

**MINUTES OF 16<sup>th</sup> MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENT APPRAISAL OF COAL MINING PROJECTS HELD on 22<sup>nd</sup> July, 2021 DURING 10.30 AM – 16.00 PM THROUGH VIDEO CONFERENCE.**

**Thursday, 22<sup>nd</sup> July, 2021**

**Confirmation of the Minutes of 15<sup>th</sup> Meeting of the EAC (Coal) held on 06<sup>th</sup> July, 2021:** The minutes of the 15<sup>th</sup> meeting of the EAC held during 06<sup>th</sup> July, 2021 was confirmed by the Chairman.

**Opening Remarks of the Chairman:** At the outset, the Chairman welcomed the Expert members & other participants and requested to start the proceeding as per the agenda adopted for this meeting.

**Consideration of Proposals:** The 16<sup>th</sup> meeting of the Expert Appraisal Committee (EAC) for coal mining projects was held on 22<sup>th</sup> July, 2021 through video conferencing with support NIC team due to Covid-19 lockdown. The EAC considered proposals as per agenda adopted for the meeting. List of participant attended the meeting is annexed. The details of deliberations held & decisions taken in the meeting are as under.

**Agenda No. 16.1**

**Expansion of Chhal Opencast coal mining from 3.5 MTPA to 6/7.5 MTPA (Normative/Peak) with increase of mine lease area from 641.013 ha to 1342.86 ha by M/s South Eastern Coalfields Limited located in Tehsil Dharamjaigarh, District Raigrah (Chhattisgarh) – For Environment Clearance – reg.**

**[Online Proposal No. IA/CG/CMIN/11029/2007; File no. J-11015/1000/2007-IA. II(M)]**

**16.1.1** The proposal is for Environment Clearance for Expansion of Chhal Opencast coal mining from 3.5 MTPA to 6/7.5 MTPA (Normative/Peak) with increase of mine lease area from 641.013 ha to 1342.86 ha by M/s South Eastern Coalfields Limited located in Tehsil Dharamjaigarh, District Raigrah (Chhattisgarh).

**16.1.2** The details of the proposal, as ascertained from the proposal documents and as revealed from the discussions held during the meeting, are given as under:

- (i) The project area is covered under Survey of India Topo Sheet No. 64 N/4 and is bounded by the geographical coordinates ranging from 22°4'40" N and 22°6'27" N and longitudes 83°6'10" E and 83°9'10" E
- (ii) Coal linkage: Thermal Power Stations
- (iii) Joint venture: No Joint Venture

- (iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13<sup>th</sup> January, 2010 has imposed moratorium on grant of environment clearance. Employment generation/To be generated: 296
- (v) Benefits of the Project: The coal mine will go a long way in fulfilling the demand nation's electricity and other coal-based industries, apart from earning revenue for the government. Opportunity of employment for the project affected villagers and allied industries
- (vi) Earlier, the environment clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter No J-11015/1000/2007-IA-I(M) dated 27.04.2010 for 3.5 MTPA in mine lease area of 641.013 ha.
- (vii) Total mining lease area as per block allotment is 1342.86 ha. Mining Plan (Including Progressive Mine Closure Plan) has been approved by the CIL Board on 16.12.2013
- (viii) The land usage pattern of the project is as follows:

Pre-mining land use details (Area in Ha)

S. No.	LAND USE	Within ML Area (Ha.)	Outside ML Area (Ha.)	Total
1	Agricultural Land	695.826	130.001	825.827
2	Forest Land	185.017	0	185.017
3	Waste Land	228.649	0	228.649
4	Grazing Land	31.632	0	31.632
5	Surface Water Bodies	23.426	0	23.426
6	Settlements	18.089	0	18.089
7	Others	24.056	6.164	30.220
<b>Total</b>		<b>1206.695</b>	<b>136.165</b>	<b>1342.86</b>

Post Mining land use details (Area in Ha)

Sl No	Land Use	Plantation (Ha)	Water Body (Ha)	Public Use (Ha)	Undisturbed (Ha)	Total
1	External OB Dump	130.73	0	0	0	137.73
2	Top Soil Storage	0	0	0	0	0
3	Roads	0	0	3.5	0	3.5
4	Green belt	144.47	0	0	0	144.47
5	Virgin Area	0	0	0	0	0
6	Other R&R ((50 Ha) & cultivable land (92.65 Ha))	5	0	142.65	0	142.65
7	Built up area (Colony/Office)	5	0	41.5	0	46.5
8	Internal OB dump	794.01	0	0	0	794.01

9	Excavation/quarry	0	81	0	0	81
	TOTAL	1074.21	81	187.65	0	1342.86

- (ix) Total geological reserve reported in the mine lease area is 197.257 MT with 151.36 MT mineable reserve. Out of total mineable reserve of 151.36 MT, 151.36 MT are available for extraction. Percent of extraction is 100%.
- (x) 13 seams with thickness ranging from 0.5 m to 11 m are workable. Grade of coal is G-11, stripping ratio 5.63, while gradient is 4° to 11°
- (xi) Method of mining would be Opencast method (Coal- Surface miner with front end loader and dumper; OB-Shovel and dumper combination)
- (xii) Life of mine is 30 years.
- (xiii) The project has one external OB dumps in an area of 130.73 ha with 90 m height and 71.52 Mcum of OB two internal OB in an area of 794.01 ha with 780.55 Mcum of OB is envisaged in the project.
- (xiv) Total quarry area is 875.01 ha out of which backfilling will be done in 794.01 ha while final mine void will be created in an area of 81 ha with a depth of 300 m. Backfilled quarry area of 794.01 ha shall be reclaimed with plantation. Final mine void will be converted water body
- (xv) Transportation of coal has been proposed by In-pit by trucks and in-pit belt conveyors both, from surface to siding by trucks and loading at sidings by railway and to local customers by trucks
- (xvi) Total afforestation Plan in an area of 1074.21 ha, comprising of 130.73 ha of external dump, 794.01 ha of internal dump and 144.47 ha of safety zone as green belt & 5 Ha others.
- (xvii) 185.017 ha of forest land has been reported to be involved in the project for which application has been made on 10th May 2016. Forest Clearance awaited.
- (xviii) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10 km boundary of the project.
- (xix) The ground water level has been reported to be varying between 2.52 m to 14.27 m during pre-monsoon and between 5.85 m to 14.27 m during post-monsoon between 2.52 m to 8.02 m. Total water requirement for the project is 6874 m<sup>3</sup>/day
- (xx) Application for obtaining the approval of the Central Ground Water Authority for dewatering ground water has been submitted on 30<sup>th</sup> December, 2017
- (xxi) Public hearing for the project of Chhal OC Seam-(III) 6.0 MTPA & 7.5 Peak capacity in an area of 1342.86 ha was conducted on 12.03.2021 near govt middle school, Nawapara, Tehsil-Dharamjaigarh, Dist. Raigarh (C.G.) under the Chairmanship of Additional Collector Raigarh. Major issues raised in the public hearing include compensation, RR, Environment, employment.
- (xxii) Consent to Operate for the existing capacity was obtained from the State PCB on 19/10/2020 and is valid till 25.09.2022
- (xxiii) Mand River is in the west, flowing southerly of the project
- (xxiv) Regular monitoring of ambient air quality is being carried out on fortnightly basis. The documented report is submitted to SPCB and also to MoEF&CC along with half yearly EC

compliance report. In general, the results of ambient air quality monitoring data were found within prescribed limits except few aberrations which can be attributed to the specific local conditions during the day of sampling.

(xxv) Pending legal litigations: -

- Case No. 218/2014 - case has been disposed of.
- Case No. Cr.MP 408-413/207 - Both the cases 408 & 413 have been disposed of.

(xxvi) The coal production, realized from the project, from 2006-07 onwards, is as under:

Year	EC capacity (MTPA)	Actual production (Million Tonnes)
2006-07	1.0 MTPA	0.827250
2007-08	1.0 MTPA	1.313140
2008-09	1.0 MTPA	2.594475
2009-10	1.0 MTPA	3.45
2010-11	3.5 MTPA	3.50
2011-12	3.5 MTPA	3.50
2012-13	3.5 MTPA	3.50
2013-14	3.5 MTPA	3.50
2014-15	3.5 MTPA	3.50
2015-16	3.5 MTPA	3.50
2016-17	3.5 MTPA	3.50
2017-18	3.5 MTPA	3.50
2018-19	3.5 MTPA	1.873083
2019-20	3.5 MTPA	1.470220
2020-21	3.5 MTPA	3.04174

(xxvii) The project involves 450 project affected families. The PAF's and PAP's are being rehabilitated and paid economic compensation/ employed as per State Govt. R&R package and Coal India rule.

(xxviii) Total cost of the project is Rs. 610.63 crores. Cost of production is Rs.685.02/- per tonne. at 85% production level, CSR cost is 2% of the average net profit of the company for the three immediate preceding financial years or Rs. 2.00 per tonne of coal production of previous year whichever is higher, R&R cost is Rs. 5354.49 lakhs. Environment Management Cost is Rs. 7731.45 lakh.

**16.1.3** The EAC during deliberations noted the followings:

- (i) The proposal is for Environment Clearance for Expansion of Chhal Opencast coal mining from 3.5 MTPA to 6/7.5 MTPA (Normative/Peak) with increase of mine lease area from 641.013 ha to 1342.86 ha by M/s South Eastern Coalfields Limited located in Tehsil Dharamjaigarh, District Raigrah (Chhattisgarh).

- (ii) Earlier, the environment clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter No. J-11015/1000/2007-IA.II(M) dated 27.04.2010 for Expansion of Chhal Opencast Coal Mine Project (1 MTPA to 3 MTPA with a peak production of 3.5 MTPA and increase in project area from 222.439 ha to 641.013 ha).
- (iii) Terms of Reference for the project was granted by Ministry on J-11015/1000/2007-IA.II(M) dated 20<sup>th</sup> July, 2017 for three years. Ministry vide its Notification dated 17<sup>th</sup> February, 2020 extended the validity of ToR for a period of 4 years. Further, PP has applied the proposal of EC on 9<sup>th</sup> July, 2021 which is under its validity period.
- (iv) The baseline data has been generated for three months i.e. from 1st October 2020 to 22 Dec 2020 covering one season (i.e. Post Monsoon Season).

Number of sampling location monitored were 09. The result indicates that the maximum and minimum values of PM<sub>10</sub> are in the range of 98.8 µg/m<sup>3</sup> to 55.10 µg/m<sup>3</sup>, whereas the PM<sub>2.5</sub> are in the range of 49.9 µg/m<sup>3</sup> to 29.3 µg/m<sup>3</sup>. The SO<sub>2</sub> concentrations within the study area are in the range of 31.2 µg/m<sup>3</sup> to 7.6 µg/m<sup>3</sup> and the NO<sub>x</sub> are in the range of 37.6 µg/m<sup>3</sup> to 11.5 µg/m<sup>3</sup>. The observed pollutant levels were compared with CPCB National Ambient Air Quality Standards and stated to be within the Standard limit.

The incremental increase in the values were projected to be 18.26 µg/m<sup>3</sup> for PM<sub>10</sub>, 4.96 µg/m<sup>3</sup> for PM<sub>2.5</sub>, 0.006 µg/m<sup>3</sup> for SO<sub>2</sub>, and 16.90 µg/m<sup>3</sup> for NO<sub>x</sub>. The depicted value of total GLC reported were 97.56 µg/m<sup>3</sup>, 45.36 µg/m<sup>3</sup>, 23.11 µg/m<sup>3</sup>, 32.45 µg/m<sup>3</sup> respectively. Though the value total GLC was under the prescribed Standards.

(Above values are for highest incremental value obtained through modelling in buffer zone at Agasmai Village (L6) in Downwind (SSW) 1.88 km from mine)

Surface water quality: Number of sampling location monitored were 09. The result indicates that the maximum and minimum values of BOD ranges between 11.2 mg/l to 2.3 mg/l, DO ranged between 7.8 mg/l to 5.7 mg/l, COD ranged between 30 mg/l to 10 mg/l and pH ranged between 6.81 to 6.32.

- (v) Mining Plan (Including Progressive Mine Closure Plan) has been approved by the SECL Board on 27<sup>th</sup> October, 2013.
- (vi) Public consultation for the project of 3 MTPA to 7.5 MTPA peak capacity in an area of 1342.86 ha was conducted on 12.03.2021 at Ground near Govt Higher Secondary School, Nawapara, Raigarh District CG, The PH meeting was chaired by ADM, Raigarh in assistance of Regional Officer, Raigarh (CECB). Major issues raised in the public hearing include employment, land compensation, R&R air & water pollution, blasting, road, CSR work etc. Appropriate action to address the issues raised in the Public Hearing

have already been taken/proposed to be taken.

- (vii) Mand river is flowing on west side of the mine boundary The 60 m width should be left as safety zone along the river side. To arrest the surface runoff and to protect any spill, it is proposed to strengthen the embankment along the boundary as per DGMS norms.

