

No. J-11015/35/2011-IA.II(M)
Government of India
Ministry of Environment & Forests

Paryavaran Bhawan,
CGO Complex,
New Delhi-110510.

To

Dated: 23rd March 2011

Chief General Manager (E&F),
M/s Bharat Coking Coal Ltd.,
Koyla Bhawan, Dhanbad,
Jharkhand.

Sub: Cluster II (5 mines of a combined prod. capacity of 15.55 MTPA with a peak prod. of 20.215 MTPA in a combined ML area of 2025.71 ha), located in Jharia Coalfields, dist. Dhanbad, Jharkhand- Terms of Reference (TOR) – reg.

Sir,

This is with reference to letter no. 43011/3/2011-CPAM dated 4th Feb. 2011 of Ministry of Coal forwarding the application on the aforesaid proposal and its consideration in the meeting of EAC (T&C) held on 21-22nd February 2011. It was informed that the cluster II consists of 5 mines .Out of 2 are OC and UG working mines and 3 OC mines of a combined ML area of 2025.71 ha and production capacity of **15.55 MTPA** (normative) and **20.215 MTPA** (peak) as given below:

S.N	MINES IN CLUSTER –II				
	Name of Mine	Production capacity (MTPA)		ML (ha)	Life of Mine (years)
		Normative	Peak		
1	BlockII Colliery OC & UG Mine	4.45	5.785	852.00	OC-30 UG-26
2	Jamunia OCP	1.20	1.56	55.0	6
3	Shatabdi OCP	1.40	1.82	181.30	28
4.	Muraidih Colliery (OC & UG Mine)	5.50	7.15	536.41	OC-6 UG-14
5	Phularitand OCP	3.00	3.90	401.00	18
	Total	15.55	20.215	2025.75	

Land Use Details of Cluster II

S.No	Type Land Use	Present Mining Land Use (ha)	Post- mining Land Use (ha)
1.	Running quarry		
	Backfilled	256.86	0
	Not Backfilled	234.39	0
2.	Abandoned quarry		
	Backfilled	14.29	0
	Not Backfilled	42.07	0
3.	External OB dump	49.33	0

4.	Service building/ mine infrastructure	34.25	0.6
5.	Coal dump	31.24	0
6.	Rail & Road	71.69	66.47
7.	Homestead land	181.58	147.2
8.	Agriculture land	275.32	153.14
9.	Forest land	29.75	29.75
10.	Plantation	35.6	1236.88
11.	Water body	49.91	139.23
12.	Barren land	719.42	252.44
	Total	2025.71	2025.71

Details of Rehabilitation in Cluster II

S.N.	Parameter	Details
1.	Total Voids	41.47 Mm³
2.	Total OB available	33.45 Mm³
3.	Total Unstable Sites	15 no.
4.	Total Affected Areas	260800 m²
5.	No. of Houses to be rehabilitated	1137 no. as per JAP
6.	Land for Resettlement	7.728 ha (BCCL land) 14.23 ha (Non-BCCL land)
7.	Total cost of fire dealing	18235 lakhs
8.	Total resettlement Cost	Rs 4508.58 lakhs

It was informed that the cluster is bound in the East by cluster III mines of BCCL, in the West by Jamunia River, in the North by metamorphic formations and in the South by cluster XV mines of BCCL. The mine area is drained in the west by Khodo river flowing easterly and in the east by seasonal nala flowing westerly to the Jamunia River.

The Committee desired that AAQ monitoring stations should be established based on the locations of habitations, pollution generating sources and the wind direction and should be checked for impacts of measures taken on the air quality in view of the fact that Dhanbad is a critically polluted area. The Committee desired that abandoned pits/quarries if any, of worked out mines of pre-nationalisation period should be backfilled and reclaimed with plantation properly. The Committee desired that the details of Jharia Action Plan involving resettlement of habitation from unstable sites within the cluster should be integrated with EIA-EMP study Report for the entire cluster along with clear time lines of the schedule of implementation. The Committee desired that R&R involving 1137 PAFs living in unstable locations within the cluster, for which the Jharia Action Plan has been formulated, should be included. The Committee also desired that a detailed CSR Plan for the entire cluster and Rs 5 per tonne of coal to be earmarked for activities under CSR. The Committee further desired that for monitoring of the proper implementation of CSR activity, a dedicated team of local people including the youth and multidisciplinary people along with a sociologist may be formed/created by company.

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

- (i) An Integrated EIA-EMP for the cluster of mines shall be prepared clearly bringing out the present status of 14 mines in **Cluster II (5 mines of 15.5 MTPA with a peak prodn. of 20.215 MTPA in a combined ML area of 2025.71 ha)** as above- status of env. quality and the extent of pollution load from each mine and the combined pollution load from the cluster of mines that would be

