

**MINUTES OF 21<sup>st</sup> MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENT APPRAISAL OF COAL MINING PROJECTS HELD ON 27<sup>th</sup> OCTOBER, 2021 THROUGH VIDEO CONFERENCE.**

**Wednesday, 27<sup>th</sup> October, 2021**

**Confirmation of the Minutes of 20<sup>th</sup> Meeting of the EAC (Coal) held on 13-14 October, 2021:** The minutes of the 20<sup>th</sup> meeting of the EAC held during 13-14 October, 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 21<sup>st</sup> meeting of the Expert Appraisal Committee (EAC) for coal mining projects was held on 27<sup>th</sup> October, 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. 21.1**

**Subhadra Open Cast Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coal field Limited located at Village Gopal Prasad, Kumuda, Nisha, Kankarei, Raijharan, Nisha P.S Angul, Tehsil Tachler Sadar and Chhendipada, District Angul (Odisha) - For Terms of Reference- reg**

**[Online proposal No. IA/OR/CMIN/232524/2021; F No. IA-J-11015/72/2021- IA-II(M)]**

**21.1.1** The proposal is for Terms of Reference of Subhadra Open Cast Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coal field Limited located at Village Gopal Prasad, Kumuda, Nisha, Kankarei, Raijharan, Nisha P.S Angul, Tehsil Tachler Sadar and Chhendipada, District Angul (Odisha)

**21.1.2** 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: F45Z13 & F45T1 on RF 1:50,000 and is bounded by the geographical coordinates ranging from latitude 20°55'56.225" to 20°58'47.344" N and longitudes 84° 58'42.383" to 85° 0'50.476" E.
- (ii) Coal linkage of the project: Basket Linkage to consumer all over India
- (iii) No Joint venture cartel has been formed.

- (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: 2108 manpower will be deployed which will provide direct employment and other near about 5,000 people will also be attracted to an economically resurgent area providing service/education etc.
- (vi) The project is reported to be beneficial in terms of
- Improvement in physical Infrastructure and infrastructure like roads, school building, provision of drinking water, community hall, plantation etc.
  - Increase in employment Potential.
  - Contribution of Direct tax, sales tax, Royalty etc to the National Exchequer.
  - Overall economic growth of the country.
- (vii) Total mining lease area as per block allotment is 1111.85 Ha. Mining plan (including Progressive Mine closure plan) has been approved by the MCL Board vide letter no. MCL/SBP/CS/BD-235/Exct/2021/111767 dt- 07.06.2021.
- (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	Outside ML Area	Total
1	Agricultural Land	800.50	--	800.50
2	Forest Land	125.24	--	125.24
3	Wasteland	92.64	--	92.64
4	Grazing Land	58.67	--	58.67
5	Surface Water Bodies	6.28	--	6.28
6	Settlement	0.00	--	0.00
7	Others(specify)	28.27	--	28.27
8	Old Excavation Area(East Quarry)	NA	--	NA
9	Old Excavation Area(West Quarry)	NA	--	NA
10	Old OB Dumps	NA	--	NA
11	Roads and Mine Infrastructure	0.25	--	0.25
12	R&R colony	NA	--	NA
13	Staff Colony	NA	--	NA
14	Green belt	NA	--	NA
15	Balance Area	0.00	--	0.00
	<b>Total Project Area</b>	<b>1111.85</b>		<b>1111.85</b>

Post Mining

		Land use (Ha)
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SI No	Land Use	Plantation/ Agriculture	Water Body	Public Use	Undisturbed	Total
1	External OB Dump	24.17	--	--	--	24.17
2	Top Soil dump	8.97	--	--	--	8.97
3	Excavation	715.24	--	--	130.68	845.92
4	Roads	--	--	15.72	--	15.72
5	Built- up Area	117.26	--	37.35	--	154.61
6	Green Belt	6.89	--	--	--	6.89
7	Undisturbed Area	--	--	--	--	0.00
8	Safety Zone Rationalization Area	11.79	--	--	--	11.79
9	Diversion/Below River/Nala/Canal	--	--	8.42	--	8.42
10	Water Body	--	35.36	--	--	35.36
11	Staff Colony	--	--	--	--	0.00
	<b>Total Area</b>	884.32	35.36	61.49	130.68	1111.85

- (ix) Total geological reserve reported in the mine lease area is 1108.39 Mt with 791.04 Mt as mineable reserves. Out of total mineable reserve of 791.04 Mt, 768.83 Mt are available for extraction. Percent of extraction is 97.19%.
- (x) 9 seams with thickness ranging from 0.13 to 35.26 are workable. Grade of Coal is G-13, Stripping ratio is 0.93 while average gradient is 3.480
- (xi) Method of mining operations envisages by Opencast Mining Method Coal winning by Surface Miner, pay loader & tipper and OB removed by Shovel-Dumper combination.
- (xii) Life of mine is 36 years (as on 1.04.2022)
- (xiii) The project has one temporary external OB dumps in an area of 24.17 ha with 30 m height and 103.72 Mm<sup>3</sup> of OB which will be re-handled and simultaneously backfilled into the de-coaled area (internal OB dumping). An area of 715.24 ha is proposed for internal OB dump. Total 716.90 Mm<sup>3</sup> of OB material is envisaged for backfilling in internal OB dump.
- (xiv) Total quarry area is 881.28 ha out of which backfilling will be done in 715.24 ha while final mine void will be created in an area of 35.36 ha with a depth of 30m. Backfilled quarry area of 715.24 Ha shall be reclaimed with plantation/grass/agriculture.
- (xv) Transportation of coal has been proposed by tippers /pay loader in mine pit head, from surface to siding by close conveyor and at sidings by RLS with railway.
- (xvi) Reclamation Plan in an area of 884.32ha, comprising of 24.17 ha of temporary external

dump, 715.24 ha of internal dump, 6.89 Ha of Green Belt. In addition to this, an area of 138.02ha. included in the roads/infrastructure and built-up area, top soil dump has also been proposed for green belt development.