*16.1.4 The EAC, after detailed deliberation observed that PP and its consultants (M/s CMPDI) are unable to respond to the queries raised by EAC members w.r.t. various features of mining and technical details of the projects. For example, implementation of CHP whether movable or fixed type were not explained properly and it was observed that PP and its consultants where not clear about movement of CHP with respect to progress of active mine pit area. The Committee expressed displeasure on lack of clarity and inadequate content in presentation. The PP and consultant were unable to show the location of the OB dumps within the site. In this context, EAC had asked the PP to provide the longitudes and latitudes of all the OB dumps and mechanism of progressive backfilling. M/s CMPDI was advised to come prepared with full details.*

*From the above noted points, the EAC after deliberations noted that PP has not submitted the latest certified compliance report. It was also observed that Mine Plan is approved for 6.0 MTPA only however, PP is proposed for peak production of 7.5 MTPA is not as per approved Mine Plan. The Stage –I Forest clearance is yet to be obtained by the PP. The proposal further discussed on the observations made by EAC on the clarity of developing the nursery of SAL trees for plantations in the area suggested as the area is enriched with Sal plantation. Apart from this, permission of Central Ground Water Authority (CGWA) has not been obtained even after EC granted.*

*The Cumulative Impact Assessment (CIA) study is not conducted by the PP and consultant so the EAC had asked the for the CIA taking into account the source of dust emission form OB dumps, nearby highways, villages and industries. Also the depictions of the predicted values of total GLC was not properly explained by the consultant so the EAC had asked for a revised air modelling and to quantify the impact without and with mitigation measures. The water quality of the result seems not to be adequate, when asked by the EAC about the monitoring procedure, the consultant explained that one-time sampling was done for water quality analysis so the EAC had asked them to go for re monitoring and analysis of surface water especially of Mand River.*

*The PP while having a discussion on wildlife conservation plan said that sometime Elephants are passing by the mining site which an indication of Elephant Corridor, so the EAC had asked the PP to provide the budgetary break-up of the activities suggested in the wild life conservation plan submitted to the DFO.*

*The PP was not able to explain the mode of transportation of coal from the pit to the surface whether they will install fix type conveyor belt or movable one, so the EAC had suggested to go for crushing and the movable closed conveyor belt for transportation and asked the clarity on it and had*

asked to transportation 90% by conveyor belt and restrict the road transportation by 10%. EAC deferred the proposal for want of following observations:

- (i) PP shall provide monetary provisions for Wildlife Conservation Plan and breakup of the proposed activities submitted to the DFO.
- (ii) PP shall submit Cumulative Impact Assessment as per conditions mentioned in ToR.
- (iii) Approval of WL regarding certification of elephant corridor in vicinity of project site.
- (iv) PP to employ appropriate measure to control the environmental impacts of blasting such as noise, vibration, air blast etc. Use of state of the technology solution for design and simulation of each blast is strongly recommended to minimize the environmental impacts of blasting.
- (v) Stage –I Forest Clearance for forest land involved in the project for non-forestry activity to be provided by the PP
- (vi) PP shall submit the details of input parameters indicating the sources of fugitive dust emissions, and a flowchart showing the various mining activities considered for modelling of air quality.
- (vii) PP shall submit water quality report (to be tested again) for u/s & d/s of river Mand with source of pollution in river, water bodies w.r.t. drinking water parameters including BOD/COD.
- (viii) Reassessment of water table/hydrology considering effect of mining on river (quality and quantity wise) and impact of Pelam Dam. Further assessment of safety of Pelam dam due to blasting shall be conducted.
- (ix) As suggested by EAC, Plan for three tier plantation in the prescribed area with development of SAL nursery to be submitted by the PP.
- (x) PP shall submit approved Mine Plan including Mine Closure Plan for 7.5 MTPA (Peak capacity) showing stage wise mining and reclamation plan to minimize land requirement for production and maximize the land reclamation for restoration.
- (xi) In lieu of the proposed expansion of the mine area, PP shall explore the use of the flexible pit conveyor and mobile Coal Handling Plant so as to minimise the use of dumper.
- (xii) The proper location of the OB dumps along with its Longitude and Latitude to be provided by the PP with its proper restoration plan. PP shall propose location of OB away from the bank of river.
- (xiii) PP shall submit the impact on air quality with and without the adoption of mitigation measures.
- (xiv) Permission from CGWA for extraction ground water based on earlier EC via letter dated 13<sup>th</sup> January, 2006
- (xv) PP shall submit the report on optimising the blasting design and techniques in order to minimize its impact on the nearby areas
- (xvi) A copy of video recording of the site through drone to be shown in next meeting as recommended by EAC.
- (xvii) PP shall submit the latest Certified Compliance Report from Ministry's Regional Office.
- (xviii) Permission for diversion of state highway from State PWD and alternate road for movement of public shall be informed.
- (xix) Design details for construction of embankment (consider 150 mts and 4 mts height beyond HFL) along the Mand river and necessary permission shall be submitted.

The proposal was *deferred* on above lines.

**Agenda No. 16.2**

**Expansion of Jalagam Vengala Rao Opencast Mine (I&II Amalgamation + Expansion + 26.39 ha area) from 4 / 5 MTPA (Normative/ Peak) to 10 MTPA (Peak) with setting up of coal washery of 4 MTPA capacity in ML Area 1953.46 ha by M/s Singareni Collieries Company Limited at village Kommepalli near Sathupalli town, Sathupallimandal, Khammam District, (Telanagana) - For Reconsideration of Environment Clearance-reg.**

**[Online Proposal No. IA/TG/CMIN/171196/2019; J-11015/268/2007-IA.II (M)]**

**16.2.1** The proposal is for Environment Clearance for Expansion of Jalagam Vengala Rao Opencast Mine (I&II Amalgamation + Expansion + 26.39 ha area) from 4 / 5 MTPA (Normative/ Peak) to 10 MTPA (Peak) with setting up of coal washery of 4 MTPA capacity in ML Area 1953.46 ha by M/s Singareni Collieries Company Limited at village Kommepalli near Sathupalli town, Sathupallimandal, Khammam District, (Telanagana).

**16.2.3** The EAC during deliberations noted the following:

Earlier, the proposal was considered by EAC in its 10<sup>th</sup> meeting held on 22<sup>nd</sup> March, 2021 and was deferred based on certain observation. PP has submitted the compliance of observation of EAC and accordingly reply is noted below:

<b>Sl. No.</b>	<b>Observation of EAC</b>	<b>Reply of observation</b>
(i)	PP shall submit Past Production details of both the said minessince inception of mine duly authenticated by departments of Mine and Geology Government of Telangana or from Coal Controller vis-à-vis CTO.	Past production details of both the mines since inception are authenticated by the Department of Mines and Geology, Government of Telangana.  Copy of authentication was shown in the meeting by PP.
ii)	Fresh certified compliance report from Ministry's Regional Office shall be obtained and accordingly also submit action taken report of both the ECs (JVR- OC I and JVR OC II).	Deputy Director, MoEF&CC, Integrated Regional Office, Hyderabad inspected both the projects on 30 <sup>th</sup> April, 2021 and issued certified compliance report for both the ECs. Accordingly, action taken report was submitted.  Certified compliance reports of both the ECs along with the action taken report were shown in the meeting



iii)	PP should submit details of control blasting with adequate safeguard for nearby people.	<p>Controlled blasting is being carried out as per the permission obtained from the DGMS based on the recommendations of scientific studies carried out by CIMFR, Dhanbad to control ground vibrations, noise and fly rock.</p> <p>The measures being taken as per the conditions are furnished hereunder:</p> <ul style="list-style-type: none"> <li>• Suitable supervision</li> <li>• Regulating the explosive charge per delay so as to limit the vibrations to PPV of 10mm/s with a frequency more than 8 Hz.</li> <li>• Limiting the charge per delay to 100Kg for blasting up to 200m and 50 Kg while blasting up to 125m.</li> <li>• Avoidance of secondary blasting by using rock breaker</li> <li>• Safe initiation direction of the face with respect to nearest structure,</li> <li>• Avoidance of blasting in crushed/ broken/sliced ground.</li> <li>• Adequate burden distance and stemming column</li> <li>• Muffling of shot holes, etc.</li> </ul> <p>Copy of control blasting permission was shown by the PP in the meeting</p>
iv)	PP should conduct Noise and vibration monitoring in nearby habitation/villages during day and night for 1 month.	<p>Ambient noise in surrounding villages is being monitored once in a fortnight as a part of PPEM and blast induced ground vibrations are being monitored daily. All the noise and vibration readings are within the prescribed limits.</p> <p>However, as per the advice of EAC, Noise and vibration monitoring has been carried out through third party in nearby habitation/villages for 1 month. Details are as follows:</p> <ol style="list-style-type: none"> <li>i. Hourly monitoring of ambient noise has been carried out at six locations from 27th April, 2021 to 26th May, 2021, through EPTRI, Hyderabad. It is observed that the noise levels in terms of Leq (day) and Leq (night) are well within the stipulated standards at all the locations. Summary</li> </ol>

of the observations is as follows:

Station	Distance	Direction	Leq Day		Leq Night	
			Min	Max	Min	Max
NTR Nagar	0.9	E	46.8	52.1	36.7	43.0
Vengalano Nagar	0.12	N	46.6	51.6	34.7	42.0
Rejarla	0.82	S	49.0	52.9	36.5	42.4
Kistaram	1.23	NW	47.9	52.1	36.3	40.9
Jinugupalli	0.28	E	48.6	53.0	38.1	43.8
Pallewada	3.15	SW	47.9	51.7	36.6	39.5
Standards			55		45	

The monitoring report was shown by the PP

Blast induced ground vibrations and air overpressure are monitored for 346 blasts at 5 different locations through Uttam Blastech Pvt. Ltd., Hyderabad. Each blast was monitored with 5 No.s of Seismographs. Readings are triggered for only five blasts at one location (Near Sattemma Temple Rejarla). In other four locations no reading was triggered. Minimum and maximum PPV triggered are 0.508 mm/sec and 0.635 mm/sec respectively. Minimum and maximum Air over pressure recorded are 110.9 dB(A) and 127.3 dB(A) respectively. It is observed that the blast induced ground vibrations are within the stipulated standards. Summary of observations is as follows.

Station	Instrument distance	PPV (mm/sec)	Air Over Pressure dB(A)
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		from Blast site (m)	Min	Max	Min	Max	
		Near Sattemma Temple, Rejarla	501-2976	0.508	0.635	110.9	127.3
		Vengal Rao Nagar	1756-4126	NR	NR	NR	NR
		NTR Nagar/ Colony	2730-4284	NR	NR	NR	NR
		Jinugupalli Village	2130-3748	NR	NR	NR	NR
		Rejarla Village	972-3599	NR	NR	NR	NR
		<i>NR : Not Recorded (Readings Below Trigger Limit)</i>					
v)	PP should submit the point wise reply of Public Hearing with timeline and fund allotted. Proper response of public consultation with regard to pollution mitigation measures and demands of local people	Point wise reply of Public Hearing with timeline and fund allotted was shown in the meeting by the PP.					
vi)	Expenditure incurred for wildlife conservation, submitted during earlier ECs.	Wild life conservation plan for JVR OC-II was prepared for Rs.134.07 Lakhs and deposited with Forest Department for implementation. In addition, Wild life conservation plan was also prepared for the proposed JVR OC Mine (I&II Expansion) for an amount of Rs.2.57 Crores, which was approved by the Principal Chief Conservator of Forest (HoFF) and Chief Wild life Warden (FAC), TS. SCCL will deposit the funds in favor of State Forest Department on obtaining the actual demand and the Forest department will implement the works.					
vii)	PP should submit Effectiveness report of road and vegetation checked by authority.	Effectiveness report of road and vegetation from Sathupalli to Penuballi road is obtained from R&B department and enclosed as Annexure-F-1. Remaining road between Penuballi to Rudrampur road comes under NH-221, which is a built-on-toll					

		<p>road where operation and maintenance is being looked after by NHAI. It is proposed to take up plantation along this road during this monsoon as a part of Telangana Harithaharam Programme. Photos of Vegetation are furnished as Annexure.</p> <p>Besides this, Traffic impact assessment (TIA) study has been carried out through EPTRI, Hyderabad. From the TIA study, it is observed that there is no change in the LoS.</p>
viii)	PP shall bring out the action plan for upgrading the skills of the local people already employed in the mines.	<p>For upgrading the skills of the local people already employed in the mines, SCCL has been imparting trainings through company Mines Vocational Training Centre as per the MVTC Rules, 1966. The existing details as well as future action plan is as follows.</p> <ol style="list-style-type: none"> <li>Prior to employment - All new workers are imparted Basic/Initial training suitable to their job.</li> <li>On introduction of new technique/operation or machine - Connected workmen are trained in their new job prior to such engagement or employment.</li> <li>Once in every five years - Refresher training to all workers already employed on their job.</li> <li>Change of job training - To persons whenever their job is changed, suitable training prior to such employment.</li> </ol> <p>During the course of basic and refresher training, departmental HEMM operators are also being trained on simulators at Technical Training Centre, Ramagundam and OB off- loading operators are being trained through original equipment manufacturers.</p>
ix)	PP should submit the fund allocated for green belt development with proper timeline. PP should submit the detailed plan in tabular format (year-wise for life of mine) for afforestation and green belt	<p>As per the Revised cost estimates (RCE-II) of Jalagam Vengalrao Opencast Project-II approved on 13.03.2019, vide minute No.548.5.2, Rs.40.00 Lakhs were allocated as capital cost for Green Belt Development for 2 years.</p> <p>In addition, revenue cost of Rs.30.00 Lakhs per</p>

	development in and around the mining lease. PP should show on a surface plan (5-year interval for life of mine) of suitable scale the area to be covered under afforestation & green belt clearly mentioning the latitude and longitude of the area to be covered during each 5 years	<p>annum is allocated towards Green Belt Development &amp; Post Project Environment Monitoring throughout life of the project. Out of the Rs.30.00 Lakhs revenue fund provision, Rs.25 Lakhs will be spent towards green belt development and remaining Rs.5.00 Lakhs will be spent for post Project Environment Monitoring. If necessary, approval for any additional fund requirement beyond the estimations will be obtained.</p> <p>Copy of fund allocation was presented to EAC. Plan of suitable scale showing the area to be covered under afforestation &amp; green belt with latitude and longitude of the area to be covered during each 5 years is furnished as Annexure.</p>
x)	PP should submit the plan for installation of CAAQMS and its display system in the nearby habitations or at mine office.	<p>CAAQMS has been already installed at the present location in January, 2018 and its display system is provided at mine office with the consent of PCB authorities.</p> <p>CAAQMS is connected to TSPCB server in February, 2018 and real time data is available on TSPCB website.</p> <p>Photographs showing the CAAQMS station along with a sample real time monitoring report are furnished as Annexure.</p>
xi)	Plan and allotted fund for maintenance and widening (if any) for road transportation (32 km) of coal till the commissioning of railway siding.	<p>It is planned for repair of existing coal transportation road from Sathupalli town to V.M. Banjar, till the commissioning of railway siding.</p> <p>Accordingly, Rs.9.20 Crores were allocated for the proposal, out of which Rs.4.60 Crores were deposited to R&amp;B department and the work is under progress. The cheque deposited with R&amp;B department along with the photographs showing progress of were furnished in the meeting.</p>
xii)	PP shall study the impact Assessment and its mitigation measures w.r.t. proposed road route on receptors for environment parameters as per Ambient Air Quality standards	<p>EPTRI, Hyderabad has been entrusted to carry out the Impact assessment and its mitigation measures w.r.t road route.</p> <p>The study has been carried out for a period of one month from 23<sup>rd</sup> April - 22<sup>nd</sup> May 2021, along the coal transportation route in eight villages.</p> <p>From the study of Impact Assessment, it is inferred that the environment parameters PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>,</p>

