

**MINUTES OF 11<sup>th</sup> MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF COAL MINING PROJECTS HELD on 9<sup>th</sup> April, 2021 during 10:15 AM – 13.00 PM through VIDEO CONFERENCE.**

**Friday, 9<sup>th</sup> April, 2021**

**Confirmation of the Minutes of 10<sup>th</sup> Meeting of the EAC (Coal) held on 22<sup>nd</sup> March, 2021:** No comment was made from members of the committee on the minutes of the 10<sup>th</sup> meeting of the EAC held during 22<sup>nd</sup> March, 2021 therefore the Minutes of the Meeting (MoM) of 10<sup>th</sup> EAC meeting was confirmed.

**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 11<sup>th</sup> meeting of the Expert Appraisal Committee (EAC) for coal mining projects was held on 9<sup>th</sup> April, 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. 11.1**

**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 at village Lachhmanpur, Baideswar, Jamubahal, Pabitrapur, Anantabereni, Padmabatipur, Dasarathipur, Nakeipasi (part), Danra (part), Rakas (part), Chintamanipur, Saranga, Khajuria, kishorechandrapur, Teleipasi, Tehsil TalcherSadar, District Angul (Odisha)- For Terms of Reference – reg.**

[Online Proposal IA/OR/CMIN/206995/2021; J-11015/630/2007-I.A II(M)]

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

**11.1.2** 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 Toposheet No: 73 H/1 on RF 1:50,000 and is bounded by the geographical coordinates ranging from 20°56'15.68" to 20°59'7.67" North and longitudes 85° 8'1.87" to 85° 5'3.51" East
- (ii) Coal linkage of the project: NALCO CPP & Other power houses and basket linkages.
- (iii) Joint venture cartel has been formed: Not Applicable.

- (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: Existing: 1314. Proposed additional: 490. In addition to the above, huge indirect employment will also be generated.
- (vi) The project is reported to be beneficial in terms of
- Contribution to the Exchequer (both State and Central Govt.)
  - Improvement of Electrical Power Generation and availability of electricity in rural areas.
  - Improvement in physical and social infrastructure like roads, school building, provision of drinking water, community hall, plantation etc.
  - Overall economic growth of the country.
- (vii) 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. 31/10/2008 for 20.00 MTPA in the mine lease area of 1324.80 Ha. The proposal for amendment in EC due to reduction in ML area from 1324.80 ha to 927.42 ha is under consideration at MoEF&CC.
- (viii) Total mining lease area as per block allotment is 1556.94 Ha and as per approved Mining Plan is 1556.94 Ha. Mining plan (including Progressive Mine closure plan) has been approved by the MCL Board vide letter no. MCL/SBP/CS/CR-20/2020-21/10993 dt- 10.06.2020 and modification to Mining plan was approved by MCL Board vide letter no. MCL/SBP/CS/CR-63/2020-21/11618 dt- 27.03.2021.
- (ix) The land usage pattern of the project is as follows:

Land use details (Area in Ha)

S. No.	Land Use	Within ML Area	Outside ML Area	Total
1	Agricultural Land	615.22	--	615.22
2	Forest Land	222.41	--	222.41
3	Wasteland	469.79	--	469.79
4	Grazing Land	38.80	--	38.80
5	Surface Water Bodies	37.68	--	37.68
6	Others	173.04	--	173.04
7	Residential colony and Rehabilitation site	Nil	61.40	61.40
	<b>Total Project Area</b>	<b>1556.94</b>	<b>61.40</b>	<b>1618.34</b>

Pre-Mining land use details

Sl. No.	Particulars			
		Forest	Non-forest (Govt. & tenancy)	Total
1	Quarry excavation	205.66	1128.39	1334.05
2	Safety Zone (7.5m)	0.41	3.12	3.53

3	OB dump (external)	0.00	49.50	49.50
4	Infrastructure & Adjoining area	16.34	132.40	148.74
5	Rationalization of project boundary	0.00	21.12	21.12
<b>Mining Lease Area Sub Total (A)</b>		<b>222.41</b>	<b>1334.53</b>	<b>1556.94</b>
6	Residential colony	0.00	20.00	20.00
7	Rehabilitation site	0.00	41.40	41.40
<b>Sub-total (B)</b>		<b>0.00</b>	<b>61.40</b>	<b>61.40</b>
<b>Total Land Requirement (A+B)</b>		<b>222.41</b>	<b>1395.93</b>	<b>1618.34</b>

#### Post Mining

Category	Land use (in Ha)					Total
	Plantation/ Agriculture	Water Body	Undisturbed	Public Use	Quarry Bottom & Quarry slope	
External OB Dump	49.5	0.00	0.00	0.00	0.00	49.5
Excavation	1091.31	47.45	0.00	0.00	195.29	1334.05
Undisturbed	57.36	0.00	21.12	0.00	0.00	78.48
Green Belt	11.7	0.00	0.00	0.00	0.00	11.7
Infrastructure/ Built- up Area	35.79	0.00	0.00	47.42	0.00	83.21
<b>Total</b>	<b>1245.66</b>	<b>47.45</b>	<b>21.12</b>	<b>47.42</b>	<b>195.29</b>	<b>1556.94</b>

- (x) Total geological reserve reported in the mine lease area is 475.55 Mt with 448.33 Mt as mineable reserves. Out of total mineable reserve of 448.33 Mt are available for extraction as on 01.04.2020. Percent of extraction is 95.00%.
- (xi) 14 seams with thickness ranging from 0.2 to 46.9 are workable. Grade of Coal is G-12, Stripping ratio is 1:1.625 while gradient is 4° to 6°.
- (xii) Method of mining operations envisages by Opencast Mining Method Coal winning by Surface Miner, pay loader & tipper and OB removed by Shovel-Dumper combination.
- (xiii) Life of mine is 17 years (From 01.04.2022).
- (xiv) 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 355.31 Ha already exists. Total 728.64 Mm<sup>3</sup> of OB materials is envisaged for backfilling in internal OB dump and out of which 179.93 Mm<sup>3</sup> has already been backfilled in the existing project as on 31.03.2020.
- (xv) 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 355.31 Ha is already backfilled) while final mine void will be created in an area of 242.74 ha of partially backfilled area out of which 47.45 Ha will be converted into water body with a maximum depth of 15 to 40 m. Backfilled quarry area of 1091.31 ha shall be reclaimed with plantation/grass/agriculture.

(xvi) Transportation of coal has been proposed as below.

**In mine pit:** through Surface miner & by tippers

**From surface to siding:** 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:**

- i. 5.0 MTPA by RLS to NALCO
- ii. 15.0 MTPA by Silo to basket linkage
- iii. 6.0 MTPA through spur siding nos. 7 & 8

(xvii) Reclamation Plan in an area of 1245.66ha, comprising of 49.50 ha of external dump, 1091.31 ha of internal dump, 11.70 Ha of Green Belt and 57.36 Ha of undisturbed area. In addition to this, an area of 56.91 ha. Included in the roads/infrastructure and built-up area, has also been proposed for green belt development.

(xviii) 222.41 ha of forest land have been reported to be involved in the project. Stage II FC obtained for 177.77 ha (For 71.64 ha vide letter no. 8-348/98- FC dated 2nd April 1997 and for 134.41 ha vide letter no. F No. 8-87/2012-FC dated 7th Feb 2014).

(xix) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10km boundary of the project.

(xx) The ground water level has been reported to be varying between 1.02 m to 13.27 m bgl. Total water requirement for the project is 4.67MLD.

(xxi) Application for obtaining the approval of the Central Ground Water Authority has been submitted vide application no. 21-4/2037OR/MIN/2018 dated 01/08/2018 for Ground water withdrawal.

(xxii) Public Hearing for expansion project (20 to 26 MTPA) will be conducted and its proceedings will be incorporated in the EIA/EMP. Public Hearing was held on 15.01.2007 for Bharatpur OCP expansion 20 MTPA project.

(xxiii) ATR on concerns raised during Public Hearing.

