions remain the same.

(Dr.T.Chandini)  
Director

Copy to: Chairman, Chhattisgarh State Environment Conservation Board, 1-Tilak Nagar, Shiv Mandir Chowk, Main Road, Avanti Vihar, RAIPUR-Chhattisgarh – 492001.