		<p>NO<sub>2</sub> are within the stipulated Ambient Air Quality standards.</p> <p>However, following mitigation measures will be taken/continued to maintain the air quality parameters within the standards.</p> <ul style="list-style-type: none"> <li>• Loading of trucks up to brim level of the body to prevent spillage of coal.</li> <li>• Covering of trucks with tarpaulin while transporting coal.</li> <li>• Periodic checking for vehicle fitness and oil leakages of coal transportation trucks.</li> <li>• Obtaining PUC certificates for contractual coal tippers being deployed for coal transportation.</li> </ul> <p>The report of Impact Assessment and its mitigation measures were shown in the meeting.</p>
xiii)	Ministry shall form the EAC Subcommittee to conduct site visit to analyze the prevailing condition of the current scenario and implementation of measures approved by Ministry while granting EC dated 1st February, 2021 regarding Remediation plan and Natural and Community Resource Augmentation Plan	<p>The measures approved by Ministry while granting EC dated 1st February, 2021 regarding Remediation plan and Natural and Community Resource Augmentation Plan are being implemented.</p> <p>It is planned to complete all the measures approved to be completed within the time period of 3 years.</p> <p>The status of work progress is furnished as Annexure.</p> <p>Due to covid situation, site visit could not be performed. EAC decided to have assessment on basis of PP submission</p>
xiv)	PP shall propose air pollution mitigation measures for nearby villages of Kistaram and Siddaram.	<p>The following air pollution mitigation measures for Kistaram and Siddaram Village will be taken up in next three years.</p> <p>Village: Kistaram</p> <ol style="list-style-type: none"> <li>1. Deployed 12Kl water tanker for dust suppression from Pit CHP to Kistaram village at Khammam – Sathupalli PWD road, till the railway line is completed.</li> <li>Plantation of total 7000 No. of native plants including maintenance for 3 years.</li> <li>2. Distribution of 1000 No. of fruit bearing plants.</li> <li>3. Construction of 2 km length CC Roads &amp; drains</li> </ol>

		<p>and bore wells.</p> <p>4. Repairs of road from Sathupalli to Penuballi road including Y-Junction at Kistaram Village.</p> <p>Village: Siddaram</p> <p>1. Plantation of total 1000 No. of native plants including maintenance for 3 years.</p>
xv)	Plan for utilization of washery rejects in FBC Power Plant/ Thermal Power Plant.	The guidelines issued by MoC for 'Handling and Disposal of Washery Rejects' vide F. No. CCT-13011/3/2007-CA-I (Vol-III), dated 27.05.2021 will be followed.
xvi)	PP shall check the physical characteristics of OB material for extraction of sand for its further utilization in construction activity.	<p>To check the physical characteristics of OB material for extraction of sand for its further utilization in construction activity, SCCL conducted a study through JNTU, Hyderabad.</p> <p>After the study, JNTU-Hyderabad has recommended to use the processed sand from overburden for PCC, RCC and other civil constructions.</p> <p>As such, it is proposed to establish a pilot plant of 100 TPH capacity M-Sand (Manufactured sand) Plant at MOCP, Godavarikhani under 'BOO' business mode for a period of minimum 6 years.</p> <p>As all the SCCL coal mines are located in Godavari-Pranahitha Valley Coalfield, developed with Lower Gondwana rock formations, the rock properties will be similar in all mines with least variance.</p> <p>Hence, basing on the success at MOCP-Godavarikhani and based on the marketability of the product, a plant will be proposed in future.</p>

*16.2.4 The EAC, after detailed deliberation observed that the PP has submitted the reply of observation and presented in detail during the meeting which seems to be satisfactory. EAC discussed the comments, recommendations & related issues of the court cases filed in NGT against the company with PP and found that the damage to the property of the villagers located nearby were the major issue. EAC was of view that the PP should go for the optimizing the blasting technique to minimize the damages occurred to the nearby by locations. The recommendation of committee formed by Hon'ble NGT is independent and shall be followed by PP. Further, it was observed that instant proposal for amalgamation wherein mine void of JVR OCP-I will be used for dumping of OB generated from expanded capacity which will reduce the usage of virgin land for dumping.*

*Earlier, EAC desired for site visit by EAC sub-committee, however site visit could not be conducted due to ongoing Covid-19 pandemic. Accordingly, EAC excludes the site visit at this moment and may conduct site visit as and when situation is conducive.*

*The EAC **recommends** for grant of Environment Clearance to Expansion of Jalagam Vengala Rao Opencast Mine (I&II Amalgamation + Expansion + 26.39 ha area) from 4 / 5 MTPA (Normative/ Peak) to 10 MTPA (Peak) with setting up of coal washery of 4 MTPA capacity in ML Area 1953.46 ha by M/s Singareni Collieries Company Limited at village Kommepalli near Sathupalli town, Sathupallimandal, Khammam District, (Telanagana), under the provisions of EIA Notification, 2006 and its amendments therein, with specific conditions for environmental safeguards as mentioned below:*

- (i) All the conditions mentioned in EC dated 27<sup>th</sup> July, 2007 for JVR-OC I and 28<sup>th</sup> March, 2010 and 1<sup>st</sup> February, 2021 should be strictly complied within certain timeframe and shall be read with instant EC.*
- (ii) Third party monitoring (by reputed institute) for air quality shall be carried out at identified locations, both ambient and the process area, to oversee the impact and mitigations measures vis-à-vis details mentioned EIA report.*
- (iii) Transportation of coal from Coal Handling Plant shall be through mechanized covered trucks for 2 years. No transportation by trucks after 2 years and proposed railway siding should be constructed within 2 years of mine operations.*
- (iv) PP shall install continuous online monitoring station (24X7) at appropriate location and data so generated should be displayed at entry gate of mine for public domain within period of 6 months and also shared with respective SPCB and upload on the company's website.*
- (v) Mining shall be carried out only by surface miners for the project and silo loading through in-pit conveyor should be installed to stop road transportation in 2 years of mine operations.*
- (vi) PP shall plant 200 ha of Sal trees(only) and 200 ha of fruit bearing trees and create a nursery of 10 ha to distribute the species freely in the region for redevelopment of Sal forest in the region.*
- (vii) PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground. A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis.*
- (viii) 10 Fog canon shall be installed to reduce the impact of air pollution for nearby villages, along the haul road, transportation route and at railway siding.*
- (ix) With confirmation of further utilisation/recovery of Sand by PP, it shall establish a pilot plant of 100 TPH capacity M-Sand (Manufactured sand) Plant at MOCP, Godavarikhani (BOO modal if feasible) for a period of minimum 6 years within one year of issue of EC letter.*
- (x) PP shall implement three tier 50 mts peripheral tree plantation along the boundary of coal washery.*



- (xi) *2 nos. of water tank similar to the area of Jeenugupalli tank will be created by PP in one year in nearby villages and shall be continuously maintained. Regular desiltation of nearby water tanks will be carried out PP and quality shall be monitored every six months (of atleast 10 tanks)*
- (xii) *PP shall establish one new higher secondary school in the 5 km of the project area within 2 years.*
- (xiii) *PP shall construct new multispeciality hospital in the 10 km of the project area within 2 years.*
- (xiv) *PP shall supply domestic water supply by treating mine water to nearby villages through water distribution pipeline network*
- (xv) *PP shall maintain V-M Banjara - Sathupalli road and any other road used for coal transportation and regular cleaning and maintenance shall be conducted by PP in collaboration with state PWD. All approach roads to mine and all other roads which are in regular use should be black topped. The maintenance of road shall be done by PP in collaboration with state government. The details of expenditure incurred shall be submitted to Ministry's Regional Office.*
- (xvi) *PP shall employ appropriate measure to control the environmental impacts of blasting such as noise, vibration, air blast etc. Use of state of the technology solution for design and simulation of each blast is strongly recommended to minimize the environmental impacts of blasting. PP should as far as possible maintain a distance of 500 m from the blasting point to the nearby habitation.*
- (xvii) *In-active OB dump shall not be kept barren/open and immediately reclaimed and re-graded to improve the land form and covered by temporary grass etc. for better land use post mining on closure*
- (xviii) *PP shall regularly check the water quality of mine pit water for drinking water standards at regular interval of time.*
- (xix) *Peripheral tree plantation around the affected villages and nearby villages (particularly Kistaram village, siddaram village, vengalarao nagar, rajarla village)*
- (xx) *Persons of nearby villages shall be given training on livelihood and skill development to make them employable.*
- (xxi) *Project Proponent shall explore deployment of rock breakers of suitable capacity in the project to avoid blasting very near to villages. There shall be no damages caused to habitation/structures due to blasting activity*
- (xxii) *Raw coal, washed coal and rejects shall be stored in covered silos or in dome shaped storage to reduce air pollution.*
- (xxiii) *The PP should provide proper roads, toilets facilities, plantation, solar lights, drinking water facilities, stationaries to nearby villages, school and colleges*
- (xxiv) *PP shall pay to farmers of agricultural land if there is any loss and for cracks in the house due to blasting found by concerned District Commissioner as per extent rules or norms.*
- (xxv) *PP shall strictly comply the judgement of Hon'ble NGT in the matter of OA. 174 of 2020 and OA 20 of 2021 as and when judgment is pronounced.*
- (xxvi) *PP shall establish new Effluent Treatment plant for expansion project within 1 one year of issue of EC letter.*

- (xxvii) PP shall use only mine water for washery operations (620 KLD) and effluent from washery shall be treated in ETP and shall implement principles of Zero Liquid Discharge. No surface and ground water to be drawn
- (xxviii) PP shall complete all the activity listed in Remediation plan and Natural and Community Resource Augmentation plan with three years and before the expiry of mining lease (valid upto 22nd March, 2025) as stipulated in EC dated 1st February, 2021.
- (xxix) Hon'ble Supreme Court in an Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India & Ors vide its judgement dated 8th January, 2020 has directed the Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent". The implementation report of the above said condition shall be sent to the Regional Office of the MoEFCC.
- (xxx) Rejects and Middling generated from Washery shall be utilized as per Ministry's Notification dated G.S.R. 443(E) dated 25th June, 2021
- (xxxi) PP shall construct concrete road inside and peripheral road of washery boundary and haul road from mine to washery shall be black topped with all dust control mechanism.
- (xxxii) Transportation of rejects shall only be in 40 to 50 tonne trucks only if railway siding is not present at utilization points. If railway siding is available at any Thermal Power Plant, then no transportation shall be allowed by trucks.

### **Agenda No. 16.3**

**Cluster 7 (4 mixed mines of production capacity of 0.58 MTPA Normative to 0.74 MTPA (Peak) in a combined ML area of 2313 ha of M/s Eastern Coalfield Limited located in Raniganj Coalfields, District Burdwan (West Bengal) – For Amendment in Environment Clearance – reg.**

**Online Proposal No. IA/WB/CMIN/117887/2019; File No. J-11015/386/2010-IA (M)**

**16.3.1** The proposal is for Amendment in Environmental Clearance of Cluster 7 (4 UG mines of production capacity of 0.18 MTPA Normative and 0.24 MTPA (Peak) in a combined ML area of 2313 ha of M/s Eastern Coalfield Limited located in Raniganj Coalfields, District Burdwan (West Bengal).

**16.3.2** The EAC during deliberations noted the following:

Earlier, the environment clearance to the Cluster No. 07 was obtained under EIA Notification, 2006 vide Ministry's letter No J – 11015/386/2011 – IA – II (M) dated 16.01.2015 for 0.74 MTPA in mine lease area of 2313.0 Ha.

Total mining lease area of the cluster as per block allotment is 2313.0 Ha having 4 mining leasehold. Mining Plan including Mine Closure Plan approved on 30.07.2019.

Project Proponent has requested for amendment in EC due to re-assessment of mine capacities wherein capacity of individual mines has been changed while keeping the overall cluster capacity and area unchanged. This re-assessment / rationalization has been done based on present condition and capability of the mines for achieving optimum production levels. The changes is in line with the Revised Mining Plan for Cluster No. 7, duly approved by Board of Directors, ECL on 30.07.2019. The changes with reference to the approved EC have been shown in the following table:

Sl. No.	Name of the Mine	Lease Hold Area (Ha)	EC Capacity (MTPA)		Life (Years)	Revised Lease hold area (Ha)	Proposed EC Capacity (MTPA)	Change in capacity (MTPA)	Revised Life (years)
As per EC dated 16.01.2015					As per Revised Mining Plan				
1	Barmondia UG	665	0.03		>10	665	Production suspended	(-) 0.03	-
2	Chakballavpur UG	233	0.04		>10	233	Production suspended	(-) 0.04	-
3	Manoharbahal UG	735	0.04		>10	735	Production suspended	(-) 0.04	-
4	Bhanora West UG	680	0.13	0.63	>20	680	0.74	(+) 0.11	>20
	Bhanora West OC		0.50		3.5				
<b>TOTAL</b>		<b>2313</b>	<b>0.74</b>		<b>-</b>	<b>2313</b>	<b>0.74</b>	<b>-</b>	

From the above table, it can be observed that production from three UG mines are suspended and increase in production capacity in Bhanora West UG & OC with rise in capacity of 0.11 MTPA wherein overall capacity remain as per Environment Clearance.

Total quarry area is 116.60 Ha will be completely backfilled and there will be no final mine void created at the end of mining

Application for NoC for Ground Water abstraction was submitted to State Water Investigation Department, Govt. of West Bengal on 02.11.2018

The area is drained by Nunia nallah passing through the cluster and small streamlets draining into the Nunia nallah which flows southwards and eventually drains into Damodar River.

The air quality impact prediction using FDM MODEL is provided by PP which reveals that there is no significant incremental impact of the proposed activities. The baseline annual average (April'19 to March'20) concentration levels of PM10 are already found exceeding the standards as prescribed in GSR 742 (E) dated 25.09.2000 at the following stations:

- i. Choti Raniganj Village
- ii. Kelejora Village
- iii. Gopalbad Village

The above stations are residential areas and the incremental contribution of pollutants from mining activities at these stations is negligible (ranging from 0.02 to 1.33  $\mu\text{g}/\text{m}^3$ ) as they are located well outside the cluster boundary. The already high baseline values can be attributed to the fact that there are several small scale factories and kilns as also to the use of coal as domestic fuel by the villagers.

No standards for PM2.5 have been specified in the GSR 742 (E) dated 25.09.2000. However, if compared with NAAQS, 2009, the baseline concentrations (April'19 to March'20) are found exceeding the standard at the following stations:

- i. Barmundia Colliery Office
- ii. Bhanora West Block Colliery
- iii. Bhanora Colliery Near Bhanora Railway Siding
- iv. Sripur Area Office

All the above stations are located in mining areas either within the cluster or in adjoining cluster. However, the incremental contributions from the proposed changes in mining activities at these stations are ranging from nil to 1.01  $\mu\text{g}/\text{m}^3$  which is not significant.