- (xvii) 125.24 ha of forest land has been reported to be involved in the project.
- (xviii) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10km boundary of the project.
- (xix) The range of ground water is varying between 3.42mbgl to 10.12mbgl during the pre-monsoon in core zone and between 2.25mbgl to 10.90mbgl in buffer zone. During the post monsoon period it is varying between 1.17mbgl to 5.00mbgl in core zone and between 2.15mbgl to 7.80mbgl in buffer zone. Total water requirement for the project is 5.525MLD
- (xx) The seasonal nallah, Ghurudia Nallah is flowing within the mine boundary and Singhada Jhor in extreme north boundary of the mine. It is planned for diversion of Guhuridia Nallah in the eastern boundary of the mine and Singhada Jhor will be straighten in north boundary.
- (xxi) No court cases, violation cases are pending against the project of the PP.
- (xxii) The project does not involve violation of the EIA Notification, 2006 and amendment issued there under.
- (xxiii) The project involves 1425project affected families. R&R of the PAPs will be done as per Orissa Rehabilitation and Resettlement Policy 2006.
- (xxiv) Total cost of the project is Rs. 3955.65 Cr. Cost of production is Rs.678.00 per tonne, CSR cost is Rs.2.00 per tonne or 2% of the average net profit of the Company of the three immediately preceding financial years whichever is higher. R&R cost is Rs.405.46 crores. Environment Management Cost is Rs 76.12crores.

### **20.1.3 The EAC during deliberations noted the following:**

The proposal is for Terms of Reference of Subhadra Open Cast Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coal field Limited located at Village Gopal Prasad, Kumuda, Nisha, Kankarei, Rajjharan, Nisha P.S Angul, Tehsil Tachler Sadar and Chhendipada, District Angul (Odisha)

- Earlier, MoC vide their letter No 13016/19/2003-CB-CA-I dated 29.11.2005 allocated combined block consisting of Utkal-A and western part of Gopal prasad (W) blocks jointly to M/s Mahanadi Coalfields Limited (MCL), JSW Steel Ltd. M/s Jindal Thermal Power Company Ltd.(JTPCL), Jindal Stainless Steel Ltd. and M/s Shyam DRI Ltd.
- However, Hon'ble Supreme Courts vide their verdict in Aug/Sept 2014 cancelled all the coal blocks including Utkal-A coal block.
- MoC vide their letter No. CBA2-13011/1/2017-CBA2 dated 6th April 2018 asked CIL/CMPDIL to take action for peak rated capacity of 25 MTPA for joint working on Utkal-A and west of Gopalprasad west block and approval of MCL Board thereon. The proposal for Peak rated capacity of 25 MTPA was approved by MCL Board in its 203rd meeting held on 06.08.2018.

- MoC vide their OM No CBA2-13011/1/2017-CBA2 dated 03.10.2018 informed the direction of Central Govt. to Nominated Authority for allocation of Utkal-A coal block under Rule 8(2)(a)(ii) and Rule 11(1) of the Coal Mines (Special Provision) Rule 2014 issued on dated 11.09.2019. MCL also informed vide their letter No 539-H dated 26.09.2019 that the name of the Project to be kept as Subhadra OCP, 25 MTPA
- The area as per the block allotment is 1144.90 Ha and as per the Mining plan is 1111.85 Ha.
- The diversion of 8.90 km Ghuridia Nallah in the eastern boundary of the mine and also Singhada Jhor of 1.17 km is proposed to be straighten for 1.08 in north boundary.
- Project involves Forest land of 125.24 Ha for in mine lease for diversion of non-forestry activity. It was informed that application of Forest Clearance yet to be applied.
- 10 villages are located within the mine lease and will be affected due to proposed mine activities
- Total estimated water requirement is 5.11 MLD.

**20.1.4** *The EAC observed that proposal is greenfield coal mine proposed by merging two blocks of Utkal A and west of Gopalprasad West Block and from kml files that the Ghurdia stream (proposed length 8.9 km- to be diverted by south and east of quarry for about 5.4 Km) found to be distracted in nearby Hingula mine, is now originating within the Bharatpur mine site. It needs a proper hydrological mapping/survey with catchment area, flow of the stream etc, to be diverted in view of its destruction in upstream catchment area by conducting primary survey since all these streams joining Brahmini River (a major source of water in the region). It to be ascertained that due to diversion of streams due to other mines in the area, impact of water availability in the river. All the details regarding drainage pattern, hydrology and restoration of these streams shall be included in EIA/EMP report as a separate chapter. EAC also advised consultant not to use term/write for any streams as Nalla*

*EAC also asked PP that Forest or the green patch towards the North eastern boundary will not be disturbed and the Singhada Jhor stream being perennial rivulet in the zone should not be diverted for at least 20 years. Accordingly, a distance of about 60 mts along Singhada stream shall be left to avoid any pollution, thus the Mine plan shall be revisited/relooked. The PP informed that as per the mine closure plan the field will be reclaimed as agricultural land by labelling the entire area and only a small void will be left towards North west as a reservoir. In the background of said points and considering that project is of green field project, The EAC also suggested to review over the capacity of dumper (from 150 tonnage to 250 tonnage) to be used for transportation of OB dump within the mine lease in order to combat the pollution due to vehicular moment. The PP was not able to provide the proposed monitoring location for collecting.*

*Also, during the presentation, EAC was disappointed with the consultant M/s CMPDIL and its repeated mistakes in the presentation and asked to come prepared with all the requirements for ToR since projected location of monitoring interms of air, water and noise quality was not produced.*

*The EAC, after deliberation, **recommends** for grant of Terms of Reference to Subhadra Open Cast*

*Mine with production capacity of 25 MTPA in mine lease area of 1111.85 ha of M/s Mahanadi Coal field Limited located at Village Gopal Prasad, Kumuda, Nisha, Kankarei, Rajiharan, Nisha P.S Angul, Tehsil Tachler Sadar and Chhendipada, District Angul (Odisha), under the provisions of EIA Notification, 2006 and its amendments therein with specific conditions 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. All the issues raised and PP reply should be incorporated in EIA.*
- (ii) PP shall not divert the Singhada Jhor stream and will not disturbed the forest area or green patch located towards North eastern boundary for next 20 years of the mine life. Adequate protection measures shall be proposed in EIA Report.*
- (iii) A detailed hydrological survey of the Ghurdia nallah/Stream, regarding its catchment area, flow volume and length of the stretch to be diverted to be provided with proper diversion plan in EIA/EMP report.*
- (iv) A water reservoir and forest area is located towards South West directions so the extra measure adopted for combating the pollution should be mentioned in EIA/ EMP report.*
- (v) PP shall clarify the area of the project interms of allotment of block from MoC and Mine Plan. Further, PP shall reduce the area of project by excluding the green patch towards the North eastern boundary.*
- (vi) PP shall submit alternate land for grazing purpose with water bodies of same area within 5 km of project area.*
- (vii) Stage-I Forest Clearance for diversion for non-forestry activity shall be submitted.*
- (viii) PP shall prepare the Mining Plan in such a manner that condition prescribed by EAC shall intact from environment point of view. EIA-EMP shall accordingly be prepared on the suggested stipulation with point-wise compliance & in accordance with recommendations of Mining Plan*
- (ix) 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 rivers.*
- (x) In addition to existing data already collected (if any), the Cumulative Impact Assessment Study, ecosystem services study and biodiversity 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.*
- (xi) 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.*
- (xii) 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.*
- (xiii) 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.*

