MINUTES OF 31st MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENT APPRAISAL OF COAL MINING PROJECTS HELD ON 9th June, 2022 THROUGH VIDEO CONFERENCE.

Confirmation of the Minutes of 30th Meeting of the EAC (Coal) held during 20th May, 2022: The minutes of the 30th meeting of the EAC held during 20th May, 2022 as confirmed by the Chairman.

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

Consideration of Proposals: The 31st meeting of the Expert Appraisal Committee (EAC) for coal mining projects was held on, 20th May, 2022 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. 31.1

Banhardih Coal Mining Project of 12 MTPA in mine lease area of 1818.10 ha of M/s Patratu Vidyut Utapdan Nigam Limited (PVUNL) located in villages Ate, Banhardih, Bari, Barwadih, Jagaldaga, Rampur, Sabano, Surli, Tota and Udaypura in Latehar & Chandwa Tehsils, District Latehar (Jharkhand) - For Environmental Clearance -reg

[Online proposal No. IA/JH/CMIN/268464/2020; F. No. IA-J-11015/13/2020-IA-II(M)]

31.1.1 The proposal is for Environment Clearance of Banhardih Coal Mining Project of 12 MTPA in mine lease area of 1818.10 ha of M/s Patratu Vidyut Utapdan Nigam Limited (PVUNL) located in villages Ate, Banhardih, Bari, Barwadih, Jagaldaga, Rampur, Sabano, Surli, Tota and Udaypura in Latehar & Chandwa Tehsils, District Latehar (Jharkhand).

31.1.2 The details of the proposal, as ascertained from the documents are as under:

(i) The project area is covered under Survey of India Topo Sheet No. F45A9 & F45A10 and is bounded by the geographical coordinates ranging from 23° 43'23.09"N to 23°45'12.995" N and longitudes 84°37"19.791"E to 84°39'55.045"E.

(ii) Coal linkage of the project for meeting consumptive coal for Patratu STPP and thereby reducing the gap in the demand supply of coal in PVUNL power station.

(iii) There is Joint venture cartel for this company (M/s. Patratu Vidyut Utapdan Nigam Limited (PVUNL)**,** A Joint venture of NTPC ltd (74%) and JBVNL, Govt. of Jharkhand (26%),

(iv) The project doesn't fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of Environment Clearance.

(v) Manpower required for 12 MTPA production based on 330 working days shall be approximately 1306

(vi) The project is reported to be beneficial in terms of meeting consumptive coal for Patratu STPP and thereby reducing the gap in the demand supply of coal in PVUNL power station.

(vii) This is a proposed coal mining project and applying for fresh EC.

(viii) MOEF&CC has accorded Terms of Reference (TOR) vide its letter No. J-11015/13/2020-IA-II (M) dated 02.10.2020

(ix) Total mining lease area as per block allotment is 1818.10 ha (Mineable area 1467.42 ha). Ministry of Coal has accorded in-principal approval for Mining Plan including Mine Closure Plan of Banhardih Coal Block vide Letter No: CC/MP&MC/102/2021-22/Banhardih on 15.07.2021.

(x) The land usage pattern of the project is as follows:

Pre-mining land use details **(Area in Ha)**

	Pre-Mining Land Use "ha"	
Tenancy	Agricultural	309.00
	Township	-
	Grazing	-
	Barren	208.33
	Water Bodies	8
	Road	0.81
	Community	-
	Others	35.78
Govt. Non forest	Agricultural	116.62
	Township	-
	Grazing	-
	Barren	151.40
	Water Bodies	33.44
	Road	27.61
	Others	26.95
Forest	Reserve	-
	Protected	505.78

	Pre-Mining Land Use "ha"	
	(Chote Jhar Bade Jhar Ka Jungle) CJBJ	43.7
Free hold	-	-
Total		**1467.42**

Post Mining (land Use Details)