S. No	Concern	Compliance							
1	Socio-economic development of the locality due to growth in industrial& mining activities	The socio-economic concerns of the locality are identified, and necessary developmental works are being taken up every year under CSR policy of MCL with the approval of The District Magistrate. CSR expenditure under Bharatpur Area: In Rs. Lakh							
		Sl	Head	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
		1	Education including Swatch Vidyalaya	11.60	214.26	36.29	6.23	5.34	7.86
		2	Water	76.08	52.71	60.41	63.45	64.70	68.20

		3	Health	1.45	1.89	1.16	1.08	1.24	1.56
		4	Infrastructure	132.62	54.17	36.58	42.24	29.71	64.27
		5	Others	7.58	-	2.73	10.48	-	27.04
			Total	229.33	323.03	137.17	123.48	100.99	168.93
		<p>Major CSR activities undertaken by MCL at Talcher coalfield are:</p> <ul style="list-style-type: none"> <li>• Construction of Medical College at Talcher, Angul with a budget of Rs.492.62 Cr. (Work in progress)</li> <li>• Construction of Fly over (over rail line) at Ghatapada (Talcher) amounting Rs. 35.00 Cr.</li> <li>• Three nos. of Water Supply Scheme at Talcher (19 villages) amounting Rs. 22.25 Cr.</li> <li>• Three nos. of Water Supply Scheme at Talcher (35 villages) amounting Rs. 56.90 Cr. (Work in progress)</li> <li>• Renovation of Soubhagya Sagar Big Tank of Talcher Municipality amounting to Rs. 3.7 Cr</li> <li>• Water supply during summer through Mobile water in Talcher Coalfields- 180 Villages–Rs 6.00 Cr (approx.) every year.</li> </ul>							
2	Inadequate land rehabilitation, peripheral development facilities on local employment education transport & medical and supply of potable water etc. Bring pubic to poor economic condition and cause their distress on coal mining activities of the area.	<ul style="list-style-type: none"> <li>• Rehabilitation activities are implemented as per R&amp;R policy of Govt. Of Odisha.</li> <li>• Out of 21 villages R&amp;R of 12 villages completed. Employment provided – 2160 nos. &amp; Resettlement provided - 666 nos.</li> <li>• For remaining 9 villages: - <ul style="list-style-type: none"> <li>- Tiliepasi and Khajuria,69 employment provided, R&amp;R is in process.</li> <li>- Kishore Chandrapur, Niladripur, Satyabadipur, Sarang, compensation roll has been processed and R&amp;R is in process.</li> <li>- Nakeipasi, 364 employment provided, and R&amp;R is in process.</li> <li>- Small parts of Kurihan and Joragadia, being implemented by Jagannath Area, no displacement is involved.</li> </ul> </li> <li>• Two Nos. of R&amp;R colonies have been developed namely Kuio and Boulpur.</li> <li>• Regular Health camps are held in the peripheral villages. Domestic water is being supplied to all peripheral villages during summer.</li> <li>• 5 nos. of society have been formed by PAP. Transport contracts are awarded to these societies.</li> <li>• Employment has also been provided to the PAP in private security &amp; in contract works.</li> </ul>							
3	Coal mining activities have depleted ground water table of the area.	<ul style="list-style-type: none"> <li>• Large Mine sumps present in the mines are acting as ground water recharger structures.</li> <li>• The declining of ground water level around mining pit is a temporary phenomenon and it is limited to the radius of influence.</li> <li>• Water harvesting structures are being built every year in the available spaces of the colonies and offices. Apart from that creation of ponds and de-silting of ponds in peripheral villages is being taken up on regular basis.</li> <li>• Long term hydrograph has been generated in the well in Talcher</li> </ul>							

		Coalfields. Hydrograph of Balanda well is given below. It shows an increasing trend.
4	Deforestation, inadequate afforestation, and dust pollution in the area cause environmental problem of the locality.	<ul style="list-style-type: none"> <li>• Plantation of 13700 nos. in 2020-21, 18000 nos. of plants in 2017-18 and 12500 nos. of plants in 2016-17 has been taken up.</li> <li>• Overall, around 3.5 lakh saplings have been planted in Bharatpur OCP.</li> <li>• Also 20,000 nos. of saplings have been planted in 2017-18 in peripheral villages to improve the green cover of the area.</li> <li>• CHP and Railway sidings have been provided with mist system and rain guns respectively.</li> <li>• 6 nos. of 28 KL mobile water tankers and 3 nos. of 12 KL water tankers and 4 nos. of 18 KL water tankers have been provided for round the clock water sprinkling on the haul roads.</li> </ul>
5	Proper maintenance of OB dumps and plantation of local species of plants are on demand of the public.	<ul style="list-style-type: none"> <li>• Dispatch through a Silo of 15 MTPA capacity to basket linkage and through RLS of 5 MTPA capacity to M/s NALCO, both having closed conveyor belt.</li> <li>• A Truck mounted fog cannon of 40 mtr throw has been inducted for dust suppression on CT roads. In addition to that 05 nos. of fixed fog cannons with 100 mtr throw have been installed at strategic places for dust suppression.</li> <li>• A Road sweeping machine is also deployed for clearing dust off the Coal Corridor before dust suppression.</li> <li>• Dedicated coal corridor road has been constructed through the mining area, avoiding all the educational institutions, schools, populated areas etc.</li> <li>• After backfilling the mined-out area, the topsoil is spread on the area and plantation of native species of the plants is taken up.</li> <li>• Plantation is done through the Forest Development Corporation of Odisha &amp; Chhattisgarh. In 2017-18 plantation in govt. Land was done through DFO, Angul.</li> </ul>

(xxiv) Consent to Operate for the existing capacity has been obtained vide 3220/IND-I-CON-574 Dt 29.03.2019 valid till 31.03.2022 from the State Pollution Control Board.

(xxv) The seasonal nallah, Bangaru Jhor is flowing within the expansion mine boundary. It is planned for phase-wise shifting from 4th year with advance of mine working.

(xxvi) Baseline data generation study for this expansion projected will be conducted for the period from March to May 2021. Regular monitoring of ambient air quality of existing capacity (20 MTPA) is being carried out on fortnightly basis. The documented report is submitted to Regional Office, MoEF&CC, and Bhubaneswar and to MoEF&CC along with half yearly EC compliance report. In general, the results of ambient air quality monitoring data were found within prescribed limits.

(xxvii) No court cases are pending.

(xxviii) The project does not involve violation of the EIA Notification, 2006 and amendment issued there under after obtaining EC for 15 MTPA in the year 2005-06. Environmental Clearance for 20 MTPA has been obtained vide letter No. J11015/630/2007-IA.II(M) dt. 31/10/2008. The coal production from the mine was started from the year 1985-86 and the coal production figures since inception is furnished below: -

Financial Year	Sanctioned Capacity as per EC (MTPA)	Actual Production (MTPA)	Excess Production Beyond the EC / CTO / Mining Plan Sanctioned Capacity (MTPA)
1985-86	-	0.07	-
1986-87	-	0.90	-
1987-88	-	1.58	-
1988-89	-	2.72	-
1989-90	-	2.50	-
1990-91	-	2.87	-
1991-92	-	2.97	-
1992-93	3.5	3.20	-
1993-94	3.5	3.50	-
1994-95	3.5	3.71	0.21
1995-96	3.5	3.58	0.08
1996-97	3.5	3.72	0.22
1997-98	3.5	4.01	0.51
1998-99	3.5	5.30	1.80
1999-00	3.5	5.10	1.60
2000-01	3.5	5.20	1.70
2001-02	3.5	6.14	2.64
2002-03	3.5	7.00	3.50
2003-04	3.5	9.60	6.10
2004-05	3.5	10.80	7.30
2005-06	15.0	9.02	-
2006-07	15.0	9.23	-
2007-08	15.0	8.64	-
2008-09	20.0	11.34	-
2009-10	20.0	10.91	-
2010-11	20.0	8.77	-
2011-12	20.0	8.50	-
2012-13	20.0	6.18	-
2013-14	20.0	5.25	-
2014-15	20.0	6.45	-
2015-16	20.0	15.62	-
2016-17	20.0	13.59	-
2017-18	20.0	15.04	-
2018-19	20.0	10.63	-
2019-20	20.0	4.78	-
2020-21	20.0	7.34	-

- (xxix) The project involves 1093 project affected families. R&R of the PAPs will be done as per Orissa Rehabilitation and Resettlement Policy 2006.
- (xxx) Total cost of the project is Rs. 2838.87 Cr. Cost of production is Rs.486.04 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, and Proposed Rehabilitation site development cost is Rs.1690.67 lakhs. Proposed Environment Management Cost is Rs 2581.46 lakhs. Proposed R&R cost (excluding land but including house compensation is 14616.67 lakhs.