- (xiv) *No trucks or vehicles used for transportation of Coal to be passed by village roads or roads located near to the villages*
- (xv) *The PP had proposed few roads in the Form -1 while filling application for ToR appraisal. Accordingly, PP has to adopt the adequate route or dedicated route causing least hindrance to existing traffic and its budgetary provision should also be provided in EIA report.*
- (xvi) *PP to engage the adequate capacity of dumper size/trucks in order to reduce the fleet size.*
- (xvii) *PP shall submit detailed project report for implementation of railway siding for evacuation of coal with its target date of completion. Target date should be such that railway siding should be operational within 2 years of commissioning of mine operations. Forest Clearance shall be submitted if railway siding land comes under forest land.*
- (xviii) *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.*
- (xix) *Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.*
- (xx) *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 by i.e. the likely emissions of greenhouse gases from the mining operations to be estimated with the modelling for future prediction related to the climate of that study area.*
- (xxi) *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 with the approval of District Commissioner/collector.*
- (xxii) *Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.*
- (xxiii) *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*
- (xxiv) *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.*
- (xxv) *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.*
- (xxvi) *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. The final mine void shall be reduced and brought as near as ground so that land can be restored and reclaimed*

- (xxvii) PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.
- (xxviii) PP shall submit letter 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 with certified map showing distance of nearest sanctuary
- (xxix) Details of toe wall and garland drain to be constructed along the OB dump.
- (xxx) Reclamation to be done using geo-texturing technique of the dumps close to habitation and a cause of visual intrusion.
- (xxxi) 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.
- (xxxii) 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.
- (xxxiii) Details of Fog mist sprayer (static water sprinklers) at coal stock yard and along the permanent haul road.
- (xxxiv) Details of black topping of permanent haul roads.
- (xxxv) The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.
- (xxxvi) The socio-economic study to be conducted with actual survey report and a comparative assessment to be provided from the census data of 2011-part B to be provided in EIA/ EMP report also economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data of 2011 part A to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.
- (xxxvii) A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report

## **Agenda No. 21.2**

**Expansion of Bharatpur Opencast Coal Mine Project from 20 to 26 MTPA with increase in ML area from 927.42 Ha to 1556.94 Ha of M/s Mahanadi Coalfields limited located at village Lachhmanpur, Baideswar, Jamubahal, Pabitrapur, Anantaberani, Padmabatipur, Dasarathipur, Nakeipasi (part), Danra (part), Rakas (part), Chintamanipur, Saranga, Khajuria, kishorechandrapur, Teleipasi, Tehsil Talcher Sadar, District Angul (Odisha)- For Terms of**



## Reference – reg.

### [Online Proposal IA/OR/CMIN/233356/2021; F No. J-11015/630/2007-IA II(M)]

**21.2.1** The proposal is for Terms of Reference of Expansion of Bharatpur Opencast Coal Mine Project from 20 to 26 MTPA with increase in ML area from 927.42 Ha to 1556.94 Ha M/s Mahanadi Coalfields limited located at village Lachhmanpur, Baideswar, Jamubahal, Pabitrapur, Anantabereni, Padmabatipur, Dasarathipur, Nakeipasi (part), Danra (part), Rakas (part), Chintamanipur, Saranga, Khajuria, kishorechandrapur, Teleipasi, Tehsil Talcher Sadar, District Angul (Odisha).

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

- Earlier, the project was deliberated on 11<sup>th</sup> EAC meeting held during 9<sup>th</sup> April, 2021 for grant of Terms of reference wherein EAC had observed certain changes in the information regarding the status of mine production since inception and other details regarding monitoring locations, new technologies to be adopted for the instant project.
- Earlier, the environment clearance to the project was obtained under EIA Notification 2006 vide Ministry's letter vide letter No. J11015/630/2007-IA. II (M) dt. 31<sup>st</sup> October, 2008 for 20 MTPA in the mine lease area of 1324.80 Ha.
- Subsequently Amendment in EC for reduction in mine lease area from 1324.80 ha to 927.42 ha has been obtained J11015/630/2007-IA. II(M) dated 27<sup>th</sup> May 2021
- Updated information by PP which are enlisted below
  - Employment generation: Existing: 1804. Proposed additional: 490. In addition to the above, huge indirect employment will also be generated.
  - Total geological reserve reported in the mine lease area is 475.55 Mt with 441 Mt as mineable reserves. Out of total mineable reserve of 441 Mt are available for extraction as on 01.04.2021. Percent of extraction is 95.00 %.
  - The project has existed five external OB dumps in an area of 49.50 ha with 20 to 30 m height and 9.22 Mm<sup>3</sup> of OB. OB is being simultaneously backfilled into the de-coaled area (internal OB dumping). An area of 1091.31 ha is proposed for internal OB dump out of which 339.68 Ha already exists. Total 719.79 Mm<sup>3</sup> of OB material is envisaged for backfilling in internal OB dump and out of which 189.78 Mm<sup>3</sup> has already been backfilled in the existing project as on 31.03.2021.
  - Total quarry area is 1334.05 ha out of which backfilling will be done in 1091.31 ha up to ground level (out of which 339.68 Ha is already backfilled) while final mine void will be created in an area of 47.45 Ha with a maximum depth of 15 to 40 m. Also 195.29 Ha of dip side quarry slope will also be brought under vegetation of grasses/shrubs. Backfilled quarry area of 1091.31 ha shall be reclaimed with plantation/grass/agriculture.
- Transportation of coal has been proposed as below.

- In mine pit: through Surface miner & by tippers
- From surface to siding: 5 Mty coal will be hauled up to CHP at surface and through a closed conveyor belt of 3.25 km, the coal is loaded into RLS for dispatch to M/s NALCO through MGR and 6 Mty coal will be sent to rail spur sidings 7 & 8 located about 500m from quarry mouth through tippers. 15 Mty Coal will be hauled by tippers to the receiving hoppers of SILO located inside excavated quarry and then through a closed conveyor belt of 1.12 km, will be loaded into Silo of 15 MTPA capacity for dispatch to basket linkage.
- Siding to loading:
  - 5.0 Mty by RLS to NALCO
  - 15.0 Mty by Silo to basket linkage
  - 6.0 Mty through spur siding nos. 7 & 8
- Reclamation Plan in an area of 1440.95 ha, comprising of 49.50 ha of external dump, 1286.60 ha of internal dump, 3.53 Ha of Safety Zone and 65.53 Ha of undisturbed area. In addition to this, an area of 35.79 ha. included in the roads/infrastructure and built-up area, has also been proposed for green belt development.