Further, additional mitigation measures like increasing the frequency of water sprinkling by mobile sprinklers along the roads and by fixed sprinklers at pit-top, railway siding and coal stockyard, development of greenbelt in the colonies and avenue plantation in and around coal transport roads as per the proposed plantation programme along with the mitigation measures already proposed in the EIA & EMP will help bring down the existing concentration levels to a great extent

Certified Compliance of EC conditions from Ministry's Regional Office vide its letter dated 25<sup>th</sup> January, 2021 based on site visit conducted on 6<sup>th</sup> January, 2021. It is noted that there are non-compliance of EC conditions viz; green belt development around railway siding and along roadside, plantation in 10 Ha over the 10 years is lacking, non-availability of No Objection Certificate from CGWA for extraction of ground water, Wildlife conservation plan is still not complete and only work order has been given to consultant, no action plan for prevention and mitigation of subsidence has been prepared though it has been contested that underground mining was being carried out below 45mtrs of the major roads, railway line and nallah flowing through the cluster. The mining method adopted in consultation with DGMS and their approval. The proposal for construction of RCC

retaining wall and dry stone pitching of embankment constructed along the river boundary at Bhanora OCP is in progress. No ground water recharge measures have been adopted for augmentation of groundwater resource. No STP has been installed. Coal is being transported by trucks till railways siding (around 15 km away) though EC conditions has stipulated implementing conveyor belt till siding

*16.3.4 The EAC, after detailed deliberation observed that there are various non-compliances of EC conditions which can be enumerated from Ministry's Regional Office report. Further, the value of PM10 was high in the Choti Raniganj village, Kelejora village and Gopalbad village the project, the PP explained the the incremental contribution of pollutants from mining activities at these stations is negligible (ranging from 0.02 to 1.33  $\mu\text{g}/\text{m}^3$ ) as they are located well outside the cluster boundary. The already high baseline values can be attributed to the fact that there are several small scale factories and kilns as also to the use of coal as domestic fuel by the villagers. However, PP has not done enough work for reduction in Air Pollution. Requirement of subsidence study and Wildlife conservation plan as stipulated in EC condition has still not completed. The site is subjected to land subsidence and hence the subsidence study to be conducted by the PP defining the proper action plan with preventive and mitigation measures.*

*It was desired that Ministry may ask for detailed explanation from project proponent & take appropriate action for non-compliances of EC conditions. Further, instant proposal is for amendment in EC for restructuring for production in one individual mine and considering it a very small modification in terms of overall scenario, EAC **recommends** for amendment in EC to Cluster 7 (4 UG mines of production capacity of 0.18 MTPA Normative and 0.24 MTPA (Peak) in a combined ML area of 2313 ha of M/s Eastern Coalfield Limited located in Raniganj Coalfields, District Burdwan (West Bengal) as per table mentioned above i.e. 0.74 MTPA for Bhanora West UG and OCP, with no change in overall production capacity and leasehold area of the cluster, under the provisions of EIA Notification, 2006 and its amendments therein with specific conditions as mentioned in below table:*

- (i) PP shall comply all the non-compliance of EC conditions has highlighted by EAC within six months and submit the compliance to EAC again.*
- (ii) PP shall submit wild life conservation plan with its budgetary break-up of the activities proposed to State Forest Department and inform Ministry's Regional Office.*
- (iii) PP shall install Continuous Ambient Air Monitoring Stations with environmental parameters, link to State Pollution Control Board and install online display for information to public at the main gate of Coal mine.*
- (iv) PP shall monitor Occupational safety and health hazards and take Corrective action.*
- (v) PP shall install atleast 5 nos of fog mist sprayer in the premises (haul road and OB dump area) to reduces air pollution.*
- (vi) PP shall plant create 10 hactare of nursery of Sal Forest and shall develop 200 ha of Sal forest in 5 years.*
- (vii) PP shall develop green belt on priority in the nearby villages, transportation route railway siding and submit its report to Ministry's Regional Office.*

- (viii) State Board while granting Consent to Operate shall ensure the norms of vehicular emission and ambient air quality in the area.
- (ix) Operational OB dump should not be left barren which will lead to dust emission. Progressive plantation shall be conducted.
- (x) Permission from appropriate authority for extraction of ground water due to mining operations shall be obtained within six months.

**Agenda No. 16.4**

**Expansion of Jarangdih Opencast Coal Mine from 0.88 MTPA to 1.5 MTPA with already existing UG (0.28 MTPA in mine lease area of 313.50 ha) in lease area of area of 223.15 ha (Expansion from 180.01Ha to 223.15 Ha) by M/s Central Coalfields Limited located in village Jarangdih & Borea, Tehsil Bermo, District Bokaro, (Jharkhand) - For Terms of Reference – reg.**

**[Online Proposal No. IA/JH/CMIN/213715/2021; File No. J-11015/502/2008-IA.II(M)]**

**16.4.1** The proposal is for Terms of Reference of Expansion of Jarangdih Opencast Coal Mine from 0.88 MTPA to 1.5 MTPA with already existing UG (0.28 MTPA in mine lease area of 313.50 ha) in lease area of area of 223.15 ha (Expansion from 180.01Ha to 223.15 Ha) by M/s Central Coalfields Limited located in village Jarangdih & Borea, Tehsil Bermo, District Bokaro, (Jharkhand)

**16.4.2** Details of the proposal, as ascertained from the proposal documents and as revealed from the discussions held during the meeting, are given as under:

- (i) The project Jarangdih OCP with capacity 0.88 MTPA was given EC vide J-11015/502/2008-IA-II(M) on 01.03.2012, as per EIA Notification 2006.
- (ii) Latitude and longitude of the project site are Latitude: 23<sup>0</sup> 47' 31" & 23<sup>0</sup> 47' 53" N and Longitude: 85<sup>0</sup> 54' 14" & 85<sup>0</sup> 55' 14" E.
- (iii) Joint Venture: No Joint Venture
- (iv) Coal Linkage: Jarangdih OCP is prestigious OCP of Kathara Area, CCL with proposed expansion of production capacity from 0.88 MTY to 1.5 MTY of coal. The coal will be transported through 60 Te dumpers to coal stock. The dispatch of coal will be done through two modes-
- (v) Conveyor cum Rail mode- Coal transportation to Jarangdih Siding through pipe conveyor and then dispatch through rail rake to different thermal power plants and industries.
- (vi) Road Mode- Coal transportation to Road Sale, Thermal Power Plants and FSA industries.
- (vii) Benefits of the project: Improvements in physical infrastructure; improvements in social infrastructure; increase in employment potential; contribution to the Exchequer; meet energy and steel sector requirement; productive utilization of existing manpower of project.
- (viii) Land Use of **Project**: The land usage of the project will be as follows:

S.	Particulars	FOREST LAND	NON	TOTAL

No		NOTIFIED FOREST	GMJJ	SUB TOTAL	FOREST LAND	AREA
1	Quarry	0.000	1.200	1.200	92.380	93.580
2	Infrastructure (Workshop, PO Office, Pipe conveyor route etc)	0.000	1.190	1.190	11.200	12.390
3	OB dump	0.000	4.290	4.290	57.460	61.750
4	Embankment/Green Belt	0.000	0.000	0.000	4.200	4.200
5	Top soil storage area	0.000	0.000	0.000	7.660	7.660
6	Safety zone	0.000	0.950	0.950	0.000	0.950
7	Green Zone	0.000	2.150	2.150	40.470	42.620
8	<b>Total land required</b>	<b>0.000</b>	<b>9.780</b>	<b>9.780</b>	<b>213.370</b>	<b>223.150</b>

- (ix) Total geological reserve is 60.79 MTe in Jarangdih Block. The balance mineable reserve is 18.48 MT, extractable reserve is 18.48 MT. The percent of extraction would be 100%.
- (x) The coal grade is W-IV. The stripping ratio is 1.70 Cum/tonne. The average gradient is 5-10 deg. There will be 05 seams with thickness ranging from 1.4-41.56m.
- (xi) Water Requirement: Total estimated water requirement is 377.32 KLD (Domestic: 63.64 KLD; Industrial: 313.68 KLD). The level of groundwater Pre Monsoon: 6.5-7.58m Post Monsoon: 5.80-6.90 m.
- (xii) Method of Mining: The Method of mining would be opencast method of mining with shovel-dumper combination.
- (xiii) Quarry Area: The total Quarry area is 93.58 Ha. The final mine void would be in 22.25Ha with depth of an average upto 120m below GL. Backfilled quarry area of 71.33 Ha shall be reclaimed with plantation.
- (xiv) Management of Overburden: Jarangdih OCP is already in operation with internal dumping upto +220 to +264m RL (approx.) on the floor of Seam VIII. Internal OB assessed is nearly 3.0 Mcum which is to be re-handled to mine up to Seam VI.
- (xv) All the OB, 18.03 M Cum from Western quarry is proposed to be dumped outside as external dump. Concurrent internal dumping is not proposed due to quarry profile and dip of the seam. At present external dumping is going on in the western part of the quarry upto +290 m (max.) RL.
- (xvi) From 8<sup>th</sup> year onwards, eastern quarry will start after removal of all surface infrastructure. All OB, 2.97 Mcum from eastern quarry is proposed to be dump in the void of western quarry up to the level of +240 m.
- (xvii) Baseline Data: The one season baseline data in respect of Meteorology, air, water, noise, soil, flora & Fauna and Socio Economics is being generated for the post monsoon season of 2020 (Oct' to Dec' 2020) as per the MoEF&CC guidelines for baseline data generation of open cast coal mining projects.
- (xviii) The life of mine is 13 years.
- (xix) Transportation: Coal transportation in pit by Rear dumpers; Surface to Siding by Pipe conveyor; siding at loading through loading hopper fitted with Rapid Loading system.

- (xx) R & R: Rehabilitation of 500 families is proposed in the project. R&R will be taken up as per the R&R policy of CIL and RFCTLARR Act, 2013
- (xxi) Capital Cost: The capital cost is Rs. 414.37 Cr. CSR Cost as per CSR policy & Companies Act, 2013. The Environmental Management Cost Rs. 8002.75 Lakhs.
- (xxii) Water body: No water body present within the project area. In Buffer zone, Konar River, flowing towards east is located north of the project.
- (xxiii) Wildlife issues: There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- (xxiv) Forestry issues: 9.78 Ha Forest land present within the project area. Forest Application for 9.78 ha submitted on 23.03.2021 vide FP/JH/MIN/122501/2021.
- (xxv) Court Case Pending: There are no court cases/violation pending with the project proponent.

**16.4.3** The EAC during deliberations noted the following:

- (i) The proposal is for Terms of Reference of Expansion of Jarangdih Opencast Coal Mine from 0.88 MTPA to 1.5 MTPA with already existing UG (0.28 MTPA in mine lease area of 313.50 ha) in lease area of area of 223.15 ha (Expansion from 180.01 Ha to 223.15 Ha) by M/s Central Coalfields Limited located in village Jarangdih & Borea, Tehsil Bermo, District Bokaro, (Jharkhand).
- (ii) The forest land of 9.78 ha is involved and for which Forest clearance has been applied vide letter no F.No. FP/JH/MIN/122501/2021 on dated 23.03.2021.
- (iii) Earlier, the environment clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter no. J-11015/502/2008-IA-II(M) dated 01.03.2012
- (iv) Jarangdih UG have been officially closed after the approval of Board of Directors, CCL in its 440<sup>th</sup> meeting held on 25.03.2017. Final mine closure activities are being implemented.
- (v) The PR for Expansion of Jarangdih OCP for a rated capacity of 1.5 MTPA of coal capacity with project area of 223.15 ha was approved by the CCL Board in the 483<sup>rd</sup> meeting on 03.02.2020 at an estimated capital investment of Rs. 414.37 crores.
- (vi) Proposal involves diversion of National Highway for which amount is given to NHAI.

**16.4.4** *The EAC after deliberations observed that the proposal is for expansion of existing coal mine of only Opencast and Underground mining operations which has been closed by PP. It was observed that currently OB dumps are located near the Konar River (a tributary of Damodar River) and is flowing at a distance of 60 m from the mine site towards east. EAC desired that PP shall plan to revise its reclamation plan so that OB dump can be restore at its original ground level and accordingly plan the progressive backfilling. EAC desired that an embankment with a distance of about 150 mtrs and height with respect to HFL + 5 mtrs to protect the river. It was also discussed that since the Damodar River is already reported polluted so while assessing the river water quality*



*the colour of the water should also be shown in the report. The EAC also found that permission from water resource department has not been obtained for working near the river bank. The PP had also revealed that a highway is passing through the project site and also informed that its diversion plan along with the amount required is paid to NHAI for quick action. EAC suggested that Project proponent may mine with progressive backfilling of overburden material and shall accordingly improvise scheduling of mining operations. It was desired that Ministry shall form a subcommittee of EAC members to conduct site visit for further inspect the mine for compliances of closure activity of underground mine and other environment parameters.*

*The EAC decided to **recommend** the issuance of standard TOR to Expansion of Jarangdih Opencast Coal Mine from 0.88 MTPA to 1.5 MTPA with already existing UG (0.28 MTPA in mine lease area of 313.50 ha) in lease area of area of 223.15 ha (Expansion from 180.01Ha to 223.15 Ha) by M/s Central Coalfields Limited located in village Jarangdih & Borea, Tehsil Bermo, District Bokaro, (Jharkhand), under the provisions of EIA Notification, 2006 and its amendments therein, with specific conditions mentioned below.*

- (i) PP should submit the certified authenticated/Audited production figures from the revenue department or department of mining and geology of State Government or certificate from Coal Controller for production capacity since 1993-94.*
- (ii) Public Consultation, including public hearing, shall be conducted through concerned SPCB as per the provisions/procedure contained in the EIA Notification, 2006 for information of the stakeholders about the present coal mining operations inviting comments and their redressal.*
- (iii) PP should submit the real time aerial footage and video of the Mining lease area made through drone with a special focus on the area adjacent to the Konar river.*
- (iv) PP shall submit mine closure activity of underground mine and shall be presented in EAC and approval of DGMS shall be submitted of closer of mining.*
- (v) Stage-I Forest Clearance for diversion for non-forestry activity shall be submitted.*
- (vi) PP shall replan its mining plan so that final void shall be reduced and OB dump near Konar river should be brought as near as ground along with progressive backfilling activity in other quarry to avoid any external dump.*
- (vii) PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs.*
- (viii) PP shall explore the possibilities of utilization of OB material for different purposes (in construction of roads, manufacture of artificial sand, aggregates, use for farmers etc.) and accordingly Plan shall be included in EIA/EMP Report.*
- (ix) Inpit conveyor belt with silo loading should be proposed and installed for transportation of coal till railway siding. No transportation of coal by trucks/dumpers shall be proposed in EIA/EMP.*
- (x) Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned by the collection of air quality data. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.*
- (xi) Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.*

- (xii) *PP shall provide the details of mining technology/methodology proposed to be adopted for coal mining operations and its associated environmental benefits of using from Climate Change perspective.*
- (xiii) *Detailed Social Impact Assessment shall be prepared in villages for Rehabilitation and Re-settlement. R &R Activity as approved by State Government shall be submitted and action plan shall be proposed with timeline and allotted fund.*
- (xiv) *Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.*
- (xv) *PP should submit the quantity of surface or ground water to be used for this project. The complete water balance cycle need to be submitted. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. The PP should submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.*
- (xvi) *Heavy metals, pH, color including other parameters in surface water quality in upstream and downstream of konar river shall be analyzed and provided in EIA Report. Further, detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory*
- (xvii) *PP shall be submitting R &R in respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programs prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government.*
- (xviii) *PP should clearly bring out that what is the specific diesel consumption ~ (Liters/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.*
- (xix) *PP shall provide provision of integrated mine plan and mine reclamation cum land form / land scape plan for both underground and open cast coal mining projects. The plan must show the predicted post mining reclaimed and reformed surface by regarding and reshaping to reduce its height as close to the original surface level and proper sloping benching and terracing of external dump should be clearly brought out in the post mine closure plan. This would also include water management strategies such as surface water catchment and drainage paths etc. of post mining land surface.*
- (xx) *PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.*
- (xxi) *PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco-sensitive zone and areas and further is no corridor of Elephants & Tigers.*
- (xxii) *Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted*
- (xxiii) *Details of toe wall and garland drain to be constructed along the OB dump.*
- (xxiv) *Reclamation to be done using geo-texturing technique of the dumps close to habitation and a*