**11.1.3** The EAC during deliberations noted the following.

- i. The proposal is for grant of Terms of Reference to the proposal for Expansion of Bharatpur OCP from 20 to 26 MTPA with increase in Mine lease area from 927.42 Ha to 1556.94 Ha of M/s Mahanadi Coalfields Limited located at villages Lachhmanpur, Baidesar, Jamubahal, Pabitrapur, Anantabereni, Padmabatipur, Dasarathipur, Nakeipasi (part), Danra (part), Rakas (part), Chintamanipur, Saranga, Khajuria, kishorechandrapur and Teleipasi of Tehsil Talcher Sadar, District Angul (Odisha).
- ii. 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. The proposals for amendment in EC due to reduction in ML area from 1324.80 ha to 927.42 ha are under consideration at MoEF&CC.
- iii. 222.41 ha of forest land have been reported to be involved in the project. Stage II FC obtained for 177.77 ha (For 71.64 ha vide letter no. 8-348/98- FC dated 2nd April 1997 and for 134.41 ha vide letter no. F No. 8-87/2012-FC dated 7th Feb 2014)
- iv. The proposal of EC Amendment of the same project for reduction in area which has been diverted to Jagannath OCP and Anantha OCP is under consideration.
- v. The seasonal nallah, Bangaru Jhor is flowing within the expansion mine boundary. It is planned for phase-wise shifting from 4th year with advance of mine working. The main drainage of the area is controlled by southerly flowing Brahmani River on the eastern side of the coalfield.

**11.1.4** The EAC, after deliberations observed that the instant proposal is for expansion in capacity with additional area. Knowing the fact that EC amendment for reduction in area is under consideration of EAC by another proposal for the same mine lease area, the EAC desired to know about followings which PP could not address;

- (i) The new technologies to be adopted for mining as improvement in existing operation,
- (ii) PP is required to specify the location of monitoring station for collection of baseline data collection considering other mines in the area.
- (iii) PP should further submit the reason for diversion of jhor/stream in the area.
- (iv) PP shall submit Past Production details since inception of mine duly authenticated by departments of Mine and Geology Government of Odisha or from Coal Controller vis-à-vis



*CTO. Accordingly, the Committee desires this should be elaborated properly in tabular form.*

*In view of above, the proposal requires further detailed analysis and deliberations. EAC expressed displeasure about lack for technical details from the consultants. Therefore, EAC decided to return the proposal.*

## **Agenda No. 11.2**

**Bharatpur Opencast (Expansion) Coal Mine Project of 20 MTPA capacity of in mine lease area of 1324.80 ha of M/s Mahanadi Coalfields Limited (MCL) located in Tehsil Talcher, District Angul (Odisha) - Amendment in Environmental Clearance – reg.**

[Online Proposal No. IA/OR/CMIN/9356/2007; No - J-11015/630/2007-I. A- II (M)]

**11.2.1.** The proposal is for amendment in Environmental Clearance dated 31<sup>st</sup> October 2008 granted by the Ministry in favour of M/s Mahanadi Coalfields Ltd to Bharatpur Opencast Expansion project (15 MTPA to 20 MTPA) in an area of 1324.80 ha located in Talcher Coalfields, Tehsil Talcher, District Angul (Odisha).

PP has requested for reduction in area of Bharatpur OCP and reduced area have been proposed to be worked by Ananta OCP Expansion of 20.00 MTPA of which EC has been granted vide letter dated 10th December, 2014 and the said area is yet to be worked.

Similarly, certain area from Bharatpur OCP has been proposed to be worked by Jagannath OC Expansion of 7.5 MTPA of which EC granted by Ministry vide letter dated 6<sup>th</sup> September, 2018.

This proposal submitted by Bharatpur OCP is for removing the overlapping of land areas due to reduction in mine lease area from 1324.80 ha to 927.42 ha.

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

The proposal was earlier considered by the EAC in its 36<sup>th</sup> meeting held during 31<sup>st</sup> August 2018, subsequently in its 45<sup>th</sup> meeting dated 27<sup>th</sup> May, 2019 and 52<sup>nd</sup> EAC meeting dated 24<sup>th</sup> January, 2020.

It was observed in 52<sup>nd</sup> meeting are mentioned below:

*“by bringing such proposals for change in area of three mines although all these mines belong to same project proponent thereby creating unnecessary issues. It was desired that PP must first produce the mine plan of all the three adjacent mines with the said proposed changes in area (i.e., Bharatpur, Ananta, Jagannath). If the Ananta OCP and Jagannath OCP has been regularised and being worked out, without revised mine plan (including area of Bharatpur OCP) then it's a gross non-compliance. Also, it was noted that there cannot be common safety zone, if the projects having separate EC then each project need to have a separate safety zone of each. During the EAC, PP*

*could not explain properly the requisite information as sought by the EAC. Further, it was suggested that if needed, PP may merge these ECs and take a single EC. Thereafter, after detailed deliberation, the EAC deferred the proposal.*

Bharatpur OCP, Jagannath OCP & Ananta OCPs are adjacent mines of M/s Mahanadi Coalfields Limited. These mines are old i.e Jagannath OCP - 1971, Bharatpur OCP - 1985 & Ananta OCP - 1988. However, these three mines have been/are working in their respective EC areas. An area of 123.21 ha has been carved out from the Bharatpur mine lease and included in Jagannath OCP for the expansion of later mine from 6.0 MTPA to 7.5 MTPA, thereby reducing the area of Bharatpur OC to 927.42 ha. Proposal for amendment in the EC for Bharatpur OCP for reduction in ML area from 1324.80 ha to 927.42 ha was submitted as per the minutes of the 34th EAC meeting held on 24th July 2018, in which the EC for expansion of Jagannath OCP from 6.0 to 7.5 Mty was recommended.

As per the observations of the 52<sup>nd</sup> EAC, the Mining Plan of Bharatpur OCP has been modified and approved by MCL Board vide letter no.MCL/SBP/CS/CR-60/2020-21/11576 dt: 16-03-2021.Approved Mining Plan of Ananta OCP, Approved Mining Plan of Jagannath OCP and Approved Mining Plan of Bharatpur OCP showing the said proposed changes have been submitted. Ananta & Jagannath are working in their respective EC areas as per mining plan.

The revised land break-up of Bharatpur OCP Expansion (20 MTPA) as per the approved Mining plan given below.

S. No	Particulars	Forest	Non-Forest	Total	Remarks
A	Existing ML Area of Bharatpur OCP as per EC of 20.0 MTPA	185.08	1139.72	1324.80	As per EC of 20 MTPA dated 31 <sup>st</sup> October 2008
B	Modified ML Area of Bharatpur OCP	217.86	1106.94	1324.80	Actual areas after reconciliation of land records by Project authorities
C	Overlapped area between Bharatpur and Ananta Expn. OCP	3.90	49.32	53.22	Already considered in MP and EC of Ananta Expn. OCP 15 MTPA (Peak 20 MTPA), dated 10 <sup>th</sup> December 2014
D	Overlapped area between Bharatpur and Jagannath OCP	22.11	92.37	114.48	Already considered in EC of Jagannath 6.0 MTPA dated 29 <sup>th</sup> Sept 2005

E	Carved out area shifted to Jagannath OCP	2.53	120.68	123.21	Already considered in MP and EC of Jagannath 7.5 MTPA dated 6 <sup>th</sup> September, 2018
F	Land for which FC is not available and associated Non-Forest land, which has not been taken in proposed ML area due to technical reasons	6.92	32.12	39.04	Will be included as part of Jagannath OCP in future
G	Land for which FC is not available and associated Non-Forest land, which has not been taken in proposed M.L area of Phase-I	4.63	62.80	67.43	Will be considered in Mining Plan of expansion of Bharatpur OCP in future as Phase II.
H	Total area excluded from Modified ML of Bharatpur OCP	40.09	357.29	397.38	After reconciliation of land records
I	Proposed Modified M.L area of Bharatpur OC Expansion (20MTPA) (Phase- I)	177.77	749.65	927.42	

Overlapped area of 53.22 Ha between Bharatpur OCP & Ananta OCP was included in its Mining Plan of Ananta OCP Expansion Phase-III (15 MTPA Normative & 20 MTPA Peak) and approved by MoC vide letter dt: 20-03-2009 and EC of Ananta Expn. OCP 15 MTPA (Peak 20 MTPA), dated 10<sup>th</sup> December 2014.