Sr. No.	Observation of EAC	Reply by PP
1	The new technologies to be adopted for mining as improvement in existing operation.	Bharatpur OCP has constantly inducted new/innovative practices of mining. Mining is done using surface miners for coal, wet drilling arrangement, controlled blasting. To further curb the pollution at siding, one more Silo of capacity 15.0 MTPA with a closed conveyor belt of 1.12 km starting from quarry surface to Silo has been commissioned in 2018-19 for dispatch to basket linkage.
2	PP is required to specify the location of monitoring station for collection of baseline data collection considering other mines in the area.	Base line data collection has been done for the period March to May 2021. The 10 monitoring locations of the air quality sampling, 11 of the Water quality and 4 of the soil quality was furnished by PP
3	PP should further submit the reason for diversion of jhor/stream in the area.	To increase life of the mine, production capacity and utilization of existing infrastructure for longer life, Bhartpur OCP is expanding into Kalinga –east Block. Banguru Nala passes across the property in stream passing in south west to north –east directions. Seam strike is also more or less in that direction. For the mine

		to progress in planned manner, the benches are designed in along strike directions. As per approved Mining Plan Bangura nala will be encountered during 4 <sup>th</sup> year from start of expansion OCP. Without diversion huge amount of coal will get blocked, continuity of the mining operations will be hampered. Transport capacity may become limited due to frequent crossing over bridge. Initial depth of a separate quarry on the other side will be very high, requiring high volume of OB dump to be dumped outside. A diversion plan of the same will be prepared with state irrigation department
4	PP shall submit Past Production details since inception of mine duly authenticated by departments of Mine and Geology Government of Odhisa or from Coal Controller vis-à-vis Minutes of 11th EAC (Coal Mining Sector) held on 9th April, 2021 Page 9 of 61 CTO. Accordingly, the Committee desires this should be elaborated properly in tabular form.	The production detail was furnished by the PP. Access production has been identified since 1993-94 to 2004-05 i.e prior to grant of Environment Clearance in 2008.

**21.2.4** *The EAC after deliberations observed instant proposal is for expansion of production capacity as well as increase in area. As per production data submitted by PP, it can be seen that after grant of EC dated 31st October, 2008 for 20 MTPA, PP has never obtain its peak capacity and lower than proposed capacity (ranged from 4.78 to 15.62 MTPA production i.e not more than 80 % of the sanctioned capacity) and now PP is asking EC for 26 MTPA, accordingly a clarification may be sought from PP. EAC also recommended PP to achieve the production of more than 80 % of the sanctioned capacity as per existing EC dated 2008 for at least 3 continuous months for base line data collection since it is the case of expansion.*

*PP had proposed to divert the Banguru Jhor Nala rightly to be termed as stream passing in south west to north –east directions of the mine lease upto the length 3.2 km after 4 years though the EAC had critically analyses that the same Banguru Jhor stream though originating from the Bharatpur mine but was entered the nearby mine of Balrampur mine of MCL where it had been destroyed without taking proper measures. The estimated surface width of the Banguru Jhor stream as told by PP is around 10 m and was also having many sub streamlet. EAC observed that the expansion of the project towards North West direction with additional land area of 629.52 Ha requires the diversion of the stream as it is not passing by the existing land of 927.42 ha.*

*So PP should come up with proper dimension of the Banguru Jhor stream regarding its catchment area,*  
Minutes of 21<sup>st</sup> EAC (Coal Mining Sector) held on 27<sup>th</sup> October, 2021

*flow volume and length of the stretch to be diverted to be provided with proper diversion plan. A detailed hydrological studies to be furnished with proper restoration action plan of the water bodies which are already damaged within the 10 km buffer zone of the study area.*

*It was also found that the PP had not mentioned in the reply about the quantity of coal reserves to get blocked under the Bangaru nala to assess the requirement of diversion. So the actual quantity of reserves to be found beneath it along with year wise progressive plan should also be furnished by the PP. It was also found that EAC had asked in previous meeting to specify the location of monitoring station for collection of base line data considering the other mines in the area but it was observed that the no other mine area was considered while considering the monitoring locations as per the reply furnished by the PP. No noise monitoring locations were mentioned in the reply.*

*In view of above, the proposal was **returned** and desired that PP first comply with above observation before considering the proposal of expansion.*

### **Agenda No. 21.3**

**Baitarni West Opencast Coal Mine with production capacity of 15 MTPA in an area of 1196 ha by M/s Odisha Mining Corporation Ltd located at Village Chhendipada Jangal, Handigora, Machhakuta, Machhakuta Jangal, Porapara, Porapara Jangal, Tentuloi-Korasahi Tehsil Chhendipada District Angul (Odisha)- For Terms of Reference- reg**

**[Online Proposal No. IA/OR/CMIN/234993/202; F.No. IA-J-11015/81/2017- IA-II(M)]**

**21.3.1** The proposal is for Terms of Reference of Baitarni West Opencast Coal Mine with production capacity of 15 MTPA in an area of 1196 ha by M/s Odisha Mining Corporation Ltd located at Village Chhendipada Jangal, Handigora, Machhakuta, Machhakuta Jangal, Porapara, Porapara Jangal, Tentuloi-Korasahi Tehsil Chhendipada District Angul (Odisha)

**21.3.2** 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 proposal is for ToR for Baitarni OCP of 15.0 MTPA Capacity in Mine lease area of 1196.0 Ha of M/s Odisha Mining Corporation Limited(OMC) located at villages Chhendipada Jangal- (Part), Handigora- (Part), Machhakuta - (Part), Machhakuta Jangal- (Part), Porapara- (Part), Porapara Jangal -(Full), Tentuloi-Korasahi- (Part), Tehsil- Chhendipada, District- Angul (Odisha)
- (ii) Details of the proposal, as ascertained from the proposal documents and as revealed from the discussions held during the meeting, are given as under:
- (iii) The project area is covered under Survey of India Toposheet No: F45M16 on RF 1:50,000 and is bounded by the geographical coordinates ranging from: Latitude : 21° 01' 38" N, 21° 05' 27" N Longitude: 84° 49' 57" E, 84° 51' 41" E