reduced by taking suitable mitigative measures for the individual mines and for the cluster and the expected improvement in the environmental quality of the mines in the cluster and within the coalfield after the implementation of the measures through an Integrated Environmental Management Plan formulated on the aforesaid basis. A fresh baseline data on the env. quality – air, water, land, biotic community, etc. shall be generated through collection of data and information, generation of data on impacts. Baseline data collection can be for any season except monsoon. Details of the present land use and post mining land use of the operating and abandoned mines individually and as a cluster shall be furnished as part of the EIA. A detailed Mine Closure Plan and a Mine Reclamation Plan for the abandoned mines (UG and OC)/pits/quarries found in the cluster shall be furnished as a part of EIA-EMP study. The closure of UG mines should ensure that no illegal mining is done thereafter from the mines. Details of long term benefits to environment because of cluster approach of mining shall be clearly addressed in the EIA-EMP study. In addition to the above, details of an Action Plan for project specific R&R and CSR shall also be formulated and presented in the EIA-EMP. The aforesaid Integrated Environmental Management Plan shall be dovetailed with the Jharia Action Plan and details of its implementation with specific time-lines should be provided. The Committee desired that the details of Jharia Action Plan involving resettlement of habitation from unstable sites within the cluster should be integrated with EIA-EMP study Report for the entire cluster along with clear time lines of the schedule of implementation. The Committee desired that R&R involving 1137 PAFs living in unstable locations within the cluster, for which the Jharia Action Plan has been formulated, should be included.

- (ii) The Integrated EIA-EMP shall be based on the generic structure specified in Appendix III of the EIA Notification 2006 and incorporate an Environmental Action Plan for mitigating the environmental degradation existing in the cluster and for improvement of the environmental quality (air, water and land) so that the region (Dhanbad), which is presently critically polluted, and show by implementation of the Env. Action Plan the discernible improvement of its environmental quality.
- (iii) A map specifying locations of the State, District and Project location. A map showing the Jharia Coalfields and the locations of the mines in the cluster.
- (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 mines in the cluster, locations of human habitations, major constructions including railways, roads, pipelines, major industries/mines and other polluting sources.
- (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 cluster of mines 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 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 of the mines of the cluster, 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 of each mine in the cluster.
- (x) Break-up of lease/project area as per mining operations of each mine in the cluster.
- (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 (PM₁₀, PM_{2.5}, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil. The Committee desired that AAQ monitoring stations should be established based on the locations of habitations, pollution generating sources and the wind direction and should be checked for impacts of measures taken on the air quality in view of the fact that Dhanbad is a critically polluted area.
- (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) 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.
- (xvi) Study on subsidence, measures for mitigation/prevention of subsidence, modelling subsidence prediction and its use during mine operation, safety issues.
- (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 for the cluster and for each mine 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 mines on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term modelling studies. 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 mineral transportation in an integrated manner using road-cum rail or rail network—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 & other machinery, equipment. Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities.
- (xxiii) 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.

- (xxiv) Impact and management of wastes and issues of rehandling and backfilling and progressive mine closure and reclamation for each mine in the cluster. The Committee desired that abandoned pits/quarries if any, of worked out mines of pre-nationalisation period should be backfilled and reclaimed with plantation properly.
- (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) Details of fire affected sites and areas affected by subsidence and unstable sites as given in Jharia Action Plan for Cluster II Group of Mines and their management for each along with time schedule for mitigation under the Jharia Action 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) for each mine along with selection of species (local) for the afforestation/plantation programme based on original survey/landuse.
- (xxx) Conceptual Final Mine Closure Plan for existing and abandoned mines with specific time lines and costs, post mining land use and restoration of land/habitat to pre-mining for each mine in the cluster. A Plan for the ecological restoration of the area post mining and for land use should be prepared with detailed cost provisions. The Committee desired that the abandoned quarries/mined out pits/voids left over from the pre-nationalisation period should be properly backfilled and biologically reclaimed to either plantation or restored to agricultural land. The Committee desired that details of land use end of mine life and post mining be furnished in the standard tables prepared by MOEF. In case, exploration does not indicate sizeable reserves, the proponent may consider surrendering the lease after completion of reclamation of the abandoned mines and worked out OC and UG mines.
- (xxxi) Including cost of EMP (capital and recurring) in the project cost and for progressive and final mine closure plan.
- (xxxii) Details of R&R in Jharia Action Plan for the cluster and its integration with the EMP. Cluster specific details of 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.
- (xxxiii) The Committee also sought a detailed CSR Plan for the entire cluster and Rs 5 per tonne of coal to be earmarked for activities under CSR. The Committee also desired that a detailed CSR Plan for the entire cluster and Rs 5 per tonne of coal to be earmarked for activities under CSR. The Committee further desired that for monitoring of the proper implementation of CSR activity, a dedicated team of local people including the youth and multidisciplinary people along with a sociologist may be formed/created by company.
- (xxxiv) Public Hearing for the entire cluster 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:
Characteristics of coal - this includes grade of coal and other characteristics – ash, S and heavy metals including levels of Hg, As, Pb, Cr etc.
- (xxxviii) Copy of clearances/approvals – such as Forestry clearances, Mining Plan Approval, NOC from Flood and Irrigation Dept. (if req.), etc.
- (xxxix) Grant of EC for the closed mines would be reviewed at the time of application for EC.

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.
- (viii) MOEF Circular dated 22.03.2010 may kindly be referred to regarding time limit for validity of Terms of Reference (TOR) prescribed under EIA Notification, 2006 for undertaking detailed EIA studies for development projects requiring environmental clearance.
- (ix) The TOR has a validity period of 2 years.

Yours faithfully,

(Dr.T.Chandini)
Director

Copy to: Member-Secretary, Jharkhand State Pollution Control Board, TA Building, HEC Complex, P.O. Dhurva, Ranchi - 834002.