The land re-organization between Jagannath & Bharatpur was regularized in the Jagannath OC Expansion of 6 MTPA i.e EC vide letter dated 29<sup>th</sup> September 2005 & 123.21 ha of land from Bharatpur OCP Expn. (20 MTPA) was included in the Mining Plan of Jagannath OCP Expn. 7.5 MTPA (1.5 MTPA incremental) and approved by MoC vide letter dt: 16-05-2017.

Plantation of 10000 nos plants was taken up alongside safety barrier b/w Bharatpur OCP and Jagannath OCP in 2020-21.

EAC observed reasons for not amalgamating these three mines due to technical/geological, Administrative and other reasons.

#### **Technical/Geological Reasons:**

- Present working mines of MCL are located towards south-eastern part of the coalfield which is characterized by long strike with frequent swing in floor & dip of the seam & presence of number of step faults, repetition of in crop, the bed of deposit is mostly dipping towards north & north-west or north-east except in few cases. Mines are designed considering optimum working width for operational efficiency & separated by faults or any surface constrains including the marketability of the coal to be produced. Land acquisition is a major constraint in this coalfield & uncertainty/ delay in availability of same has a major impact on long term & short term mine planning.
- Mine working in Ananta Exp OCP (20Mty) has already been exhausted in an area which are adjacent to Jagannath OCP, however the future mining area of Ananta Exp OCP in Subhadra east geological block is separated from Jagannath/ Bharatpur OCP (in Padma geological block) by series of faults. The mine working of Ananta OC Expn. is towards north much ahead of adjacent Jagannath OCP & advancement of both the mine cannot be integrated at present stage.
- Original Jagannath OCP has been further extended towards North in area between exhausted area of Ananta OCP & Bharatpur Exp OCP, which has helped to enhance it's mine life & continuity of utilization of it's dedicated infrastructure including dedicated belt conveyor for Talcher Thermal Power Plant of NTPC. Boundary of two mines (Bharatpur & Jagannath OCP) are mostly separated by an existing road which is important linkage to dip side villages, shifting of the same may create severe socio-political issues.
- Present advancement of Bharatpur Exp OCP & Jagannath OCP are not in same direction & their working faces are far apart. Their advancement in benches is unequal due to severe land acquisition issues. Bharatpur OCP is partly backfilled towards Jagannath side, so at present stage integration of two mines will require further rehandling of dump & realignment of mine working faces including existing haul roads & rearrangement of sump. Bharatpur Exp OCP has been further extended towards west in a virgin block & combined strike of the deposit will be too long with present available machinery & system of working.

#### **Administrative Reasons:**

- 3 mines are under different administrative heads of MCL based on the certain guidelines of the Company. Combining the mines will create problem in day to day administration, incentive & bonus to employees, procurement of consumables, colony maintenance etc.
- Decentralization of power allows the administration for smooth mining operations with due diligence to safety, Rehabilitation, Resettlement, human resources management, Environmental management, Land acquisition etc.
- Individual mines at present have separate dedicated Project Officer, Project Manager, Safety Officer who can have better supervision and control in case of mines having small areas. Due to multi-seam workings with huge number of crisscross faults in all the three mines, the seams have broken in small patches warranting intense supervision and frequent monitoring from safety point of view in respect of slope failure of benches and side falls. De-centralised supervision with separate mines always helps in maintaining safety standards.
- Since these three mines are having separate infrastructure since their inception at far away places, merging them will be difficult to monitor from administrative and technical point of view.

- These three mines were started in different time period employing mostly project affected persons (PAF) of villages comprising the coal block/project. Deploying the set of persons at different work place has been witnessed as major IR problem in the past.

#### **Other Reasons:**

- Stripping Ratio and OBR adjustment: Every mine is planned to have economically viable project based on certain IRR (GoI policies) over the life of the mine. Coal seams are almost dipping having different stripping ratio over the life of the mine. The IRR, i.e. profitability is maintained for entire life by provisioning the OBR cost in initial stage for later stage of the mine. Since the 3 mines are having different stripping ratio, merger will adversely affect the OBR adjustment policy of CIL.
- Expansion of the Project: All the 3 projects were expanded multiple times for capacity enhancement and property annexing for life enhancement. Therefore, present working places are unevenly distributed and far apart from each other.
- Amalgamation of mines will require huge blasting in a concentrated place which may lead to high ground vibration inviting IR problems and socio-political problems by nearby habitants.
- All the 3 mines are having a lion share of production from outsourcing operation. 50% of the outsourcing operations (mostly loading & transportation works) are being awarded on nomination basis to the Co-operative societies of PAFs. They are specifically appointed on project-to-project basis. Combining the mines will cause major law & order issue for Dist. Administration.
- All three mines are being worked now in separate seams available at various depths. Due to this, the grade of Coal of same seam varies in individual mine. It is easy to maintain seam-wise and grade-wise coal in separate mine rather than maintaining patch-wise and grade-wise coal in merged one mine.

*11.2.4 The EAC after detailed deliberation agreed to the submissions of PP. It has been inferred that there is in reduction in area of 397.38 ha from Bharatpur OCP since certain portion of land has been diverted to Anantha OCP and Jagannath OCP. The EC for Jagannath OCP and Anantha OCP has already been granted considering the areas of Bharatpur OCP. Also, there are areas of forest land wherein FC has not been obtained. As submitted by PP, this Forest land will be used in future for expansion project for this instant project. Accordingly, EAC **recommends** the proposal for amendment in Environment Clearance to Bharatpur Opencast (Expansion) Coal Mine Project of 20 MTPA capacity of in mine lease area of 1324.80 ha to 927.42 ha of M/s Mahanadi Coalfields Limited (MCL) located in Tehsil Talcher, District Angul (Odisha) under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto and with additional specific conditions for environment safeguard:*

- (i) *PP should adopt in pit conveyor belt for the transportation and fleet size should increase upto 60 Tonne.*
- (ii) *Progressive reclamation of OB dump shall be conducted and Active OB Dump should not be kept barren/open and should be covered by temporary grass to avoid air born of particles*
- (iii) *10 Fog canon shall be installed to reduce the impact of air pollution on haul road, OB dump and mining areas*
- (iv) *Project proponent shall carry out dense plantation (50000 nos.) in safety zone of these three mines with Sal Forest only.*

- (v) *Project proponent to plant 200,000 nos. of sal trees along the transportation route in two years to prevent the effect of air pollution near Manager's Office. After completion of tree plantation, number of trees shall be duly endorsed from District Forest Officer*
- (vi) *Hon'ble Supreme Court in an Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India & Ors vide its judgement dated 8th January, 2020 has directed the Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent". The implementation report of the above said condition shall be sent to the Regional Office of the MoEFCC.*
- (vii) *The permanent haul road shall be constructed of cement concrete and fixed type water sprinkler shall be installed.*
- (viii) *Recommendation of mitigation measures in R&R report shall be implemented within certain timelines.*

### **Agenda No.11.3**

**Expansion of Makardhokra-I Opencast mine (Phase-I) in Capacity from 2 MTPA to 3.50 MTPA of M/s Western Coalfields Limited in mine lease area of 614.69 ha located in Tehsil Umrer, District Nagpur (Maharashtra) – For Reconsideration of Environmental Clearance - reg.**

[Online Proposal No IA/MH/CMIN/154498/2018; File No. J-11015/54/2006-IA-II (M)]

**11.3.1** The proposal is for Environmental Clearance (EC) for Expansion of Makardhokra-I Opencast mine (Phase-I) in Capacity from 2 MTPA to 3.50 MTPA of M/s Western Coalfields Limited in mine lease area of 614.69 ha located in Tehsil Umrer, District Nagpur (Maharashtra).