- (iv) Coal linkage of the project: Nil
- (v) No Joint venture cartel has been formed
- (vi) 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.
- (vii) Employment generation: 1752 manpower will be deployed which will provide direct employment and other people will also be attracted to an economically resurgent area providing service/education etc.
- (viii) The project is reported to be beneficial in terms of
  - Improvement in physical Infrastructure and infrastructure like roads, school building, provision of drinking water, community hall, plantation etc.
  - Increase in employment Potential.
  - Contribution of Direct tax, sales tax, Royalty etc. to the National Exchequer.
  - Overall economic growth of the country.
- (ix) Total mining lease area as per block allotment is 1196.0 Ha. Mining plan (including Progressive Mine closure plan) has been approved by Ministry of Coal, Govt. of India vide letter no. SWCS/Baitarni West Coal Mine/OR/AN/2021/CCO-MCBA dtd. 08.10.2021 The land usage pattern of the project is as follows:

Pre-mining land use details (Area in Ha)

Sr. No	Type of Land	Within ML Area (Ha)	Outside ML Area (Ha)	Total Area (Ha)
a)	Agricultural	784.8499	--	784.8499
b)	Forest	64.3723	--	64.3723
c)	Barren	44.3739	--	44.3739
d)	Grazing	118.8397	--	118.8397
e)	Water bodies	35.1422	--	35.1422
f)	Roads	31.4086	--	31.4086
g)	Township	32.7729	35.00	67.7729
h)	Community/other use	84.2405	36.293	120.5335
<b>Total</b>		<b>1196.00</b>	<b>71.293</b>	<b>1267.293</b>

Post Mining land use details (Area in Ha)

Sl. No.	Category	Plantation	Water body	Undisturbed	Agriculture/Forest land returned	Public/ Company use	Total
1	Quarry excavation	537.12	22.218	0	64.372	0	623.71
2	Safety Zone (7.5mt)	16	0	0	0	0	16

3	OB dumps (external)	215.84	0	0	0	0	<b>215.84</b>
4	Infrastructure	161.783	0	0	0	25	<b>186.783</b>
5	Topsoil dump	2.34	0	0	0	0	<b>2.34</b>
6	Green belt	86.5	0	0	0	0	<b>86.5</b>
7	Water reservoir near pit	0	7.89	0	0	0	<b>7.89</b>
8	Undisturbed	0		31.707	0	0	<b>31.707</b>
9	Other areas (embankment and Garland drain)	10	8.38	0	0	6.85	<b>25.23</b>
<b>10</b>	<b>Mine Lease Area (A)</b>	<b>1029.583</b>	<b>38.488</b>	<b>31.707</b>	<b>64.372</b>	<b>31.85</b>	<b>1196</b>
11	Outside Mine Lease Area (B) Colony and R&R	15	0	0	0	56.293	<b>71.293</b>
<b>12</b>	<b>Total Project Area (A+B)</b>	<b>1044.583</b>	<b>38.488</b>	<b>31.707</b>	<b>64.372</b>	<b>88.143</b>	<b>1267.293</b>

- (x) Total geological reserve reported in the mine lease area is 662.94 Mt with 485.06 Mt as mineable reserves. Out of total mineable reserve of 485.06 Mt, 468.27 Mt are available for extraction. Percent of extraction is 77.78%.
- (xi) 14 seams with thickness ranging from 0.23 to 33.94 are workable. Grade of Coal is G-12, Stripping ratio is 1.53 while average gradient is 2.-70
- (xii) Method of mining operations envisages by Opencast Mining Method of Coal winning by Surface Miner, pay loader & tipper and OB removed by Shovel-Dumper combination.
- (xiii) Life of mine is 37 years including construction period.
- (xiv) The project has one external OB dumps in an area of 215.84 ha with 30 m height and 140.90 Mm<sup>3</sup> of OB. An area of 1029.58 ha is proposed for internal OB dump. Total 574.50 Mm<sup>3</sup> of OB material is envisaged for backfilling in internal OB dump.
- (xv) Total quarry area is 623.710 ha out of which backfilling will be done in 601.492 Ha while final mine void will be created in an area of 22.218 ha with a depth of 30m. Backfilled quarry area of 601.492 Ha shall be reclaimed with plantation out of which 64.372 Ha will be returned as forest land.
- (xvi) Transportation of coal has been proposed by dumper in mine pit head, from surface to siding by conveyor and at sidings by RLS to railway wagon and by truck loading system to tippers.
- (xvii) Reclamation Plan in an area of 1029.583 ha, comprising of 215.84 ha of external dump, 537.12 ha of internal dump, 86.5 Ha of Green Belt. In addition to this, an area of 190.123 ha. included

in the roads/infrastructure and built-up area, top soil dump has also been proposed for green belt development.

- (xviii) 64.3723 ha of forest land has been reported to be involved in the project. The preparation of forest diversion proposal is under process.
- (xix) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10km boundary of the project.
- (xx) The range of ground water is varying between 9.70 mbgl to 10.23 mbgl during the pre-monsoon in buffer zone. During the post monsoon period it is varying between 2.80 mbgl to 3.66 mbgl in buffer zone. Total water requirement for the project is 3.62 MLD.
- (xxi) Supai nala is flowing within boundary of lease. The nala will be diverted in consultation with the Water Resource Department of the State Government.
- (xxii) No court cases, violation cases are pending against the project of the PP.
- (xxiii) The project involves 5100 project affected families. R&R of the PAPs will be done as per Orissa Rehabilitation and Resettlement Policy 2006.
- (xxiv) Total cost of the project is Rs. 3855.00 Cr. Cost of production is Rs.337.11 per tonne, CSR cost is Rs.2.00 per tonne or 2% of the average net profit of the Company of the three immediately preceding financial years whichever is higher. R&R cost is Rs.512.00 crores. Proposed Environment Management Cost will be given in EIA/EMP.

#### **20.1.3 The EAC during deliberations noted the following:**

The proposal is for Terms of Reference of Baitarni West Opencast Coal Mine with production capacity of 15 MTPA in an area of 1196 ha by M/s Odisha Mining Corporation Ltd located at Village Chhendipada Jangal, Handigora, Machhakuta, Machhakuta Jangal, Porapara, Porapara Jangal, Tentuloi-Korasahi Tehsil Chhendipada District Angul (Odisha).

- (i) The project back ground is as follows
  - Baitarni West Coal block of Talcher Coalfield was earlier allotted to Gujarat Power Corporation Ltd. (GPCL), Kerala State Electricity Board (KSEB) and Orissa Hydro Power Corporation (OHPC) by Ministry of Coal, Govt. of India, vides letter no. 13016/8/2007-CA-I dated 25.07.2007. Later on Supreme Court of India through its judgment dated 25th August, 2014 read with its order dated 24th Sept 2014 cancelled allotment of 204 coal blocks including Baitarni West Coal Mine.
  - Accordingly, its allotment to the prior allottee was cancelled in pursuant to the Supreme Court Judgment. MoC vide order no. 13016/2014-CA-III. dtd. 16.03.2016 notified Baitarni West Coal Mine for allotment to the State PSUs for sale of coal. Based on the above order of the MoC, GoI, Govt. of Odisha vide letter no. 2831/SM,dtd.05.04.2016 advised OMC Ltd a Gold category state PSU to apply for allocation of Baitarni West Coal Mine.
  - Accordingly, OMC Ltd entered into the allotment agreement with the nominated authority on dtd. 24.08.2016. After fulfilling all the conditions as required by allotment authority. The nominated authority MoC, GoI issued the allotment order to OMC Ltd. Vide order no.