*cause of visual intrusion.*

### **Agenda No. 16.5**

**Expansion of Ashok Opencast Coal Mine from 14 MTPA to 20 MTPA in ML area of 1891.05 ha (Expansion of ML area from 793.14 ha to 1891.05 ha) by M/s Central Coalfields Limited located in villages Saraiya, Lukaiya, Jhulundia, Henjda, Torhad, Kutki, Koilara, Thethangi, Chirlaunga, Bali, Benti, Bijain, Sidalu, Kutitikhurd alias Thena, Dembuain, Tehsil Tandwa, District Chatra (Jharkhand) - For Terms of Reference – reg**

**[Online Proposal No. IA/JH/CMIN/213568/2021; File No. J-11015/610/2007-I.A II (M)]**

**16.5.1** The proposal is for Terms of Reference of Expansion of Ashok Opencast Coal Mine from 14 MTPA to 20 MTPA in ML area of 1891.05 ha (Expansion of ML area from 793.14 ha to 1891.05 ha) by M/s Central Coalfields Limited located in villages Saraiya, Lukaiya, Jhulundia, Henjda, Torhad, Kutki, Koilara, Thethangi, Chirlaunga, Bali, Benti, Bijain, Sidalu, Kutitikhurd alias Thena, Dembuain, Tehsil Tandwa, District Chatra (Jharkhand)

**16.5.2** Details of the proposal, as ascertained from the proposal documents and as revealed from the discussions held during the meeting, are given as under:

- (i) The project area is covered under Survey of India Topo Sheet No: 73-A/14 & 73-A/15 and is bounded by the geographical coordinates ranging from 23° 42' 52" N to 23° 44' 56" N latitude 84° 58' 06" E to 85° 01' 08" E longitude.
- (ii) Coal linkage of the project is proposed for generation of Energy Sector for various customers through Basket linkage.
- (iii) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC vide its OM dated 13th January 2010 has imposed moratorium on grant of environment clearance.
- (iv) Employment generation: The project has given a boost to the economy of the area by providing primary and secondary employment to local people. Total number of permanent & temporary employment is approximately 2,732.
- (v) The project is reported to be beneficial in terms of improvements in Physical Infrastructure; Improvements in Social Infrastructure; Increase in Employment Potential; Contribution to the Exchequer; Meet energy and steel sector requirement; Productive utilization of existing manpower of project.
- (vi) Earlier, the environment clearance to the project was obtained under EIA Notification-2006 vide Ministry's letter No J-11015/610/2007-IA-II(M) dated: 16.03.2017 for 14 MTPA in project area of 793.14 Ha.
- (vii) Total project area as per block allotment is 1891.05 Ha. Mining Plan (including Progressive Mine Closure Plan) has been approved by the 498<sup>th</sup> Board meeting of CCL held on 02.02.2021.
- (viii) The land usage pattern of the project is as follows:

**Pre-mining land use details:**

Description	Forest Area in Ha.	Non-Forest Area in Ha.	Total Area in Ha.
Quarry (Excavated Area, Backfilled Area & void)	1224.35	382.5	1606.84
Infrastructure (Belt, Rail Line, CHP, Silo Etc.)	23.99	5.03	29.02
Road	8.52	10.92	19.44
Safety Zone	5.14	0	5.14
Green Belt	5.46	125.15	130.61
R & R Site (Outside Project Boundary)	0	100	100
<b>Total</b>	<b>1267.45</b>	<b>523.60</b>	<b>1891.05</b>

**Post-mining land use details:**

Description	Total Area in Ha.	Green Belt (in Ha.)	Water Body (in Ha.)	Public Use (in Ha.)
Quarry (Excavated Area, Backfilled Area & void)	1606.84	1097.42	401.68	107.74
Infrastructure (Belt, Rail Line, CHP, Silo Etc.)	29.02	29.02	0	0
Road	19.44	11.67	0	7.77
Safety Zone	5.14	5.14	0	0
Green Belt	130.61	130.61	0	0
R & R Site (Outside Project Boundary)	100	0	0	100
<b>Total</b>	<b>1891.05</b>	<b>1273.86</b>	<b>401.68</b>	<b>215.51</b>

- (ix) Total geological reserve reported in the block area is 441.64 Million Tons in Ashok Block with 380.26 Million Tons mineable reserve. Out of the total 380.26 Million Tons mineable reserve, 324.84 Million Tons is available for extraction. Percent of extraction is 85 %.
- (x) 15 seams with thickness ranging from 0.5 m – 11.46 m are workable. Grade of coal is G-11, stripping ratio 2.5, while seam gradient is 6° to 8°.
- (xi) The method of mining would be opencast method of mining with Surface miner and shovel-dumper combination.
- (xii) Life of mine is 19 years.
- (xiii) No external dump is proposed for the expansion project. Internal OB in an area of 1097.42 ha with 813.13 Mm<sup>3</sup> of OB is envisaged in the project. It is proposed to increase the height of the

existing internal dump of Ashok OCP (+460m) to (+520m) RL. Each dump deck/horizon is 30 m height and road width taken as 40 m.

- (xiv) Total Quarry area is 1606.84 Ha. The final mine void would be in 401.68 Ha with depth an average up to 90 m below GL. Backfilled quarry area is of 1097.42 Ha, out of which 1097.42 Ha shall be reclaimed with plantation. Final mine void will be converted into water body.
- (xv) Transportation of coal has been proposed by belt conveyor in mine pithead, from surface to siding by 2 numbers of silos.
- (xvi) Reclamation Plan in an area of 1273.86 Ha, comprising of 1097.42 Ha of internal dump, 40.69 Ha of Road & Infrastructure and 135.75 Ha of green belt & safety zone.
- (xvii) 1267.45 ha of forestland has been reported to be involved in the project. Out of 1267.45 Ha, Stage II FC has been issued for 245.55 Ha as per the approvals under the Forest (Conservation) Act, 1980 for diversion of 166.91 Ha vide MoEF&CC letter No. F.No.8-178/97-FC Dated: 09.11.1999 & for diversion of 92.26 Ha vide MoEF&CC letter No. F.No.8-07/2013-FC Dated: 07.02.2014. For balance 1021.90 Ha, application for diversion of forestland has been submitted vide Proposal No: FP/JH/MIN/121822/2021 on 09.02.2021.
- (xviii) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10 km boundary of the project.
- (xix) The ground water level has been reported to be varying between 4.96 m to 7.51 m during pre-monsoon and between 3.01 m to 5.01 m during post-monsoon. Total water requirement for the project is 2170 KLD.
- (xx) Application for obtaining the approval of the Central Ground Water Authority has been submitted vide no: 21-4/475/JH/MIN/2019 dated 08.04.2019.
- (xxi) Consent to Operate for the existing capacity was obtained from the Jharkhand State PCB vide no: JSPCB/HO/RNC/CTO-8241187/2021/553 on 31.03.2021 and is valid till 31.03.2022.
- (xxii) Two streams, namely Dambua & Benti, originating from the area and join Damodar River, which forms the main drainage channels of the area.
- (xxiii) Regular monitoring of ambient air quality is being carried out on fortnightly basis. The documented report is submitted to JSPCB and also to MoEF&CC along with half yearly EC compliance report. In general, the results of ambient air quality monitoring data were found within prescribed limits except few aberrations, which can be attributed to the specific local conditions during the day of sampling.
- (xxiv) No court cases, violation cases are pending against the project of the PP.
- (xxv) The project does not involve violation of the EIA Notification, 2006 and amendment issued there under. The coal production, realized from the project, since grant of last EC, is as under:

Year	Coal (Million tes)
2016-17	12.40
2017-18	10.81
2018-19	10.04
2019-20	10.51
2020-21	13.85

- (xxvi) The project involves 5000 project-affected families. R&R of the PAPs will be done as per R&R Policy of CIL.
- (xxvii) Total capital cost of the project, as per Project Report of Ashok Expansion OCP is Rs. 2898.28 Crores. Cost of Production is approximately Rs. 894.09/- per Tonne. CSR expenditure is to be 2% of avg. net profit of last 3 years or Rs 2 per tonne of Coal production in last FY. The R&R cost is 554.30 Crores. Environment Management Cost is approximately Rs. 39.41 Crores. The proposed capital cost for Mine Closure is Rs. 231.91 Crores.

**16.5.3** The EAC during deliberations noted the following:

- (i) The proposal is for Terms of Reference of Ashok Expansion OCP of 20 MTPA in project area of 1891.05 Ha of M/s Central Coalfields Limited located in village: Saraiya, Lukaiya, Jhulundia, Henjda, Torhad, Kutki, Koilara, Thethangi, Chirlaunga, Bali, Benti, Bijain, Sidalu, Kutitikhurd alias Thena, Dembua Block: Tandwa, District Chatra (Jharkhand).
- (ii) The forest land of 1267.45 Ha is involved and Stage II FC has been issued for 245.55 Ha as per the approvals granted under the Forest (Conservation) Act, 1980 for diversion of 166.91 Ha vide MoEF&CC letter No. F.No.8-178/97-FC Dated: 09.11.1999 & for diversion of 92.26 Ha vide MoEF&CC letter No. F.No.8-07/2013-FC Dated: 07.02.2014. For balance 1021.90 Ha, application for diversion of forestland has been submitted vide Proposal No: FP/JH/MIN/121822/2021 on 09.02.2021.
- (iii) Earlier, the environment clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter no. J-11015/610/2007-IA-II(M) dated: 16.03.2017
- (iv) The Project Report of Ashok Expansion OCP (20 MTPA) was approved in the 498th meeting of CCL Board held on 02.02.2021 for a capital cost of Rs. 2898.28 Crores in total outsourcing mode.
- (v) The present proposal is envisaged by eliminating the need of external OB dump for the expansion project and instead using the internal dumps & void of existing OCP
- (vi) Plantation near the houses of the villages located nearby and along the roads were inadequate

**16.5.4** *The EAC after deliberations observed that proposal involves large chunk of forest land and huge R&R i.e. about 5000 PAFs. The additional area which is mainly forest land shall be avoided by PP and accordingly only non-coal bearing should be used for infrastructures such conveyor belt, railine, CHPs etc. It was noted that PP is currently conducting mining activity without obtaining NOC from Central Ground Water Authority. Considering the experience of non-compliance of EC conditions in M/s CCL mines, it was desired the sub-committee of EAC may visit the site. Also, EAC suggested that Project Proponent may conduct mining activity with progressive backfilling of overburden material and shall accordingly improvise scheduling of mining operations to avoid*

*further increased in height of existing OB dump. The final mine void shall be reduced and brought as near as ground so that land can be restored and reclaimed.*

*With above , EAC **recommended** the issuance of standard TOR to Expansion of Ashok Opencast Coal Mine from 14 MTPA to 20 MTPA in ML area of 1891.05 ha (Expansion of ML area from 793.14 ha to 1891.05 ha) by M/s Central Coalfields Limited located in villages Saraiya, Lukaiya, Jhulundia, Henjda, Torhad, Kutki, Koilara, Thethangi, Chirlaunga, Bali, Benti, Bijain, Sidalu, Kutitikhurd alias Thena, Dembuain, Tehsil Tandwa, District Chatra (Jharkhand) under the provisions of EIA Notifications and its amendments therein with specific conditions as mentioned below:*

- (i) Public Consultation, including public hearing, shall be conducted through concerned SPCB as per the provisions/procedure contained in the EIA Notification, 2006 for information of the stakeholders about the present coal mining operations inviting comments and their redressal.*
- (ii) PP should submit the real time aerial footage and video of the Mining lease area made through drone with a special focus on the area adjacent to the Damodar valley.*
- (iii) Stage-I Forest Clearance for diversion for non-forestry activity shall be submitted.*
- (iv) PP shall develop a sustainable mining plan that would consider leaving minimum and not very deep void at the end of the quarry operation. Integrated mining and mine closure plan shall ensure the minimum land degradation and maximum land reclamation on a concurrent basis throughout the life of the mine. The PP shall explore possibilities of flushing and merging of internal and external overburden and regrade it close to the ground level before revegetating the reclaimed land during the concurrent and final mine closure.*
- (v) In addition to existing data already collected (if any), the Cumulative Impact Assessment Study, carrying capacity and ecosystem services study of the area shall be carried over by project proponent. PP shall collect one season baseline data of all environmental parameters and shall compare with the data of earlier data collected for cumulative assessment of area. Air pollution impact predication shall be conducted by considering the maximum values.*
- (vi) PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs.*
- (vii) PP shall explore the possibilities of utilization of OB material for different purposes (in construction of roads, manufacture of artificial sand, aggregates, use for farmers etc.) and accordingly Plan shall be included in EIA/EMP Report.*
- (viii) Inpit conveyor belt with silo loading should be proposed and installed for transportation of coal till railway siding. No transportation of coal by trucks/dumpers shall be proposed in EIA/EMP.*
- (ix) Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned by the collection of air quality data. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.*
- (x) Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.*

- (xi) *PP shall provide the details of mining technology/methodology proposed to be adopted for coal mining operations and its associated environmental benefits of using from Climate Change perspective.*
- (xii) *Detailed Social Impact Assessment shall be prepared in villages for Rehabilitation and Re-settlement. R &R Activity as approved by State Government shall be submitted and action plan shall be proposed with timeline and allotted fund.*
- (xiii) *Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.*
- (xiv) *PP should submit the quantity of surface or ground water to be used for this project. The complete water balance cycle need to be submitted. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. The PP should submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.*
- (xv) *Heavy metals including other parameters in surface water quality shall be analyzed and provided in EIA Report. Further, detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory*
- (xvi) *PP shall be submitting R &R in respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programs prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government.*
- (xvii) *PP shall construct coal mining related infrastructure on non-coal bearing and non-forest areas only to avoid diversion of forest land.*
- (xviii) *PP should clearly bring out that what is the specific diesel consumption ~ (Liters/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.*
- (xix) *PP shall provide provision of integrated mine plan and mine reclamation cum land form / land scape plan for both underground and open cast coal mining projects. The plan must show the predicted post mining reclaimed and reformed surface by regarding and reshaping to reduce its height as close to the original surface level and proper sloping benching and terracing of external dump should be clearly brought out in the post mine closure plan. This would also include water management strategies such as surface water catchment and drainage paths etc. of post mining land surface.*
- (xx) *PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.*
- (xxi) *PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco-sensitive zone and areas and further is no corridor of Elephants & Tigers.*
- (xxii) *Details of toe wall and garland drain to be constructed along the OB dump.*
- (xxiii) *Reclamation to be done using geo-texturing technique of the dumps close to habitation and a cause of visual intrusion.*