Earlier the proposal was considered by EAC in its 56<sup>th</sup> meeting held on 30th June, 2020 and 9<sup>th</sup> EAC meeting held on 26.02.2021. The EAC after deliberations deferred the proposal for further information. PP has submitted the compliance of observation of EAC with respect to following points

<b>Sr. No</b>	<b>Observations of EAC</b>	<b>Compliance / Submission of Project Proponent</b>
1.	PP to submit the Action Taken Report on the non-compliances/partial compliances of existing EC conditions and clarification on diversion of Amb River	EC compliance Certificate has been obtained from RO, MoEF & CC, Nagpur vide letter no. F.No:EC-1031/RON/2019-NGP/5783 dated 01-10-2019. As per the Compliance Certificate there were no Non-Compliances The ATR against the Partial Compliances have been submitted to RO, MoEF & CC, Nagpur vide letter no.

	<p>WCL/SAM/USA/ENVT/2020/43 dated 23-04-2020.</p> <p>As per directives of the 9th EAC meeting held on 26.02.2021, Action Taken report/ status of compliance on non-compliances/partial compliances of the existing EC conditions along with the clarification on diversion of Amb River has been submitted office of Integrated Regional Office (IRO), MoEF to provide clarification on the observation of the EAC. Clarifications pertaining to the observations made by EAC have been submitted by IRO, MoEF &amp; CC, Nagpur to Director &amp; MS, EAC (Coal Mining), MoEF &amp; CC, New Delhi vide its letter no. EC-1031/RON/2019-NGP/ 7977 dated 26.03.2021</p> <p>Regarding clarification on Amb River and in reference to the point No. x of Specific condition of EC Compliance Certificate issued by RO, MoEF &amp; CC i.e. “Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine”, it is submitted that, the Amb river was flowing through the leasehold area of Umrer OC. The Umrer OC is nearby to the Makardhokra – I OC mine lease.</p> <p>The Amb river was diverted in the year 2016 for Umrer OC. The erstwhile Amb river used to flow at a distance of 770 m from Makardhokra – I OC. The embankment was made as a protection measure for the erstwhile Amb River.</p> <p>After diversion of the River, the shortest distance between the current river bank and the mine lease boundary is about 2 km</p> <p>Regarding Specific Condition No. xxiii, it is submitted that, the OB excavated from Makardhokra – I OC is dumped partly in the decoaled void of exhausted Makardhokra-II OC. The entire silt &amp; sediments gets accumulated in the mine void of Makardhokra II OC. The flow of silt &amp; sediments from external OB dump is arrested in garland/catch drains made along the periphery of dump &amp; around the quarry.</p> <p>The silts &amp; drains are cleaned before the onset of monsoon season.</p> <p>The aforesaid matter against the EC specific conditions No. x &amp; xxiii has also been confirmed by RO, MoEF &amp; C Nagpur vide letter No. EC-1031/RON/2019- NGP/7979 dated 26-03-2021.</p>
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2.	PP should submit the details of Environment Management Plan regarding the commitments made during the Public Hearing. PP shall provide CSR provision with adequate effectiveness of EMP.	<p>The details of issues / concerns raised during public hearing and action taken along with commitments, budgetary provisions &amp; timeline has been given in the EIA/EMP as Annexure.</p> <p>Regarding Corporate Social Responsibility (CSR), it is submitted that, CIL has framed CSR policy as per companies Act 2013, as per notification issued by Ministry of Corporate Affairs, GoI on 27/02/2014 as well as DPE guideline.</p> <p>As per the policy, fund for CSR should be allocated based on 2% of average net profit of the company for three immediately preceding financial years or Rs. 2.00 per tonne of coal production of previous year whichever is higher.</p> <p>As such it can be concluded that, the implementation of CSR is inbuilt in the system which ensures the effectiveness of EMP.</p>
3.	PP to provide the clarification for ETP expansion in view of additional load due vehicle washing/servicing and justification on ETP capacity with wastewater load from all sources. Accordingly, Water Balance diagram with zero liquid discharge considering no untreated mine water discharged in river	<p>For treatment of Workshop Effluent from Makardhokra- I OC, WETP of 100 KLD, capacity exist which is sufficient to handle the additional HEMM fleet due to expansion in Coal production from 2.0 MTPA to 3.5 MTPA.</p> <p>The treated water is fully recycled for washing of HEMMs.</p> <p>Additionally, there is no need for additional water requirement for washing the HEMMs as the entire water requirement is met from the WETP recycled water and mine pumped out water (for compensation of losses).</p>
4.	PP needs to recheck quality of ground water in view of public concern raised near flood area due to embankment.	<p>As per EAC's observation for rechecking quality of groundwater at Shirpur Village, it is submitted that, ground water quality has been rechecked at Shirpur village, at two locations by NABL accredited laboratory in March 2021</p> <ol style="list-style-type: none"> <li>Water supply well of Shirpur Village</li> <li>Well near embankment of Makardhokra – I OC and Shirpur Village.</li> </ol> <p>From the quality analysis report placed in subsequent slides of above said locations w.r.t Shirpur village, it is observed that, all the parameters are found to be within the permissible limits.</p>



5.	Detailed plan to submit for trees plantation along both the sides of the Butibori-Kanwa PWD road which is passing in between proposed dip side quarry surface and external dump with broad leaves in three years to prevent the effect of air pollution.	<p>As per the approved Mining Plan, the Butibori – Kanwaha Road is proposed for diversion of 5.5 km length along the mine boundary in the 3rd year from now.</p> <p>Initially, the plantation will be carried on project boundary side of the road. This will act as green belt / green barrier along the project boundary till the actual diversion of road is done.</p> <p>In subsequent years, after road diversion, plantation along the other side of the road will be undertaken.</p> <p>The year wise plantation programme along the proposed road diversion is placed below. Detailed plan for tree plantation (avenue) along both sides of the Road</p> <ul style="list-style-type: none"> <li>• Length of the road: 5.5 km</li> <li>• <u>2 tier plantation on project boundary side of the road = 2260 Nos. of saplings</u></li> </ul> <p>No. of Plants for 2 tier plantation (1st &amp; 2nd) on project boundary side of the road  = 1800 (1st row @ 3m spacing) + 460 (2nd row @ 12 m spacing)  = 2260 Nos. of saplings</p> <ul style="list-style-type: none"> <li>• <u>3 tier plantation on other side of the road = 4060 Nos. of saplings</u></li> </ul> <p>No. of Plants for 3 tier plantation on the other side of the road  = 3600 (1st &amp; 2nd rows @ 3m spacing) + 460 (3rd row @12m spacing)  = 4060 Nos. of Saplings</p> <ul style="list-style-type: none"> <li>• Total no. of saplings needed along the road=6320 Nos. of saplings</li> </ul>
6.	PP shall Revise the cost of Conservation Plan of Schedule-I Species	Revised Conservation Plan is prepared with a budgetary provision of Rs 14.00 lakhs for protection of Varanus Bengalensis (Indian Monitor Lizard/ Ghorpad) and the same is submitted to the Office of Dy. Conservator of Forest, Nagpur Forest Division vide letter dated WCL/UA/AGM/ENV/2021/9095 dated 19-03-2021.
7.	PP shall increase the fleet size for transportation of coal along with proper road networks to avoid dust emission and include it as EMP	<p>The status of present fleet size and proposed fleet for transportation of coal from Makardhokra – I OC is presented.</p> <p>In this regard, it is submitted that, necessary strengthening &amp; augmentation of internal haul road network to cater for the additional load will be taken up.</p>

		<p>Presently, the entire coal of Makardhorka - I OC (2.0 MTPA) is being despatched through Umrer Railway siding. The existing road network for handling additional coal transportation from Makardhokra -I OC (1.5 MTPA) to railway siding is sufficient as the production from Umrer OC (adjacent mine) is nearing exhaustion (from 4.90 to 3.0 MTPA).</p> <p>The necessary mitigation measures for dust suppression are included in the EMP provision. As already indicated, out of Rs.97.09 lakhs under Capital Head, Rs. 48.76 lakhs already spent. The balance fund is there to further augment the dust control measures. In addition, Rs.55.46 lakhs have also been incurred for Truck washing system.</p>
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No forest land has been reported to be involved in the project. Clarification regarding location of the project w.r.t Umred Karhandla Wildlife Sanctuary, Tadoba Andhari Tiger Reserve, Navegaon Nagzira Tiger Reserve, Melghat Tiger Reserve, Bor Wildlife Sanctuary and Tipeshawar Wildlife Sanctuary and wildlife corridor (Tiger/elephant) has been received from Office of Principal Chief Conservator of Forest (Wildlife), Maharashtra State vide letter no. Desk -23 (2)/WL/ Survey/ CR. No.81/ 2784/ 2020-21 dated 11.02.2021.