103/3/2016/N.A dtd.29.09.2016. Again a Corrigendum No. 01 for the said allotment is issued by MOC vide 103/16/2015/NA dated 14.08.2020.

- As per earlier approved Mining Plan vide letter dtd. 07-10-2009, Form-I and Prefeasibility report for Baitarni West Coal Mine (15.0 MTY) capacity was prepared and considered in 19th Expert Appraisal Committee (EAC) meeting held on 26<sup>th</sup> September, 2017.
  - EAC had recommended Terms of Reference (TOR) for Baitarni West Coal Mine (15.0 MTY) vide letter no.J-11015/81/2017-IA.II (M) dated 29th September, 2017 issued by MoEF&CC, New Delhi. However due to some changes in Mining Plan, Final EIA/EMP could not be submitted to MoEF&CC.
  - Accordingly, as per the changes, a revised Mining Plan of Baitarni (W) has been prepared and approved by MoC vide letter no. SWCS/Baitarni West Coal Mine/OR/AN/2021/CCO-MCBA dtd. 08-10-2021. The current proposal is fresh proposal for ToR as per the new Mining Plan
- (ii) 64.3723 ha of forest land has been reported to be involved in the project
- (iii) The of Supai nala is flowing within boundary of lease. The 2.2 km of Supai nala is proposed to be diverted in consultation with the Water Resource Department of the State Government.
- (iv) Forest land of 64.3723 Ha is covered under mine lease for clearance and same is yet to be taken from forest departments.
- (v) Total estimated water requirement is 3.62 MLD.

**21.3.4** *The EAC after observed that the instant proposal is of greenfield coal mine project. There are two stream passing through the block i.e. Kumbhira stream and Supai Stream. Supai stream flowing across the block from south to north near north boundary, needs a proper hydrological survey with catchment area to be diverted, flow of the stream, etc and be addressed in EIA/EMP report. EAC also found that there is a natural pond exists within the mine lease which may get dried after the diversion of Supai stream. PP was suggested PP to develop artificial pond around this for proper augmentation of the water with the diversion of the Supia stream.*

*EAC appreciated the PP for not disturbing Kumbhira stream flowing from south to north block having 15 to 20 width, crossing between the mine lease area and further recommend to go for proper embankment of atleast 30 mts width and green belt (30 mts) along both the side of the stream. PP was advised not to disturbed the natural forest located adjacent to the Kumbhira stream towards south at Handigora. PP informed that a bridge will be constructed to transport the OB dump from one end of the stream to other end. EAC suggested to construct bridge with proper design and strong structural stability to take the load of heavy dumpers for transportation of the OB dump. A private railway siding of BWCM (taking off from the proposed western wing of common rail corridor) is proposed at Tentuldi Kora Sahi by PP in its Surface plan towards extreme south boundary of the mine lease.*

*The EAC, after deliberation, **recommends** for grant of Terms of Reference to Baitarni West Opencast Coal Mine with production capacity of 15 MTPA in an area of 1196 ha by M/s Odisha Mining Corporation Ltd located at Village Chhendipada Jangal, Handigora, Machhakuta, Machhakuta Jangal, Porapara, Porapara Jangal, Tentuloi-Korasahi Tehsil Chhendipada District Angul (Odisha),*



*under the provisions of EIA Notification, 2006 and its amendments therein with specific conditions 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. All the issues raised and PP reply should be incorporated in EIA.*
- (ii) PP shall not divert the Kumbhira stream and will not disturb the forest area or green patch located towards south bank of the Kumbhira stream. Adequate protection measures with 30 mts embankment and greenbelt for Kumbhira stream and permanent fencing for green patch shall be proposed in EIA Report.*
- (iii) A detailed hydrological survey of the Supai stream, regarding its catchment area, flow volume and length of the stretch to be diverted with water augmentation plan to be provided with proper diversion plan in EIA/EMP report.*
- (iv) PP shall propose alternate land of suitable area for grazing land in replacement of 118 ha of grazing land in project area with water bodies.*
- (v) Stage-I Forest Clearance for diversion for non-forestry activity shall be submitted.*
- (vi) PP shall prepare the Mining Plan in such a manner that condition prescribed by EAC shall intact from environment point of view. EIA-EMP shall accordingly be prepared on the suggested stipulation with point-wise compliance & in accordance with recommendations of Mining Plan*
- (vii) 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 rivers.*
- (viii) In addition to existing data already collected (if any), the Cumulative Impact Assessment Study, carrying capacity, ecosystem services study and biodiversity 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.*
- (ix) 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.*
- (x) 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.*
- (xi) 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.*
- (xii) PP shall submit detailed project report for implementation of railway siding for evacuation of coal with its target date of completion. Target date should be such that railway siding should be operational within 2 years of commissioning of mine operations. Forest Clearance shall be submitted if railway siding land comes under forest land.*

- (xiii) *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.*
- (xiv) *Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.*
- (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 by i.e. the likely emissions of greenhouse gases from the mining operations to be estimated with the modelling for future prediction related to the climate of that study area.*
- (xvi) *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 with the approval of District Commissioner/collector.*
- (xvii) *Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.*
- (xviii) *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*
- (xix) *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.*
- (xx) *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.*
- (xxi) *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. The final mine void shall be reduced and brought as near as ground so that land can be restored and reclaimed*
- (xxii) *PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.*
- (xxiii) *PP shall submit letter 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 with certified map showing distance of nearest sanctuary*
- (xxiv) *Details of toe wall and garland drain to be constructed along the OB dump.*
- (xxv) *Reclamation to be done using geo-texturing technique of the dumps close to habitation and a cause of visual intrusion.*