## **Agenda No. 16.6**

**Patratu A/B/C Underground coal mining with production capacity of 5.0 MTPA (Peak Capacity – 7.51 MTPA) in mine Lease area of 1912.53 Ha by M/s Central Coalfields Limited at villages Sankul, Tokisud, Terpa, Daridih, Palu, Rochap, Kirigara, Binja Barka-Sayal, Districts Ramgarh & Ranchi (Jharkhand) – For Terms of Reference – reg.**

**[Online Proposal No. IA/JH/CMIN/216602/2021; File No. IA-J-11015/50/2021-IA-II(M)]**

**16.6.1** The proposal is for Terms of Reference of Patratu A/B/C Underground coal mining with production capacity of 5.0 MTPA (Peak Capacity – 7.51 MTPA) in mine Lease area of 1912.53 Ha by M/s Central Coalfields Limited at villages Sankul, Tokisud, Terpa, Daridih, Palu, Rochap, Kirigara, Binja Barka-Sayal, districts Ramgarh & Ranchi, Jharkhand

**16.6.2** Details of the proposal, as ascertained from the proposal documents and as revealed from the discussions held during the meeting, are given as under:

- (i) The project area is covered under Survey of India Topo Sheet No: 73E/2 & 73E/6 and is bounded by the geographical coordinates ranging from 23° 39' 59" N to 23° 41' 59" N and 85° 12' 47.1" (E) and 85° 12' 47" E to 85° 17' 14" E
- (ii) Coal linkage of the project is proposed for generation of Energy Sector for various customers through Basket linkage. It is proposed that coal from surface ground bunker shall be transported to nearest proposed railway siding as proposed in PR through belt. A dedicated railway siding with SILO and CHP is proposed for the proposed underground project.
- (iii) No Joint venture.
- (iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC vide its OM dated 13th January 2010 has imposed moratorium on grant of environment clearance.
- (v) Employment generation: The project has given a boost to the economy of the area by providing primary and secondary employment to local people. It will provide employment to 10,356 persons.
- (vi) The project is reported to be beneficial in terms of improvements in Physical Infrastructure; Improvements in Social Infrastructure; Increase in Employment Potential; Contribution to the Exchequer; Meet energy and steel sector requirement; Productive utilization of existing manpower of project.
- (vii) This is a new project; no prior EC has been issued for this project.
- (viii) Project Report / Mining Plan of Patratu A/B/C Underground for 7.51 MTPA has been approved by CCL Board on 25.08.2020
- (ix) The land usage pattern of the project is as follows:

SN	Particulars	Area of land (Ha)
1	Land for UG Mining	1647.94
2	Land for mine infrastructure & others	264.59
A	Sub Total	1912.53

1	Land for Rehabilitation Site	80.29
2	For alignment of diverted railway line & Nala etc (i.e. Miscellaneous purpose)	75.00
B	Sub Total	159.29
	Total Project Area	2067.82

Land Type is given below:

Type of Land	Total Area in Ha.
Notified -Forest land	1043.38
Jungle-Jhari	43.39
GM land	183.23
Tenancy	634.04
GMA	8.48
Total	1912.53

- (x) Total net geological reserve within the proposed project area is 405.44 MTe. The mineable reserve is 162.37 MT, extractable reserve is 116.37 MT. The percent of extraction would be 72% of the mineable reserve.
- (xi) 02 seams with thickness ranging from 1.12m to 24.92m are workable. Grade of coal is Grade G9 & G6, while gradient is 1 in 3.2 to 1 in 7.6.
- (xii) The method of mining would be Underground mining with Long wall and Board & Pillar.
- (xiii) The total mine life of the project is proposed to be 56 years.
- (xiv) Proposed project is underground mining. No external dumping will be created.
- (xv) Total Area of proposed UG working is 1647.94 Ha.
- (xvi) Transportation of coal: It is proposed that coal from surface ground bunker shall be transported to nearest proposed railway siding as proposed in PR through belt. A dedicated railway siding with SILO and CHP is proposed for the proposed underground project.
- (xvii) Total Forest land (NF+ GMK JJ) within the project area is 1086.77 Ha. The project involves about 1043.38 Ha of Notified Forest and 43.39 Ha GM JJ Land. Application for diversion of forest land has been made for 1086.77 Ha made vide no: FP/JH/MIN/143423/2021. Total Leasehold area is 1912.53 Ha. Out of 1912.53 Ha, 1086.77 Ha is Forest land, 183.23 Ha is GMK, 8.48 Ha is GMA and 634.04 Ha is tenancy.
- (xviii) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10 km boundary of the project.
- (xix) The ground water level has been reported to be 6.04 m during pre-monsoon and 3.59 m during post-monsoon.
- (xx) Application for obtaining the approval of the Central Ground Water Authority to be applied.

- (xxi) Terpa Nala and Binja Nala is situated in core zone of the project. Part of Terpa and Binja Nala are proposed to be diverted. Damodar River flows in the northern part of the block and the Nalas (after proposed diversion) shall flow in the southern, western & eastern part of the block.
- (xxii) No court cases, violation cases are pending against the project of the PP.
- (xxiii) The project does not involve violation of the EIA Notification, 2006 and amendment issued there under.
- (xxiv) Provision has been made of nearly 80.29 Ha of land for R & R outside the leasehold area. The tentative cost of Rehabilitation is Rs. 573.75 Crores.
- (xxv) Total cost of the project is Rs. 5198.02 Crores. Environment Management Cost is approximately Rs. 34.38 Crores.

#### 16.6.3 The EAC during deliberations noted the following:

- i. The proposal is for Terms of Reference of Patratu A/B/C Underground coal mining with production capacity of 5.0 MTPA (Peak Capacity – 7.51 MTPA) in mine Lease area of 1912.53 Ha by M/s Central Coalfields Limited at villages Sankul, Tokisud, Terpa, Daridih, Palu, Rochap, Kirigara, Binja Barka-Sayal, districts Ramgarh & Ranchi, Jharkhand.
- ii. The forest land of 1086.77 Ha is involved and Application for diversion of forestland has been made for 1086.77 Ha made vide no: FP/JH/MIN/143423/ 2021 Dated: 28.06.2021.
- iii. The instant project is a green field project
- iv. PP informed that currently agriculture activities is carried on the site by the local farmers and to avoid unsafe activity due to land subsidence, farmers are willing to cease it with proper compensation but EAC asked the PP to conduct study of subsidence of the area and based on outcome of the study that PP shall not disturb the agricultural activities as it is carried over the surface and PP is going for underground mining.
- v. Extraction of seams are possible only by underground because majority of the coal seams have depth from surface > 300m. Even higher initial depth of top most workable seam (> 118m) which requires huge external dump

*16.6.4 The EAC after deliberations observed that proposal for diversion of stream and loss of agricultural land on the surface of mine shall be relooked by project proponent. It was suggested that PP may review its mining method/operational plan/sequence of mining so that subsidence can be minimized and diversion shall be avoided. It was desired that no river/stream diversion will be done for the initial 8 years from the commencement of the mining activity and PP shall replan its activity/technology from third party assessment to avoid the diversion. EAC finally **recommends** the issuance of standard TOR to Patratu A/B/C Underground coal mining with production capacity of 5.0 MTPA (Peak Capacity – 7.51 MTPA) in mine Lease area of 1912.53 Ha by M/s Central Coalfields Limited at villages Sankul, Tokisud, Terpa, Daridih, Palu, Rochap, Kirigara, Binja Barka-Sayal,*

*Districts Ramgarh & Ranchi (Jharkhand) under the provisions of EIA Notifications, 2006 and its amendment therein with following specific conditions:*

- (i) Public Consultation, including public hearing, shall be conducted through concerned SPCB as per the provisions/procedure contained in the EIA Notification, 2006 for information of the stakeholders in both districts about the present coal mining operations inviting comments and their redressal.*
- (ii) PP should submit the real time aerial footage and video of the Mining lease area made through drone.*
- (iii) As suggested by EAC, No diversion of stream on the surface shall be allowed and the same shall be proposed in EIA Study with appropriate mining methods to recover the coal in river/stream catchment.*
- (iv) Stage-I Forest Clearance for diversion for non-forestry activity shall be submitted.*
- (v) In addition to existing data already collected (if any), the Cumulative Impact Assessment Study, carrying capacity and ecosystem services study of the area shall be carried over by project proponent considering the project being in proximity of other mines and Power Plant. PP shall collect one season baseline data of all environmental parameters and shall compare with the data of earlier data collected for cumulative assessment of area. Air pollution impact predication shall be conducted by considering the maximum values.*
- (vi) PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs.*
- (vii) PP should submit the quantity of surface or ground water to be used for this project. The complete water balance cycle need to be submitted. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. The PP should submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.*
- (viii) Clarification from PCCF that mine does not fall under corridors of any National Park and Wildlife Sanctuary and does not involve any violation of forest area and wild sanctuary.*
- (ix) PP should bring out the awareness campaign to be carried out on various Environmental issues, practical training facility to be provided to the environmental engineer/diploma holders, mining engineer/diploma holders, geologists, and other trades related to mining operations. Target for the same needs to be submitted.*
- (x) Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area*
- (xi) Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.*
- (xii) Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA)*

- (xiii) Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted.*
- (xiv) Heavy metals including other parameters in surface water quality shall be analysed and provided in EIA Report. The parameters Arsenic, Lead and Silica shall also be analysed in ambient air quality.*
- (xv) PP shall provide the details of mining technology/methodology proposed to be adopted for coal mining operations and its associated environmental benefits of using from Climate Change perspective.*
- (xvi) Description of water conservation measures proposed to be adopted in the Project should be given.*
- (xvii) Detailed Social Impact Assessment shall be prepared in villages for Rehabilitation and Re-settlement. R &R Activity shall be proposed with timeline and allotted fund.*
- (xviii) PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.*
- (xix) PP shall construct embankment 150 mtrs away from the river and 5 mtrs above HFL and ensure protection to river water with respect to quantity and quality.*
- (xx) PP shall conduct detailed study the subsidence, its impact due to mining activity and propose mitigation/management measures*

**The meeting ended with thanks to the Chair.**

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**Standard EC Conditions for Coal Mining Project (Opencast mining):**

All the projects recommended for grant of environmental clearance by the EAC shall also comply with the following Standard EC conditions as per Ministry's circular issued from time to time:

**(a) Statutory compliance**

- (i) The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
- (ii) The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- (iii) The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan/Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report (in case of the presence of Schedule-I species in the study area).
- (iv) The project proponent shall obtain Consent to Establish/Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
- (v) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.
- (vi) Solid/hazardous waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules, 2016/Hazardous & Other Waste Management Rules, 2016.

**(b) Air quality monitoring and preservation**

- (i) Continuous ambient air quality monitoring stations as prescribed in the statute be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub>. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Online ambient air quality monitoring stations may also be installed in addition to the regular monitoring stations as per the requirement and/or in consultation with the SPCB. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc to be carried out at least once in six months.
- (ii) The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 (E) dated 25<sup>th</sup> September, 2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.
- (iii) Transportation of coal, to the extent permitted by road, shall be carried out by covered trucks/conveyors. Effective control measures such as regular water/mist sprinkling/rain gun etc shall be carried out in critical areas prone to air pollution (with higher values of PM<sub>10</sub>/PM<sub>2.5</sub>) such as haul road, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the

Ambient Air Quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.

- (iv) The transportation of coal shall be carried out as per the provisions and route envisaged in the approved Mining Plan or environment monitoring plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct a 'bypass' road, it should be so constructed so that the impact of sound, dust and accidents could be appropriately mitigated.
- (v) Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
- (vi) Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
- (vii) Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.

**(c) Water quality monitoring and preservation**

- (i) The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25<sup>th</sup> September, 2000 and as amended from time to time by the Central Pollution Control Board.
- (ii) The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No.J-20012/1/2006-IA.11 (M) dated 27<sup>th</sup> May, 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
- (iii) Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.
- (iv) Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
- (v) Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
- (vi) Catch and/or garland drains and siltation ponds in adequate numbers and appropriate size shall be constructed around the mine working, coal heaps & OB dumps to prevent run off of water and flow of sediments directly into the river and water bodies. Further, dump material shall be properly consolidated/ compacted and accumulation of water over dumps shall be avoided by providing adequate channels for flow of silt into the drains. The drains/ ponds so constructed shall be regularly de-silted particularly before onset of monsoon and maintained properly. Sump capacity should provide adequate retention period to allow

proper settling of silt material. The water so collected in the sump shall be utilised for dust suppression and green belt development and other industrial use. Dimension of the retaining wall constructed, if any, at the toe of the OB dumps within the mine to check run-off and siltation should be based on the rainfall data. The plantation of native species to be made between toe of the dump and adjacent field/habitation/water bodies.

- (vii) Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) after due treatment conforming to the specific requirement (standards).
- (viii) Industrial waste water generated from CHP, workshop and other waste water, shall be properly collected and treated so as to conform to the standards prescribed under the standards prescribed under Water Act 1974 and Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time. Adequate ETP /STP needs to be provided.
- (ix) The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- (x) The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations, considering the presence of river/rivulet/pond/lake etc, shall be prepared and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the approved Mining Plan/EIA/EMP report and with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved Mining Plan and as per the permission of DGMS or any other authority as prescribed by the law.
- (xi) The project proponent shall take all precautionary measures to ensure riverine/riparian ecosystem in and around the coal mine up to a distance of 5 km. A rivarine/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.

**(d) Noise and Vibration monitoring and prevention**

- (i) Adequate measures shall be taken for control of noise levels as per Noise Pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.
- (ii) Controlled blasting techniques shall be practiced in order to mitigate ground vibrations, fly rocks, noise and air blast etc., as per the guidelines prescribed by the DGMS.
  - (i) The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

**(e) Mining Plan**

- (i) Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.



- (ii) Mining shall be carried out as per the approved mining plan(including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
- (iii) No mining shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980.
- (ii) Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.