Public Hearing has been conducted at Community Hall, WCL Colony, Umrer Tehsil, District Nagpur, and Maharashtra at 11.00 AM on 16.01.2020 chaired by Additional District Magistrate Shri Ravindra Khajanji. Major issues raised in the public hearing include mitigation of air & water pollution, compensation, land compensation, Employment, roads, Plantation, CSR, Noise pollution due to transportation of coal etc. Appropriate action to address the issues raised in the Public Hearing shall be taken. Consent to Operate has been granted for existing Makardhokra – I OC for 2.00 MTPA capacity vide Format1.0/BO/CAC-Cell/CAC- UAN No. 24388/ CC-1901000356 dated 05.01.2019 valid from 31.03.2016 to 31.03.2021.

Baseline data generated including meteorological data, air quality, water quality, and noise quality during the period April 2019 to June 2019 at six locations. Further, as directed during the 48<sup>th</sup> EAC meeting held during 03-04 October 2019 & specific ToR conditions, additional monitoring stations in the downwind (5 Nos.) were selected and fresh ambient air quality data was generated in baseline frequency during October, 2019 to January 15, 2020 (post - monsoon). The recorded data was found within the permissible limits.

Ambient Air Quality Monitoring reveals that the baseline concentrations of PM<sub>10</sub> 78µg/m<sup>3</sup> and incremental concentration is 9.87 µg/m<sup>3</sup>, total GLC is 88 µg/m<sup>3</sup> and the baseline concentrations of PM<sub>2.5</sub> is 29 µg/m<sup>3</sup> incremental concentration is 1.64 µg/m<sup>3</sup>, total GLC is 31 µg/m<sup>3</sup>. The concentrations of SO<sub>2</sub> and NO<sub>2</sub> were found to be 13 µg/m<sup>3</sup> and incremental concentration is 0.58, total GLC is 14 µg/m<sup>3</sup> and 16 µg/m<sup>3</sup> and incremental concentration is 26.46 µg/m<sup>3</sup>, total GLC is 43 µg/m<sup>3</sup>

The committee noted that Nala No-2 (Shirpur nala) flowing in the eastern direction passing through the central part of the block is a seasonal nala and it ultimately discharges into the Amb river further east near Kanwa village outside the block. And discussed about the catchment area of influence, about the length of the river,

Butibori-Kanwa PWD road which is passing in between proposed dip side quarry surface and external dump.

Submission of Ministry's Regional Office regarding diversion of Amb river has been noted and as communicated by PP that diversion of Amb river was carried over under the ambit of EC of Umrer OCP.

It was also noted that as per ToR, site visit was proposed to be conducted by sub-committee of EAC. However, due to Covid-19 pandemic it is not appropriate to conduct site visit and therefore it's been excluded by EAC.

**11.3.4** *The EAC, after detailed deliberation taking note of the submission of PP, **recommends** the proposal for grant of Environment Clearance to Expansion of Makardhokra-I Opencast mine (Phase-I) in Capacity from 2 MTPA to 3.50 MTPA of M/s Western Coalfields Limited in mine lease area of 614.69 ha located in Tehsil Umrer, District Nagpur (Maharashtra) under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto with specific conditions and standard EC conditions for environment safeguards:*

- (i) The PP shall complete all non-compliance/ partial compliance within 6 months and the action taken report shall be submitted to Regional Office of the MOEF&CC*
- (ii) Continuous Ambient Air Quality Monitoring station should be installed in consultation of SPCB and made operation within six months from the date of issue of this letter and the real time data so generated to be uploaded on company website. In addition, data should also be displayed digitally at entry and exist gate of mine lease area for public display.*
- (iii) Adequate effectiveness of EMP should be analyzed from the offset/hike of air pollution data from continuous monitoring station and quarterly report shall be generated and submitted with 6 monthly compliance reports to RO, MoEF&CC.*
- (iv) PP shall submit a third party assessment of EC Compliance shall be undertaken once in three years through reputed agency or any other expert agency identified by the Ministry to Ministry's Regional Office.*
- (v) Continuous Monitoring at Occupational safety and health hazards and the Corrective action need to be ensured.*
- (vi) Persons of nearby villages shall be given training on livelihood and skill development to make them employable.*
- (vii) PP to plant 100,000 nos. of Sal trees only and develop nursery of 10 ha sal trees for free distribution in nearby areas and Thick Greenbelt of adequate 50 mts width at the final boundary or along the transportation route in the down wind direction of the project site shall be developed. A proper mechanism to be put in place for massive plantation by hiring expert agency in 2 years for proper survival of trees.*

- (viii) Mining shall be carried out only by surface miners for the project and silo loading till railway siding through in-pit conveyor should be installed to avoid road.
- (ix) Hon'ble Supreme Court in an Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India & Ors vide its judgement dated 8th January, 2020 has directed the Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent". The implementation report of the above said condition shall be sent to the Regional Office of the MoEFCC.
- (x) 10 nos. long ranging Fog canon system shall be installed to reduce the impact of air pollution on haul road, OB dump, mining areas, CHP and Railway siding
- (xi) The company shall obtain approval of CGWA for use of groundwater for mining operations at its enhanced capacity.
- (xii) Active OB Dump should not be kept barren/open and should be covered by temporary grass to avoid air born of particles
- (xiii) Commitment made during public consultation process shall be adhere to. The proposed amount earmarked for CER activities shall be considered as part of Environment Management Plan, which shall be accomplished within period of 5 years"
- (xiv) Project Proponent shall obtain blasting permission from DGMS for conducting mining operation near villages and also explore deployment of rock breakers of suitable capacity in the project to avoid blasting very near to villages. There shall be no damages caused to habitation/structures due to blasting activity.
- (xv) In addition, the project proponent shall develop greenbelt outside the plant premises such as avenue plantation, plantation in vacant areas, social forestry etc.
- (xvi) PP shall pay to farmers of agricultural land if there is any loss and for cracks in the house due to blasting found by concerned District Commissioner as per extent rules or norms.
- (xvii) PP shall establish ambient air and noise monitor station at Shirpur, Heoti/Hewati village for fortnightly monitoring and conduct regular health assessment in nearby villages.
- (xviii) PP shall provide and establish permanent domestic water distribution network for consumption to villagers of shirpur, kanwa, Makardhokra, Heoti/Hewati & Katara and other nearby villages and provide approach road for their agricultural lands.
- (xix) PP shall take appropriate action for flooding in the low lying area and agriculture fields happening due diversion of Amb river
- (xx) PP shall maintain the alternate route from Hewati to Makardhokra which has been established by WCL and tree plantation shall be carried out on both sides of road.
- (xxi) PP shall manage the heavy transportation on Udasa bypass road and take necessary safety measures. WCL shall provide adequate truck parking area.
- (xxii) Permission for diversion of Shirpur stream should be taken prior to any diversion activity. The diverted stream shall be stone pitched and plantation shall be done all along the embankment of the stream.
- (xxiii) PP shall implementation the road map of trees plantation as submitted during EAC meeting along both the sides of the Butibori-Kanwa PWD road which is passing in between proposed dip side quarry surface and external dump with broad leaves.

- (xxiv) Mining shall be carried out only by surface miners for the project (as proposed) and silo loading till railway siding through in-pit conveyor should be installed to avoid road transportation in 3 years.
- (xxv) Top soil should be stored separately at marked area and necessary vegetation shall be maintained to avoid any entrainment of dust
- (xxvi) All approach roads to mine and all other roads which are in regular use should be black topped. The maintenance of road shall be done by PP in collaboration with state government. The details of expenditure incurred shall be submitted to Ministry's Regional Office.
- (xxvii) 2 nos of Water Harvesting Pond of adequate area and depth shall be development within 5 km of project area

#### **Agenda No.11.4**

**Natraj underground coal mine Project of 0.64 MTPA capacity in mine lease area of 483.227 Ha of M/s. Mahanadi Coalfields Limited located in village Natedi, Danara, Badajorada, Kochianali, Kauchiakhhol RF, Tehsil: Talcher, District: Angul, Odisha- Re-validation of EC-reg.**

[Online Proposal No. IA/OR/CMIN/8439/2005; F.No. J-11015/306/2005-IA.II(M)]

**11.4.1** The proposal is for re-validation of Environment Clearance for Natraj Underground coal mine Project of 0.64 MTPA capacity in mine lease area of 483.227 Ha of M/s Mahanadi Coalfields Limited located in villages Natedi, Danara, Badajorada, Kochianali, Kauchiakhhol RF, Tehsil Talcher, District Angul, (Odisha) as per Ministry's Notification dated 6<sup>th</sup> April, 2018.