- (xxvi) *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.*
- (xxvii) *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.*
- (xxviii) *Details of Fog mist sprayer (static water sprinklers) at coal stock yard and along the permanent haul road.*
- (xxix) *Details of black topping of permanent haul roads.*
- (xxx) *The PP should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should submit the original test reports and certificates of the labs which will analyze the samples.*
- (xxxi) *No trucks or vehicles used for transportation of Coal to be passed by village roads or roads located near to the villages*
- (xxxii) *The socio-economic study to be conducted with actual survey report and a comparative assessment to be provided from the census data of 2011-part B to be provided in EIA/ EMP report also economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data of 2011 part A to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.*
- (xxxiii) *A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report*
- (xxxiv) *PP had proposed a separate colony of 1222 houses in Form -I, it should have proper rain water harvesting system, green belt area with roads, solar lights and STP and the detail to be provided with EIA/ EMP report.*

#### **Agenda No. 20.4**

**Sahapur West UG Coal Mine of 0.6 MTPA (Peak production) in an area of 594.401 Ha of M/s Sarda Energy and Minerals Limited at village Khamariya Khurd, Kushmaha Khurd, Shahpur, Tehsil Pali of District Umariya and village Khamhariya Kala, Kathotiya, Tehsil Suhagpur, District Shahdol (Madhya Pradesh) - For Terms of Reference- reg**

**[Online Proposal No. IA/MP/CMIN/235101/2021; F No. J-11015/280/2010-IA- II(M)]**

**20.4.1** The proposal is for Terms of Reference to Sahapur West UG Coal Mine of 0.6 MTPA (Peak  
Minutes of 21<sup>st</sup> EAC (Coal Mining Sector) held on 27<sup>th</sup> October, 2021

production) in an area of 594.401 Ha of M/s Sarda Energy and Minerals Limited at village Khamariya Khurd, Kushmaha Khurd, Shahpur, Tehsil Pali of District Umariya and village Khamhariya Kala, Kathotiya, Tehsil Suhagpur, District Shahdol (Madhya Pradesh)

**20.4.2** 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 area is covered under Survey of India Topo Sheet No F44D7 & F44D8 Project site and is bounded by the geographical coordinates ranging from Latitude 23°14'19.6"N to 23°15'32.919"N, Longitude: 81°17'10.594"E & 81°18'48.162"E (as per PFR)
- (ii) Coal linkage of the project is proposed for commercial sell of Coal.
- (iii) No Joint venture cartel has been formed
- (iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance.
- (v) Employment generation, direct employment to 830 persons will be provided from the project.
- (vi) The project is reported to be beneficial in terms of direct and indirect employment generation in that region.
- (vii) Total mining lease area as per block allotment is 594.401 ha. Mining Plan and Mine Closure Plan for 587.5 Ha. Block Area was approved by Ministry of Coal vide 13016/28/2010-CA-I dated 07.02.2012. (Revised Mining Plan is being submitted for re-demarcated Block area of 619 Ha. with a mining lease area 594.401Ha.)
- (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	499.114		499.114
2	Forest Land	44.280		44.280
3	Wasteland	-		-
4	Grazing Land	3.258		3.258
5	Surface Water Bodies	13.868		13.868
6	Settlements			
7	Others (Specify)	Road – 6.282 River/Nallah – 9.643 Community/ Other – 17.956		Road – 6.282 River/Nallah – 9.643 Community/ Other – 17.956
	<b>Total Project Area =</b>	<b>594.401</b>		<b>594.401</b>

*\*Units in ha*

Post Mining Land Use Details (Area in ha)

S. No.	Land use	Land use (ha)				
		Plantation	Water Body	Public Use	Undisturbed	Total
1	External Dump					
2	Top Soil Dump	0.030				0.030
3	Excavation					
4	Roads	-		4.675		4.675
5	Built-up Area	11.375				11.375
6	Green Belt	8.018				8.018
7	Undisturbed Area				570.102	570.102
8	Safety Zone / Rationalization Area					
9	Diversion / Below River / Nala / Canal					
10	Water Body		0.20			0.20
11	Staff Colony					
	<b>Total Area =</b>	<b>19.425</b>	<b>0.20</b>	<b>4.675</b>	<b>570.102</b>	<b>594.401</b>

- (ix) Total geological reserve reported in the mine lease area is 38.97 MT with 22.92 MT mineable reserve. Out of total mineable reserve of 22.92 MT, 13.62MT are available for extraction. Percent of extraction is 59%.
- (x) 4 seams with thickness ranging from 0.15 m –4.16 m are workable. Grade of coal is G7, while gradient is 1 in 23 to 1 in 57
- (xi) Method of mining operations envisages by Mechanised bord and pillar underground mining by Continuous Miner with shuttle cars as well as LHDs and SDLs with solid blasting method.
- (xii) Life of mine is 25 years.
- (xiii) Transportation of coal has been proposed by Coal tippers from bunkers/pit head stockpile to stock yards at railway sidings or other nearby destinations. The entire coal is to be sold to the consumers and it is expected that consumers will pick the coal from pit head by trucks. If required coal will be transported to nearby siding, preferably Burhanpur siding and will be transported to consumers.
- (xiv) 44.28 ha of forest land has been reported to be involved in the project. Approval under the Forest (Conservation) Act, 1980 for diversion of 44.28 ha of forest land for non-forestry purposes application will be submitted shortly
- (xv) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones fall within 10 km boundary of the project

(xvi) No court cases, violation cases are pending against the project of the PP.

(xvii) Total cost of the project is Rs. 42186 lakhs. Cost of production will depend on market demand CSR cost will be proposed after public hearing in Final EIA report as per OM dated 30th September 2020 vide letter no. F.No. 22-65/2017-IA.III by MOEF & CC budget allocation for CER., R&R cost is N.A. Environment Management Cost is Rs. 134 Lakhs.

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

- The proposal is for Sahapur West UG Coal Mine of 0.6 MTPA (Peak production) in an area of 594.401 Ha of M/s Sarda Energy and Minerals Limited at village Khamariya Khurd, Kushmaha Khurd, Shahpur, Tehsil Pali of District Umariya and village Khamhariya Kala, Kathotiya, Tehsil Suhagpur, District Shahdol (Madhya Pradesh).
- The project back ground is as follows
- Ministry of Coal, vide their vesting order no NA-104/2/2020-NA, dated 3rd March 2021 has allotted the Sahapur West Coal Mine in favour of Sarda Energy and Minerals Limited as a successful bidder under clause (b) of sub-rule (2) of rule 7 and sub-rule (1) of rule 13 of the Coal Mines (Special Provisions) Rules 2014 read with clause (b) of sub-section (3) of Section 6 and sub-section (3) of Section 8 of the Coal Mines (Special Provisions).
- Earlier, the project was granted Terms of Reference by MoEFCC vide letter no. J-11015/280/2010-IA-II (M) dated 29.10.2010 in favor of National Mineral Development Corp. Ltd. EIA/EMP report was submitted and Public hearing held on 16.04.2013.
- EIA/EMP report was submitted and the project was recommended for grant of Environment Clearance by MoEFCC vide letter no. J-11015/280/2010-IA.II (M) dated 08.07.2014. The letter had a specific condition that “The formal environmental clearance will be issued only after the Stage-I clearance for forest land involved in the project has been obtained and submitted. For the purpose, a maximum time limit of one year will be provided to the proponent during which the project will be kept in abeyance’. Before grant of Environmental Clearance letter, the Sahapur West coal block was de-allocated by Hon’ble Supreme Court of India vide their Judgment dated 25.08.2014. Further, as per Ministry of Coal’s notification-The Coal Mines (Special Provisions) Ordinance, 2014, the said coal block got cancelled.
- The total requirement of water for the project is 409.45 KLD which will be met from bore well in the initial stage and after one year it will be met from mine sump and surface water reservoir for the purpose other than drinking water.