**(f) Land reclamation**

- (i) Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change(MOEFCC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
- (ii) The final mine void depth should preferably be as per the approved Mine Closure Plan, and in case it exceeds 40 m, adequate engineering interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land be rendered usable for agricultural/forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation of Mine Closure Plan issued by the Ministry of Coal dated 27<sup>th</sup> August, 2009 and subsequent amendments.
- (iii) The entire excavated area, backfilling, external OB dumping (including top soil) and afforestation plan shall be in conformity with the “during mining”/”post mining” land-use pattern, which is an integral part of the approved Mining Plan and the EIA/EMP submitted to this Ministry. Progressive compliance status vis-a-vis the post mining land use pattern shall be submitted to the MOEFCC/RO.
- (iv) Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3rd November, 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, along with fly ash for external dump of overburden, backfilling of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.
- (v) Further, it may be ensured that as per the time schedule specified in mine closure plan it should remain live till the point of utilization. The topsoil shall temporarily be stored at earmarked site(s) only and shall not be kept unutilized. The top soil shall be used for land reclamation and plantation purposes. Active OB dumps shall be stabilised with native grass species to prevent erosion and surface run off. The other overburden dumps shall be vegetated with native flora species. The excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change/ Regional Office.
- (vi) The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

**(g) Green Belt**

- (i) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered/endemic flora/fauna, if any, spotted/reported in the study area. The Action plan in this regard, if any, shall be prepared and implemented in consultation with the State Forest and Wildlife Department.
  - (ii) Greenbelt consisting of 3-tier plantation of width not less than 7.5 m shall be developed all along the mine lease area as soon as possible. The green belt comprising a mix of native species (endemic species should be given priority) shall be developed all along the major approach/ coal transportation roads.
- (h) Public hearing and Human health issues**
- (i) Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & it's RO on six-monthly basis.
  - (ii) The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended time to time.
  - (iii) Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
  - (iv) Implementation of the action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.
  - (v) The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29<sup>th</sup> October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.
- (i) Corporate Environment Responsibility**
- (i) The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No.22-65/2017-IA.III dated 1<sup>st</sup> May 2018, as applicable, regarding Corporate Environment Responsibility.
  - (ii) The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/wildlife norms/conditions and/or shareholders/stake holders.
  - (iii) A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

- (iv) Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
- (v) Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
- (j) Miscellaneous**
- (i) The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- (ii) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- (iii) The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- (iv) The project proponent shall monitor the criteria pollutants level namely; PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- (v) The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- (vi) The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29<sup>th</sup> October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.
- (vii) The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- (viii) The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
- (ix) The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- (x) The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- (xi) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change.

- (xii) Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- (xiii) The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- (xiv) The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- (xv) The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- (xvi) The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.

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**Standard EC Conditions for Coal Mining Project (Underground mining):**

All the projects recommended for grant of environmental clearance by the EAC shall also comply with the following Standard EC conditions as per Ministry's circular issued from time to time:

**I. Statutory compliance:**

- (i) The Environmental clearance shall be subject to orders of Hon'ble Supreme Court of India, Hon'ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to the project
- (ii) The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
- (iii) The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- (iv) The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (incase of the presence of schedule-I species in the study area)
- (v) The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
- (vi) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.
- (vii) Solid waste/hazardous waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules, 2016 / Hazardous & Other Waste Management Rules, 2016

**II. Air quality monitoring and preservation**

- i. Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely particulates, SO<sub>2</sub> and NO<sub>x</sub>. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc. to be carried out at least once in six months. Online ambient air quality monitoring station/stations may also be installed in addition to the regular air monitoring stations as per the requirement and/or in consultation with the SPCB
- ii. The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.
- iii. Transportation of coal, to the extent permitted by road, shall be carried out by covered trucks/conveyors. Effective control measures such as regular water sprinkling/rain gun/mist sprinkling etc., shall be carried out in critical areas prone to air pollution with higher

level of particulate matter all through the coal transport roads, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.

- iv. Major approach roads shall be black topped and properly maintained.
- v. The transportation of coal shall be carried out as per the provisions and route proposed in the approved mining plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct a 'bypass' road, it should be so constructed that the impact of sound, dust and accidents could be appropriately mitigated.
- vi. Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
- vii. Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
- viii. Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.

### **III. Water quality monitoring and preservation**

- i. The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board.
- ii. The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No. J-20012/1/2006-IA.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
- iii. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.
- iv. Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
- v. Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
- vi. The project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine. The embankment constructed along the river/nallah boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front

- side, stabilized with plantation so as to withstand the peak water pressure preventing any chance of mine inundation.
- vii. Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of silt material of the surface runoff
  - viii. The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
  - ix. Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.
  - x. Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
  - xi. The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc., with impact of mining activities on it, and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan/ EIA-EMP submitted to this Ministry and the same should be done with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved mining plan and as per the permission of DGMS.
  - xii. The project proponent shall take all precautionary measures to ensure reverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A reverian /riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.

#### **IV. Noise and Vibration monitoring and prevention**

- i. Adequate measures shall be taken for control of noise levels below 85 dB(A) in the work environment. Workers engaged in underground mining operations, operation of HEMM, etc. shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms/guidelines in this regard. Progress in usage of such accessories to be monitored. Adequate awareness programme for users to be conducted.
- ii. The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

#### **V. Mining Plan**

- i. Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.

- ii. No change in mining method i.e. UG to OC, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).
- iii. Mining shall be carried out as per the approved mining plan (including mine closure plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
- iv. Underground work place environmental conditions shall be rendered ergonomic and air breathable with adequate illumination in conformance with DGMS standards.
- v. No mining activity shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980 and also adhering to The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 read with provisions of Indian Forest Act, 1927.
- vi. Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.

#### **VI. Land reclamation**

- i. Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change(MOEFCC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
- ii. Post-mining land be rendered usable for agricultural/forestry purposes and shall be handed over to the respective State Government, as specified in the Guidelines for Preparation of Mine Closure Plan, issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.
- iii. Regular monitoring of subsidence movement on the surface over and around the working areas and its impact on natural drainage pattern, water bodies, vegetation, structure, roads and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence beyond the limit prescribed, appropriate effective mitigation measures shall be taken to avoid loss of life and materials. Cracks should be effectively plugged in with ballast and clay soil/suitable material.
- iv. Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3<sup>rd</sup> November, 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, alongwith fly ash for external dump of overburden, backfilling or stowing of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.
- v. A separate team for subsidence monitoring and surface mitigation measures shall be constituted and continuous monitoring & implementation of mitigation measures be carried out.
- vi. Thorough inspection of the mine lease area for any cracks developed at the surface due to mining activities below ground shall be carried out to prevent inrush of water in the mine.
- vii. Native tree species shall be selected and planted over areas affected by subsidence.
- viii. The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.



## **VII. Green Belt**

- i. The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora/fauna, if any, spotted/reported in the study area. Action plan, in this regard, if any, shall be prepared and implemented in consultation with the State Forest and Wildlife Department.
- ii. Greenbelt, consisting of three-tier plantation, of width not less than 7.5 m, shall be developed all along the mine lease area in a phased manner. The green belt comprising of a mix of native species shall be developed all along the major approach roads/ coal transportation roads.

## **VIII. Public hearing and Human health issues**

- i. Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored.
- ii. The Project Proponent shall undertake Occupational Health survey for initial and Periodical medical examination of the workers engaged in the Project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS Circulars. Besides carrying out regular periodic health check-up of their workers, 20% of the workers engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any.
- iii. Personnel (including outsourcing employees) working in dusty areas shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- iv. Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.
- v. Effective arrangement shall be made to provide and maintain at suitable points conveniently situated, a sufficient supply of drinking water for all the persons employed.
- vi. Implementation of Action Plan on the issues raised during the Public Hearing shall be ensured. The Project Proponent shall undertake all the tasks as per the Action Plan submitted with budgetary provisions during the Public Hearing. Land oustees shall be compensated as per the norms laid out R&R Policy of the Company/ or the National R&R Policy/ R&R Policy of the State Government, as applicable
- vii. The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29<sup>th</sup> October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.

## **IX. Corporate Environment Responsibility**

- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1<sup>st</sup> May 2018, as applicable, regarding Corporate Environment Responsibility.
- ii. The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders /

- stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
- iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
  - iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
  - v. Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

**X. Miscellaneous**

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- v. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vi. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
- vii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- viii. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- ix. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- x. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xi. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

- xii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xiii. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- xiv. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xv. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

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**Standard EC Conditions for Coal Washery Project**

**I. Statutory compliance:**

- (i) The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
- (ii) The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- (iii) The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (incase of the presence of schedule-I species in the study area)
- (iv) The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- (v) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.
- (vi) Solid waste/hazardous waste generated in the washery needs to be addressed in accordance to the Solid Waste Management Rules, 2016 / Hazardous & Other Waste Management Rules, 2016.
- (vii) Coal beneficiation practices shall be carried out under strict adherence to provisions of the Factories Act, 1957 and subordinate legislations made there under.

**II. Air quality monitoring and preservation**

- i. Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely particulates, SO<sub>2</sub> and NO<sub>x</sub>. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc. carried out at least once in six months.
- ii. Continuous ambient air quality monitoring stations as prescribed in the statute be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub>. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Online ambient air quality monitoring stations may also be installed in addition to the regular monitoring stations as per the requirement and/or in consultation with the SPCB. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc to be carried out at least once in six months.
- iii. Transportation of coal by road shall be carried out by covered trucks/conveyors. The transportation of clean coal and rejects shall be by rail with wagon loading through silo. Effective measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulates such as roads, belt conveyors,

loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled at source. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/State Pollution Control Board

- iv. All approach roads shall be black topped and internal roads shall be concreted. The roads shall be regularly cleaned. Coal transportation shall be carried out by covered trucks.
- v. Covered trucks shall be engaged for mineral transportation outside the washery upto the railway siding, shall be optimally loaded to avoid spillage en-route. Trucks shall be adequately maintained and emissions shall be below notified limits.
- vi. Facilities for parking of trucks carrying raw material from linked mine shall be created within the unit.
- vii. Vehicular emissions shall be kept under control and regularly monitored. The vehicles having 'PUC' certificate from authorized pollution testing centres shall be deployed for washery operations.
- viii. Hoppers of the coal crushing unit and other washery units shall be fitted with high efficiency bag filters/mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points of closed belt conveyor systems and from transportation roads.
- ix. The raw coal, washed coal and coal wastes (rejects) shall be stacked properly at earmarked site (s) within stockyards fitted with wind breakers/shields. Adequate measures shall be taken to ensure that the stored mineral does not catch fire.
- x. The temporary reject sites should appropriate planned and designed to avoid air and water pollution from such sites.

### III. **Water quality monitoring and preservation**

- i. The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board.
- ii. The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No. J-20012/1/2006-IA.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for compliance.
- iii. Industrial waste water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time.
- iv. The project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the washery. The embankment constructed along the river/nallah boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side stabilised with plantation so as to withstand the peak water pressure preventing any chance of inundation.
- v. Heavy metal content in raw coal and washed coal shall be analysed once in a year and records maintained thereof.
- vi. The rejects should preferably be utilized in FBC power plant or disposed off through sale for its gainful utilization. If the coal washery rejects are to be disposed off, it should be done in a safe and sustainable manner with adequate compaction and post closure

arrangement to avoid water pollution due to leachate from rejects and surface run off from reject dumping sites.

- vii. An Integrated Surface Water Management Plan for the washery area up to its buffer zone considering the presence of any river/rivulet/pond/lake etc. with impact of coal washing activities on it, shall be prepared, submitted to MoEFCC and implemented.
- viii. Waste Water shall be effectively treated and recycled completely either for washery operations or maintenance of green belt around the plant.
- ix. Rainwater harvesting in the washery premises shall be implemented for conservation and augmentation of ground water resources in consultation with Central Ground Water Board.
- x. No ground water shall be used for coal washing unless otherwise permitted in writing by competent authority (CGWA) or MoEFCC. The make-up water requirement of washery should not exceed 1.5 m<sup>3</sup>/tonne of raw coal.
- xi. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.
- xii. Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
- xiii. The project proponent shall take all precautionary measures to ensure riverine/ riparian ecosystem in and around the coal mine up to a distance of 5 km. A riverine/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government

#### **IV. Noise and Vibration monitoring and prevention**

- i. The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis
- ii. Adequate measures shall be taken for control of noise levels as per noise pollution Rules, 2016 in the work environment. Workers engaged in blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.

#### **V. Coal beneficiation**

- i. Coal stacking plan shall be prepared separately for raw coal, clean coal, middling and rejects.
- ii. Efforts should be made to reduce energy consumption by conservation, efficiency improvements and use of renewable energy.

#### **VI. Green Belt**

- i. Three tier greenbelt comprising of a mix of native species, of minimum 30 m width shall be developed all along the washery area to check fugitive dust emissions and to render aesthetic to neighbouring stakeholders. A 3-tier green belt comprising of a mix of native species or tree species with thick leaves shall be developed along vacant areas, storage yards, loading/transfer points and also along internal roads/main approach roads.

- ii. The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

#### **VII. Public hearing and Human health issues**

- i. Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & its RO on six-monthly basis.
- ii. The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any. as amended time to time.
- iii. Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- iv. Implementation of the action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.
- v. The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29<sup>th</sup> October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.

#### **VIII. Corporate Environment Responsibility**

- i. The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No. 22-65/2017-IA.III dated 1<sup>st</sup> May 2018, as applicable, regarding Corporate Environment Responsibility.
- ii. The company shall have a well laid down environmental policy duly approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
- iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of

implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.

- v. Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

## **IX. Miscellaneous**

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall monitor the criteria pollutants level namely; PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub> (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vii. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
- viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- x. No change in coal beneficiation process and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC) with such conditions mentioned therein. No change in the maximum quantum of raw material feed per annum against the approved washery capacity shall be made
- xi. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.



- xiv. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xv. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- xvi. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xvii. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

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**Generic ToR for coal washery**

- i. Siting of washery is critical considering to its environmental impacts. Preference should be given to the site located at pit head; in case such a site is not available, the site should be as close to the pit head as possible and coal should be transported from mine to the washery preferably through closed conveyer belt to avoid air pollution.
- ii. The washery shall not be located in eco-sensitive zones areas.
- iii. The washery should have a closed system and zero discharge. The storm drainage should be treated in settling ponds before discharging into rivers/streams/water bodies.
- iv. A thick Green belt of about 50 m width should be developed surrounding the washery.
- v. A brief description of the plant alongwith a layout, the specific technology used and the source of coal should be provided.
- vi. The EIA-EMP Repot should cover the impacts and management plan for the project of the capacity for which EC is sought and the impacts of specific activities, including the technology used and coal used, on the environment of the area (within 10km radius), and the environmental quality of air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts for the rated capacity. Cumulative impacts for air and water should be a part of EIA in case coal mine, TPP and other washeries are located within 10km radius. The EIA should also include mitigative measures needed to minimize adverse environmental impacts.
- vii. A Study Area Map of the core zone as well as the 10km area of buffer zone showing major industries/mines and other polluting sources should be submitted. These maps shall also indicate the migratory corridors of fauna, if any and areas of endangered fauna; plants of medicinal and economic importance; any ecologically sensitive areas within the 10 km buffer zone; the shortest distance from the National Park/WL Sanctuary Tiger Reserve, etc. alongwith the comments of the Chief Wildlife Warden of the State Govt.
- viii. Data of one-season (non-monsoon) primary- base-line data on environmental quality of air (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub> and NO<sub>x</sub>, noise, water (surface and groundwater), soil be submitted.
- ix. The wet washery should generally utilize mine water only. In case mine water is not available, the option of storage of rain water and its use should be examined. Use of surface water and ground water should be avoided.
- x. Detailed water balance should be provided. The break-up of water requirement as per different activities in the mining operations vis-a-vis washery should be given. If the source of water is from surface water and/or ground water, the same may be justified besides obtaining approval of the Competent Authority for its drawl.
- xi. 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 specific points where fugitive emissions can arise and specific pollution control/mitigative measures proposed to be put in place. The washed coal and rejects should be transport by train as far as possible. Road transport of washed coal and rejects should generally be avoided. In case, the TPP is within 10km radius, it should be through conveyer belt. If transport by rail is not feasible because of the topography of the area, the option for transport by road be examined in detail and its impacts along with the mitigation

measures should be clearly brought out in EIA/EMP report.