**11.4.2** The EAC, during deliberations noted the following:

Environment Clearance was granted by Ministry on 14<sup>th</sup> July, 2006 under EIA Notification, 1994 to the project.

Earlier the Project Proposal was considered in 45<sup>th</sup> meeting of the Expert Appraisal Committee held on 27<sup>th</sup> May, 2019 at New Delhi. The proposal of deferred with certain observation for compliance by PP. Now PP has submitted the compliance of observation of EAC. The details of compliance are mentioned below:

Sl. No.	Inputs/Details desired by EAC	Compliance Status
1	Public Notice shall be issued through concerned SPCB for information of the stakeholders about the present coal mining operations inviting comments and their redressal.	The SPCB had published public notice on dated 25.12.2019 and report of the same submitted vide Letter No.4930/IND-NOC-II-Misc.-289, Date: 04.06.2020 *No comments received from any stakeholders

2	Mining Plan and Progressive Mine Closure Plan duly approved by the competent authority	Project Report (capacity of 0.64 MTY) has been approved during 54 <sup>th</sup> meeting of CIL Board on dtd: 27.11.2000 Progressive Mine Closure Plan has been approved during 130 <sup>th</sup> meeting of Board of Directors of MCL held on dt:22.06.2011
3	Compliance Status of the conditions stipulated in the EC from concerned Regional Office of the Ministry.	The project was inspected by Scientist-B, MoEF&CC, Eastern Region office, Bhubaneswar on dt: 28.08.2019.  Subsequently Certified Monitoring report has been submitted by MoEF&CC vide Letter No.101-218/EPE/1786, Dt: 03.10.2019.  Concluded by Scientist-B, MOEF&CC, BBSR as follows:  The project authorities have submitted that the compliance to various stipulations an environment safeguard measures, as stipulated in the Environment Clearance Letter, would be done after commencement of mining activities in the project.
4	Valid Consent to Operate from the SPCB for the present mining operations.	Consent to Operate (CTO) for the coal production quantity of Nil has been obtained on dt: 25.03.2019; validity upto 31.03.2022.
5	Redressal of issues raised during the public hearing conducted by the SPCB	Public Hearing was conducted on dt:03.04.2003 in the court room of Sub- Collector at Talcher, Dist: Angul, Orissa.  Redressal of issues/demand raised during the Public Hearing has been given in subsequent slides.
6	Coal production realized from the mine from 1993-94 vis-à-vis capacity stipulated in the environmental clearance	Not Applicable; Coal production is yet to be done
7	Need assessment Survey for the activities proposed under the CSR and the comprehensive plan to be prepared accordingly for implementation by the project proponent. Also, impact of the CSR activities undertaken at an interval of 5 years to be evaluated and	CSR activities are undertaken based on the CSR Policy of the Company.  Different CSR activities are identified based on the different proposals received from various Villages, State Administration, RPDAC (Rehabilitation & Peripheral Development Advisory Committee), Areas of MCL and

	<p>a report to be submitted.</p>	<p>other Organizations.</p> <p>As per the CSR Policy: Keeping in view the DPES guideline baseline survey is not insisted upon in every case and flexibility would be granted to opt other method including use of in house expertise and recourses for need assessment studies.</p> <p>The CSR activities for high value project (more than Rupees one crore), base line survey may be carried out and cost benefit analysis has to be ascertained through the above survey. The base line survey may be carried out by an External Agency having proper credential in the field of social activities, as deemed fit by the CSR Committee</p> <p>The CSR activities for providing infrastructural facilities like medical college, institution, where social benefit is involved, baseline survey is not required. The cost benefit and justification for any project has to be ascertained.</p> <p>Meticulous documentation relating to CSR approaches policies, programmes, expenditures, procurement etc. should be prepared and put in the Public Domain, (particularly through the internet) and made available to the National CSR Hub.</p> <p>Audit of CSR activities of Talcher Area, MCL for the period 01-04- 2010 to 31-03-2015 was done by NRSMA associates, Cuttack.</p> <p>Impact Assessment Study of CSR activities of MCL for the period 2010-11 to 2014-15 was done through School of Management, NIT, Rourkela.</p> <p>Impact Assessment Study of CSR activities of MCL for the period 2015-16 to 2019-20 is being done by Indian Institute of Corporate Affairs.</p> <p>The CSR activities undertaken in the recent years (under the head of Nandira Colliery) was presented during the meeting.</p>
8	<p>Forest Clearance for diversion of forest land as required under the FC Act, 1980, as the case may be, of the forest</p>	<p>Stage-II Forest Clearance has been obtained vide Letter No.8-73/2004-FC, Dt: 30.06.2009 for diversion of 289.856 Ha of forest land for coal mining in Natraj UG</p>

	land involved in the project	mines.
9	Details of Court cases and the compliance of the orders, if any	Nil

It was noted that PP has not yet started the coal mining operations since the grant of Environment Clearance. PP submitted that it intends to start the mining operations with reduced area and implementing new technologies, mechanizations with regard to underground mining and other environment management measures. However present application is being made to re-validation of existing EC only with the same production capacity. It was noted that PP shall apply for amendment after revalidation of current EC.

EAC discussed about the water treatment wastewater to be generated due to mining activities should be properly treated before discharging it to outside. EAC discussed about the necessary pollution control measures with latest available technologies to abate air, water and noise pollution and to safeguard the environment.

*11.4.4 The EAC, after deliberation observed that EC was granted by Ministry in 2006 and till now no mining activity has been conducted by project proponent. Since 2006 there has been various technological changes in mining operations. As proposed by PP, shall come back to EAC for amendment in EC after incorporating new changes. EAC **recommends** the proposal for grant of revalidation of Environment Clearance dated 14th July, 2006 to Natraj underground coal mine Project of 0.64 MTPA capacity in mine lease area of 483.227 Ha of M/s. Mahanadi Coalfields Limited located in village Natedi, Danara, Badajorada, Kochianali, Kauchiakhhol RF, Tehsil Talcher, District Angul, (Odisha) for life of the mine or 30 years whichever is earlier, as required under Ministry's Notification dated 6th April, 2018 and under the provisions of Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto subject to the compliance of the following terms & conditions / specific conditions for environmental safeguards:*

- (i) *All the conditions mentioned in EC dated 14<sup>th</sup> July, 2006 shall be implemented.*
- (ii) *PP shall implement rain water harvesting mechanism in order recharge the ground water or as water conservation measure in addition to the proposed structure.*
- (iii) *PP shall carry out regular monitoring of Ground water level and quality.*
- (iv) *Effective safeguard measures for prevention of dust generation and subsequent suppression like regular water sprinkling shall be carried out in areas prone to air pollution. The Fugitive dust emission from all sources shall be regularly controlled by installation of required equipment's. It should be ensured that air pollution level confirm to the standards prescribed by the MOEFCC/CPCB*
- (v) *The PP shall submit time bound action plan to the concerned Regional Office of Ministry within 6 months from the date of issuance of EC for undertaking the activities committed during the Public Consultation.*
- (vi) *Adequate effectiveness of EMP should be analyzed in the offset/hike of air pollution data from continuous monitoring station and quarterly report shall be generated and submitted with 6 monthly compliance reports to RO, MoEF&CC.*



- (vii) Continuous monitoring of Occupational health safety and other health hazards and the corrective actions need to be ensured.*
- (viii) 5 nos. of Fog canon (mist sprayer) shall be installed to reduce the impact of air pollution at dust generating sources.*
- (ix) Water quality and Bioassay test of Nandira Jhor shall be monitored quarterly and submitted to State Pollution Control Board.*
- (x) Project proponent to plant 150,000 nos. of Sal trees along the periphery of habitation/villages and transportation route till railway siding is commissioned to prevent the effect of air pollution. After completion of tree plantation, number of trees shall be duly endorsed from District Forest Officer*
- (xi) PP should establish latest equipment such as continuous miner based on the advancement to improve the environment efficiency of production rate and energy saving*
- (xii) PP shall take adequate measure so that land subsidence shall not occur. Compensation shall be paid by PP to people due to any subsidence in-concurrence of District Collector.*