**20.4.4** *The EAC after observed that the proposal is an underground mine and no disturbance in the existing land use at the surface will exist due to the mining activity as suggested by the PP except the proposed haul road and infrastructure of 24 ha at Govt land/ private land including forest land. As suggested by PP a haul road of 1.3 km will be developed by PP from mine lease area uptill nearest district road which is further connected to the state highway. The subsidence study was conducted in 2012 as informed by PP but EAC recommend PP to go for fresh subsidence study as sensitive man made land uses like Govt primary school is located at a distance of 0.15 km towards north, Middle*

*school is located at 1.7 km towards NNE and Durga Mandir Sahapur at 0.35 km towards north and East Shahdol reserve forest 0.3 km towards south.*

*After deliberation, EAC **recommends** the proposal for grant of Terms of Reference to Sahapur West UG Coal Mine of 0.6 MTPA (Peak production) in an area of 594.401 Ha of M/s Sarda Energy and Minerals Limited at village Khamariya Khurd, Kushmaha Khurd, Shahpur, Tehsil Pali of District Umariya and village Khamhariya Kala, Kathotiya, Tehsil Suhagpur, District Shahdol (Madhya Pradesh) under EIA Notification, 2006 and subsequent amendments/circulars thereto subject to the compliance of the following terms & conditions / specific conditions for environmental safeguards:*

- (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. All the issues raised and PP reply should be incorporated in EIA.*
- (ii) PP to submit the Approved Mining plan approved by the Ministry of Coal.*
- (iii) Stage I forest clearance to be obtained with Surface Right to be submitted at the time of submission of EIA-EMP report*
- (iv) 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 rivers.*
- (v) PP shall not plan any non-essential infrastructure of mining operation on non-coal bearing forest area other than proposed by PP.*
- (vi) PP shall extract coal from virgin area in the block only through surface miner and by shovel dumper method from underground developed area (due to practical limitation).*
- (vii) In addition to existing data already collected (if any), ecosystem services study of the area shall be carried over by project proponent considering the presence of other coal mining activity and industries. PP shall collect fresh 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.*
- (viii) PP shall conduct detailed study the subsidence, its impact due to mining activity and propose mitigation/management measures.*
- (ix) 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.*
- (x) 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.*
- (xi) Inpit conveyor belt with silo loading shall be proposed and installed for transportation of coal till railway siding.*
- (xii) Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned (At mine site near to the haul road) by the collection of air quality data. 12 nos of Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.*

- (xiii) *Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.*
- (xiv) *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.*
- (xv) *Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.*
- (xvi) *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*
- (xvii) *No mining activity shall be proposed on grazing land till the alternate land is provided of same area to the community.*
- (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 propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.*
- (xxv) *PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco-sensitive zone and wild sanctuary with certified map showing distance of nearest sanctuary*
- (xx) *Reclamation to be done using geo-texturing technique of the dumps close to habitation and a cause of visual intrusion.*
- (xxi) *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.*
- (xxii) *No trucks or vehicles used for transportation of Coal to be passed by village roads or roads located near to the villages*
- (xxiii) *The socio-economic study to conducted with actual survey report and a comparative assessment to be provided from the census data of 2011-part B to be provided in EIA/ EMP report also economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data of 2011 part A to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.*
- (xxiv) *A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report*
- (xxv) *The budgetary provision of haul road and its construction with time bound action plan i.e. within 8 months with consent of the competent authority, from the grant of EC should be furnished in EIA/ EMP report*



- (xxvi) PP shall authenticate data of HFL for design and construction of mouth of the Underground Inclines.
- (xxvii) PP to avoid the to extend possible to use forest land for infrastructure purposes and propose adequate plantation in the ration of 10 times if being used for infrastructure. Plantation of fruit bearing trees should be planted and to be taken care of for 10-15 years with its budgetary provision and time bound action Plan.
- (xxviii) The Ecology and biodiversity study should include likely impact of land use change in terms of use of forest area for surface infrastructural development in relation to the climate change of that area and what will be the affect after adopting the mitigation 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 be 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 dump 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 need 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 riverine/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 inline 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 & 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'.

**(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 approved 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. (in case 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 be 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 airborne 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 riverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A riverian /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. Effort shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, along with 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 approved 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 aperiod 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. (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 waste/hazardous waste generated in the washery needs to be addressed in accordance with 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 be appropriately 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 riverfront 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 approved 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.
- iii. 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.
- iv. The project proponent shall upload the status of compliance of the stipulated

- environmentclearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- v. 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.
  - vi. 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.
  - 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 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
  - 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 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 along with a layout, the specific technology used and the source of coal should be provided.
- vi. The EIA-EMP Report 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. along with 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 along with Action Plan.
- xiv. O.M.no.J-II0I3/25/2014-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 Plans 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 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 Land use 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

(xxxi) 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:
- The Company must have a well laid down Environment Policy approved by the Board of Directors.
  - The Environment Policy must prescribe for standard operating process/procedure to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
  - 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.
  - 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			



## **ANNEXURE -VI**

### **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 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 ML /Project Area (ha)	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			

## **ANNEXURE-VII**

### **GENERIC TORs FOR AN OPENCAST-CUM-UNDERGROUND COALMINEPROJECT**

- (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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**LIST OF PARTICIPANTS OF EAC (COAL) IN 21<sup>st</sup> MEETING OF HELD DURING 27<sup>th</sup> OCTOBER, 2021 THROUGH VIDEO CONFERENCING**

1.	Shri G.P Kundargi			DAY-
		-	Chairman	P
2.	Dr. N. P. Shukla	-	Member	P
3.	Shri Suramya Dolarray Vora, IFS (Retd)	-	Member	P
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 PollutionControl Board	-	Member	A
14.	Shri Lalit Bokolia, Director, MoEFCC	-	Member Secretary	P