- xii. Details of various facilities proposed to be provided in terms of parking, rest areas, canteen etc. to the personnel involved in mineral transportation, workshop and effluents/pollution load from these activities should be provided.
- xiii. Impacts of CHP, if any, on air and water quality should also be spelt out alongwith Action Plan.
- xiv. O.M.no.J-11013/25/2014-IA.I dated 11<sup>th</sup> August, 2014 to be followed with regard to CSR activities.
- xv. Details of Public Hearing, Notice(s) issued in newspapers, proceedings/minutes of Public Hearing, points raised by the general public and response/commitments made by the proponent along with the Action Plan and budgetary provisions be submitted in tabular form. If the Public Hearing is in the regional language, an authenticated English translation of the same should be provided. Status of any litigations/ court cases filed/pending, if any, against the project should be mentioned in EIA.
- xvi. Analysis of samples indicating the following be submitted:
  - Characteristics of coal prior to washing (this includes grade of coal, other characteristics of ash, S and heavy levels of metals such as Hg, As, Pb, Cr etc).
  - Characteristics and quantum of coal after washing.
  - Characteristics and quantum of coal rejects.
- xvii. Details of management/disposal/use of coal rejects should be provided. The rejects should be used in TPP located close to the washery as far as possible. If TPP is within a reasonable distance (10 km), transportation should be by conveyor belt. If it is far away, the transportation should be by rail as far as possible.
- xviii. Copies of MOU/Agreement with linkages (for stand-alone washery) for the capacity for which EC is being sought should be submitted.
- xix. Corporate Environment Responsibility:
  - a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
  - b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
  - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
  - d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
- xx. A detailed action Plan for Corporate Social Responsibility for the project affected people and people living in and around the project area should be provided.
- xxi. Permission of drawl of water shall be pre-requisite for consideration of EC.
- xxii. Wastewater /effluent should confirm to the effluent standards as prescribed under Environment (Protection) Act, 1986
- xxiii. Details of washed coal, middling and rejects along with the MoU with the end-users should be submitted.

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## ANNEXURE-V

### GENERIC TOR FOR AN OPENCAST COALMINE PROJECT for EC

- (i) An EIA-EMP Report shall be prepared for..... MTPA rated capacity in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
- (ii) An EIA-EMP Report would be prepared for..... MTPA rated capacity to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of coal production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
- (iii) A toposheet specifying locations of the State, District and Project site should be provided.
- (iv) A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/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 study area 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 on the land use.
- (vi) Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, 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 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
- (viii) A detailed Site plan of the mine showing the 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 -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.
- (ix) 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 as per the approval of Irrigation and flood control Department of the concerned state.
- (x) 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 in the map along with the status of the approval of the competent authority.

- (xi) Break up of lease/project area as per different land uses and their stage of acquisition should be provided.

LANDUSE DETAILS FOR OPENCAST PROJECT should be given as per the following table:

Sl. No.	Landuse	Within ML area (ha)	Outside ML area (ha)	Total
1.	Agricultural land			
2.	Forest land			
3.	Wasteland			
4.	Grazing land			
5.	Surface water bodies			
6.	Settlements			
7.	Others (specify)			
	TOTAL			

- (xii) Break-up of lease/project area as per mining plan should be provided.
- (xiii) Impact of changes in the land use due to the project if the land is predominantly agricultural land/forestland/grazing land, should be provided.
- (xiv) One-season (other than monsoon) primary baseline data on environmental quality - air (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, NO<sub>x</sub> and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided.
- (xv) Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones 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. Observed values should be provided along with the specified standards.
- (xvi) Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.

- (xvii) 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 the end of mine life should be provided 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 Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.
- (xviii) Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.
- (xix) Impact of mining on hydrology, modification of natural drainage, diversion and channeling 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.
- (xx) Detailed water balance should be provided. The break-up of water requirement for the various mine operations should be given separately.
- (xxi) Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users in the upstream and downstream of the project site. should be given.
- (xxii) Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. 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.
- (xxiii) Impact of blasting, noise and vibrations should be given.
- (xxiv) Impacts of mining on the AAQ and predictions based on modeling using the ISCST-3 (Revised) or latest model should be provided.
- (xxv) Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
- (xxvi) Effort be made to reduce/eliminate road transport of coal inside and outside mine and for mechanized loading of coal through CHP/ Silo into wagons and trucks/tippers.
- (xxvii) Details of waste OB and topsoil generated as per the approved calendar programme, and their management shown in figures as well explanatory notes tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use should be given. OB dump heights and terracing based on slope stability studies with a max of 28° angle as the ultimate slope should be given. Sections of final dumps (both longitudinal and cross section) with relation to the adjacent area should be shown.
- (xxviii) Efforts be made for maximising progressive internal dumping of O.B., sequential mining, external dump on coal bearing area and later rehandling into the mine void.--to reduce land degradation.

- (xxix) Impact of change in land use due to mining operations and plan for restoration of the mined area to its original land use should be provided.
- (xxx) Progressive Green belt and ecological restoration /afforestation plan (both in text, figures and in the tabular form as per the format of MOEFCC given below) and selection of species (native) based on original survey/land-use should be given.

Table 1: Stage-wise Landuse and Reclamation Area (ha)

S.N.	Land use Category	Present (1 <sup>st</sup> Year)	5 <sup>th</sup> Year	10 <sup>th</sup> Year	20 <sup>th</sup> Year	24 <sup>th</sup> Year (end of mine life)*
1.	Backfilled Area(Reclaimed with plantation)					
2.	Excavated Area (not reclaimed)/void					
3.	External OB dump Reclaimed with plantation)					
4.	Reclaimed Top soil dump					
5.	Green Built Area					
6.	Undisturbed area (brought under plantation)					
7.	Roads (avenue plantation)					
8.	Area around buildings and Infrastructure					
	TOTAL					

\* As a representative example

Table 2 : Stage Wise Cumulative Plantation

S. No.	YEAR*	Green Belt	External Dump	Backfilled Area	Others(Undisturbed Area/etc)	TOTAL
1.	1 <sup>st</sup> year					
2.	3 <sup>rd</sup> year					
3.	5 <sup>th</sup> year					
4.	10 <sup>th</sup> year					
5.	15 <sup>th</sup> year					
6.	20 <sup>th</sup> year					
7.	25 <sup>th</sup> year					
8.	30 <sup>th</sup> year					
9.	34 <sup>th</sup> year(end of mine life)					
10.	34- 37 <sup>th</sup> Year (Post-mining)					

\* As a representative example

(xxxix) Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.

Table 3: Post-Mining Landuse Pattern of ML/Project Area (ha)

S.N.	Land use during Mining	Land Use (ha)				
		Plantation	Water Body	Public Use	Undisturbed	TOTAL
1.	External OB Dump					
2.	Top soil Dump					
3.	Excavation					
4.	Roads					
5.	Built up area					
6.	Green Belt					
7.	Undisturbed Area					
	TOTAL					

(xxxii) Flow chart of water balance should be provided. Treatment of effluents from workshop, township, domestic wastewater, mine water discharge, etc. should be provided. Details of STP in colony and ETP in mine should be given. Recycling of water to the max. possible extent should be done.

(xxxiii) 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 in the mine should be given.

(xxxiv) Risk Assessment and Disaster Preparedness and Management Plan should be provided.

(xxxv) Integration of the Env. Management Plan with measures for minimizing use of natural resources - water, land, energy, etc. should be carried out.

(xxxvi) Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.

(xxxvii) 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 should be given.

(xxxviii) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.

(xxxix) Corporate Environment Responsibility:



- a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
  - b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
  - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
  - d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
- (xl) Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details 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.
- (xli) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.
- (xlii) Status of any litigations/ court cases filed/pending on the project should be provided.
- (xliii) Submission of sample test analysis of Characteristics of coal: This should include details on grade of coal and other characteristics such as ash content, S and heavy metals including levels of Hg, As, Pb, Cr etc.
- (xliv) Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.

FOREST CLEARANCE: Details on the Forest Clearance should be given as per the format given:

TOTAL ML/PROJECT AREA (ha)	TOTAL FORESTLAND (ha)	Date of FC	Extent of forestland	Balance area for which FC is yet to be obtained	Status of appl for. diversion of forest land
		If more than, provide details of each FC			

**GENERIC TORs FOR AN UNDERGROUND COALMINE PROJECT**

- (i) An EIA-EMP Report shall be prepared for..... MTPA rated capacity in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
- (ii) An EIA-EMP Report would be prepared for..... MTPA rated capacity to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of coal production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
- (iii) A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/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 study area should be given.
- (iv) Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, 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.
- (v) A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
- (vi) A detailed Site plan of the mine showing the 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 -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.
- (vii) Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified.

S.N	ML/Project Land use	Area under Surface Rights(ha)	Area Under Mining Rights (ha)	Area Under Rights	Area under Both (ha)
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1.	Agricultural land			
2.	Forest Land			
3.	Grazing Land			
4.	Settlements			
5.	Others (specify)			

#### Area under Surface Rights

S.N.	Details	Area (ha)
1.	Buildings	
2.	Infrastructure	
3.	Roads	
4.	Others (specify)	
	TOTAL	

- (viii) Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.
- (ix) 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 the end of mine life should be provided 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 Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.
- (x) Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.
- (xi) Impact of mining on hydrology, modification of natural drainage, diversion and channeling 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.
- (xii) One-season (other than monsoon) primary baseline data on environmental quality - air (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, NO<sub>x</sub> and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided.
- (xiii) Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in

both core and buffer zones 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. Observed values should be provided along with the specified standards.

- (xiv) Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. 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.
- (xv) Study on subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.
- (xvi) Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
- (xvii) Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, coal handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
- (xviii) Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
- (xix) Effort be made to reduce/eliminate road transport of coal inside and outside mine and for mechanized loading of coal through CHP/ Silo into wagons and trucks/tippers.
- (xx) Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
- (xxi) The number and efficiency of mobile/static water sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
- (xxii) Impacts of CHP, if any on air and water quality should be given. A flow chart showing water balance along with the details of zero discharge should be provided.
- (xxiii) Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
- (xxiv) Greenbelt development should be undertaken particularly around the transport route and CHP. 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 should be submitted.

- (xxv) Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
- (xxvi) 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 should be given.
- (xxvii) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
- (xxviii) Corporate Environment Responsibility:
  - a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
  - b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
  - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
  - d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
- (xxix) Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details 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.
- (xxx) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.
- (xxxi) Status of any litigations/ court cases filed/pending on the project should be provided.
- (xxxii) Submission of sample test analysis of Characteristics of coal: This should include details on grade of coal and other characteristics such as ash content, S and heavy metals including levels of Hg, As, Pb, Cr etc.
- (xxxiii) Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.

Details on the Forest Clearance should be given as per the format given:

Total /Project (ha)	ML Area	Total Forest Land (ha)	Date of FC	Extent of Forest Land	Balance area for which FC is yet to be obtained	Status of appl. For diversion of forest land

		If more than one provide details of each FC			
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**GENERIC TORs FOR AN OPENCAST-CUM-UNDERGROUND COALMINE PROJECT**

- (i) An EIA-EMP Report would be prepared for a combined peak capacity of .....MTPA for OC-cum-UG project which consists of .... MTPA in an ML/project area of ..... ha for OC and .... MTPA for UG in an ML/project area of ..... ha based on the generic structure specified in Appendix III of the EIA Notification 2006.
- (ii) An EIA-EMP Report would be prepared for..... MTPA rated capacity to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of coal production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
- (iii) The ToRs prescribed for both opencast and underground mining are applicable for opencast – cum-underground mining.

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**Email**

**Munna Kumar Shah**

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**Re: Draft MoM of 16th EAC meeting held on 22nd July, 2021 - Revised**

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**From :** gpkundargi@gmail.com

Thu, Aug 05, 2021 12:32 PM

**Subject :** Re: Draft MoM of 16th EAC meeting held on 22nd July, 2021 - Revised

**To :** Munna Kumar Shah <munna.shah@gov.in>

**Cc :** sheoshankar@iitism.ac.in, lk.bokolia <lk.bokolia@nic.in>, suramya vora <suramya.vora@gmail.com>, sai nandinin <sai.nandinin@gmail.com>, mpsingh.cea <mpsingh.cea@nic.in>, ukahalekar@rediffmail.com, santoshkumar777@yahoo.com, biswaskiriti@gmail.com, shuklanp55@gmail.com

Dear Munna Kumar ji,  
I have gone through the revised draft minutes. Revised Draft minutes are in order & approved. You may take further needful action.  
Thank you  
G P Kundargi

On Thu, 5 Aug, 2021, 10:28 am Munna Kumar Shah, <[munna.shah@gov.in](mailto:munna.shah@gov.in)> wrote:

Dear sir

The undersigned is directed to inform that the correction proposed in Draft MoM has been done. May please check and further approve the MoM for uploading on PARIVESH Potal.

For your consideration please

Thank you

Regards

Munna Kumar Shah  
Scientist D

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**LIST OF PARTICIPANTS OF EAC (COAL) IN 15<sup>th</sup> MEETING OF HELD DURING 6<sup>th</sup> JULY, 2021 THROUGH VIDEO CONFERENCING**

1.	<b>Shri G.P Kundargi</b>	-	<b>Chairman</b>	<b>DAY-1</b>
				<b>P</b>
2.	Dr. N. P. Shukla	-	Member	P
3.	Shri Suramya Dolarray Vora, IFS (Retd)	-	Member	A
4.	Dr. Umesh Jagannathrao Kahalekar	-	Member	P
5.	Shri K.B. Biswas	-	Member	P
6.	Dr. Nandini.N	-	Member	P
7.	Dr. Unmesh Patnaik	-	Member	A
8.	Shri Prasant Kumar Mohapatra	-	Member	A
9.	Professor S S Rai, Representative of IIT/ISM Dhanbad	-	Member	P
10.	Shri M.P Singh, Representative of CEA	-	Member	P
11.	Dr. Santosh Kumar Hampannavar	-	Member	P
12.	Prof R.K. Giri Representative of IMD	-	Member	A
13.	Dr. Nazimuddin Representative of Central Pollution Control Board	-	Member	A
14.	Shri Lalit Bokolia, Director, MoEFCC	-	Member Secretary	P