**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 dumps shall be avoided by providing adequate channels for flow of silt into the drains. The drains/ ponds so constructed shall be regularly de-silted particularly before onset of monsoon and maintained properly. Sump capacity should provide adequate retention period to allow

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

- (vii) Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) after due treatment conforming to the specific requirement (standards).
- (viii) Industrial waste water generated from CHP, workshop and other waste water, shall be properly collected and treated so as to conform to the standards prescribed under the standards prescribed under Water Act 1974 and Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time. Adequate ETP /STP needs to be provided.
- (ix) The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- (x) The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations, considering the presence of river/rivulet/pond/lake etc, shall be prepared and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the approved Mining Plan/EIA/EMP report and with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved Mining Plan and as per the permission of DGMS or any other authority as prescribed by the law.
- (xi) The project proponent shall take all precautionary measures to ensure riverine/riparian ecosystem in and around the coal mine up to a distance of 5 km. A 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 in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change/ Regional Office.
- (vi) The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

**(g) Green Belt**

- (i) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered/endemic flora/fauna, if any, spotted/reported in the study area. The Action plan in this regard, if any, shall be prepared and implemented in consultation with the State Forest and Wildlife Department.
- (ii) Greenbelt consisting of 3-tier plantation of width not less than 7.5 m shall be developed all along the mine lease area as soon as possible. The green belt comprising a mix of native species (endemic species should be given priority) shall be developed all along the major approach/ coal transportation roads.

**(h) Public hearing and Human health issues**

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

**(i) Corporate Environment Responsibility**

- (i) The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No.22-65/2017-IA.III dated 1<sup>st</sup> May 2018, as applicable, regarding Corporate Environment Responsibility.
- (ii) The company shall have a well laid down environmental policy duly 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. (incase of the presence of schedule-I species in the study area)
- (v) The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.
- (vi) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.
- (vii) Solid waste/hazardous waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules, 2016 / Hazardous & Other Waste Management Rules, 2016

**II. Air quality monitoring and preservation**

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

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

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

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

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

side, stabilized with plantation so as to withstand the peak water pressure preventing any chance of mine inundation.

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

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

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

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

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

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

## **VI. Land reclamation**

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

## **VII. Green Belt**

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

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

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

## **IX. Corporate Environment Responsibility**

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

stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.

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

#### **X. Miscellaneous**

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

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

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**Standard EC Conditions for Coal Washery Project**

**I. Statutory compliance:**

- (i) The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.
- (ii) The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.
- (iii) The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (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 to the Solid Waste Management Rules, 2016 / Hazardous & Other Waste Management Rules, 2016.
- (vii) Coal beneficiation practices shall be carried out under strict adherence to provisions of the Factories Act, 1957 and subordinate legislations made there under.

**II. Air quality monitoring and preservation**

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## **VIII. Corporate Environment Responsibility**

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

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

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

## **IX. Miscellaneous**

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

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

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**Generic ToR for coal washery**

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

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

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

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## **ANNEXURE-V**

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

- (i) An EIA-EMP Report shall be prepared for..... MTPA rated capacity in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
- (ii) An EIA-EMP Report would be prepared for..... MTPA rated capacity to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of coal production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
- (iii) A toposheet specifying locations of the State, District and Project site should be provided.
- (iv) A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries/mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given.
- (v) Land use map (1: 50,000 scale) based on a recent satellite imagery of the study area may also be provided with explanatory note on the land use.
- (vi) Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
- (vii) A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
- (viii) A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, CHP, ETP, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.
- (ix) In case of any proposed diversion of nallah/canal/river, the proposed route of diversion /modification of drainage and their realignment, construction of embankment etc. should also be shown on the map as per the approval of Irrigation and flood control Department of the concerned state.
- (x) Similarly if the project involves diversion of any road/railway line passing through the



ML/project area, the proposed route of diversion and its realignment should be shown in the map along with the status of the approval of the competent authority.

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

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

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

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

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

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

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

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

\* As a representative example

Table 2 : Stage Wise Cumulative Plantation

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

\* As a representative example

- (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:

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

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

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

**GENERIC TORs FOR AN UNDERGROUND COALMINE PROJECT**

- (i) An EIA-EMP Report shall be prepared for..... MTPA rated capacity in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.
- (ii) An EIA-EMP Report would be prepared for..... MTPA rated capacity to cover the impacts and environment management plan for the project specific activities on the environment of the region, and the environmental quality encompassing air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modeling for..... MTPA of coal production based on approved project/Mining Plan for.....MTPA. Baseline data collection can be for any season (three months) except monsoon.
- (iii) A Study area map of the core zone (project area) and 10 km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage pattern including rivers/streams/nullahs/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries/mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km study area should be given.
- (iv) Map showing the core zone delineating the agricultural land (irrigated and un-irrigated, uncultivable land as defined in the revenue records, forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
- (v) A contour map showing the area drainage of the core zone and 25 km of the study area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated in the separate map.
- (vi) A detailed Site plan of the mine showing the proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, CHP, ETP, Stockyard, township/colony (within and adjacent to the ML), undisturbed area -if any, and landscape features such as existing roads, drains/natural water bodies to be left undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.
- (vii) Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified.

S.N	ML/Project Land use	Area under Surface Rights(ha)	Area Under Mining Rights (ha)	Area under Both (ha)

1.	Agricultural land			
2.	Forest Land			
3.	Grazing Land			
4.	Settlements			
5.	Others (specify)			

#### Area under Surface Rights

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

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

both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.

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



occupational health and safety of the personnel and manpower for the mine should be submitted.

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

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

Total /Project (ha)	ML Area	Total Forest Land (ha)	Date of FC	Extent of Forest Land	Balance for which FC is yet to be obtained	Status of appl. For diversion of forest land
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		If more than one provide details of each FC			
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**GENERIC TORs FOR AN OPENCAST-CUM-UNDERGROUND COALMINE PROJECT**

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

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4/27/2021

Email

**Email**

**Munna Kumar Shah**

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**Fwd: Draft MoM of 11th EAC meeting held on 9th April, 2021**

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**From :** Munna Kumar Shah <munna.shah@gov.in> Tue, Apr 27, 2021 02:44 PM  
**Subject :** Fwd: Draft MoM of 11th EAC meeting held on 9th April, 2021  
**To :** bokolia lalit <bokolia.lalit@gmail.com>

MoM approved. For your information pls

---

**From:** shuklanp55@gmail.com  
**To:** "Munna Kumar Shah" <munna.shah@gov.in>  
**Sent:** Tuesday, April 27, 2021 12:33:21 PM  
**Subject:** Re: Draft MoM of 11th EAC meeting held on 9th April, 2021

Dear Munna ji  
I have gone through draft and find it OK. Therefore it is approved as proposed.  
Regards  
Dr N P Shukla

Sent from my iPhone

On 23-Apr-2021, at 3:43 PM, Munna Kumar Shah <[munna.shah@gov.in](mailto:munna.shah@gov.in)> wrote:

**LIST OF PARTICIPANTS OF EAC (COAL) IN 11<sup>th</sup> MEETING OF HELD DURING 9<sup>th</sup> APRIL, 2021 THROUGH VIDEO CONFERENCING**

1.	<b>Shri G.P Kundargi</b>	-	<b>Chairman</b>	<b>DAY-1</b>
2.	Dr. N. P. Shukla	-	Member (Acting Chairman)	A
3.	Shri Suramya Dolarray Vora, IFS (Retd)	-	Member	P
4.	Dr. Umesh Jagannathrao Kahalekar	-	Member	P
5.	Shri K.B. Biswas	-	Member	A
6.	Dr. Nandini.N	-	Member	A
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	A
12.	Prof R.K. Giri Representative of IMD	-	Member	A
13.	Dr. S.K. Paliwal Representative of Central Pollution Control Board	-	Member	A
14.	Shri Lalit Bokolia, Director, MoEFCC	-	Member Secretary	P