			Land Use (Post Closure) (in ha)					
Sr. No	**Description**	**Agricultural Land**	**Plantation**	**Water body**	**Public/ Company Uses**	**Forest Land (Returned)**	**Undisturbed**	**Total**
1	Excavation	-	-	-	-	-	-	
2	Backfilled area	74.90	545.35	-	-	106.99	-	727.24
3	Top soil dump	-	12.24	-	-	-	-	12.24
	External Dump/Surface Dump (Temporary)				91.35	349.35		440.70
4	Safety zone	-	7,85	-	-	-	-	7.85
5	Haul roads between quarries	-	9.22	-		0.99	-	10.21
6	Road diversion	-	-	-	5.58	-	-	5.58
7	Settling pond	-	-	-		0.64	-	0.64
8	Road and infrastructure area	-		-	33.24	2.46	-	35.70
9	Garland drains	-	-	-	4.83	2.75	-	7.58
10	Undisturbed /Mining Rights for UG	-	-	-	-	54.77	164.91	219.68
	Grand Total	**74.90**	**574.66**	**0.0**	**135.00**	**517.95**	**164.91**	**1467.42**

(i) Total geological reserve reported in the mine lease area is 1234.98 Million Tons MT with 270.81 Million Tons mineable reserve. Out of total mineable reserve of 270.81 MT, 250.50 MT are available for extraction. Percent of extraction is 62.38 %.

(ii) 18 seams with thickness ranging from 4 to 5 M are workable. Grade of coal is G11, stripping ratio 1:4.68, while gradient is 45^0.

(iii) Method of mining operations envisages by open cast mining method

(iv) Life of mine is 30 years.

(v) The project has 1 external OB dumps in an area of 418.42 ha with 90 m height and 322.76 Mm^3 of OB. OB of 832.30 M m3 in internal OB in an area of 727.24 ha 30 M height is envisaged inthe project.

(vi) Total Mining area is 1467.42 Ha, quarry area is 727.24 ha, which shall be backfilled

(vii) No void shall be created

(viii) Transportation of coal has been proposed by dumpers in mine pit head, from surface to sidingby dumpers and at sidings loading of coal through Rapid Loading Silo system to MGR/Railway.

(ix) Reclamation Plan in an area of 1467.42 ha, comprising of backfill area of 574.66 ha, Green belt of 665.85 ha and other area (such as excavation area along ML boundary, along roads andinfrastructure, embankment area) of 226.91 ha has also been proposed for green belt development.

(x) 549.48 ha of forest land has been reported to be involved in the project. An application for Forest Clearance has been submitted for 549.48 Ha of forest land involved in 1467.42 Ha mineable area of mine block was on 18.09.2021. The application was forwarded from PCCF to DFO Latehar on 25.11.2021. Essential Details Sought (EDS) received from DFO on 08.02.2022, which is under preparation. Forest Land schedule has been received from DFO on 31.05.2022

(xi) There are no National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones fall within 10 km boundary of the project.

(xii) Wildlife conservation plan for schedule – I species has been submitted to DFO on 18.04.2022

(xiii) The ground water level has been reported to be varying between 4.35 m to 7.50 m during pre-monsoon and between 0.70 m to 3.97 m during post-monsoon. Total water requirement for the project is 11.25 MLD.

(xiv) An application of NOC for ground water clearance (21-4/857/JH/MIN/2022) is submitted to CGWA on 18.04.2022.

(xv) Public hearing for the project of 12 MTPA capacity in an area of 1818.10 ha was conducted on 29.12.2021 at Project High School, Sasang, Village-Ate, Panchayat-Bari, Tehsil – Chandwa, District Latehar under the Chairmanship of Additional Collector, Major issues raised in the public hearing include environment pollution, noise pollution & land acquisition etc. Appropriate action to address the issues raised in the Public

Hearing have already been taken/proposed to be taken are as under: (Attached as Annexure-I)

(xvi) Consent to Operate: Consent to Operate will be obtained before start of the mining activity

(xvii) Bagdagga nala (Within Mine lease area, South) & Rajdaha nala (Within Mine lease area, W) is flowing boundary of lease. The nallah will be diverted in consultation with the Water Resource Department of the State Government.

(xviii) Regular monitoring of ambient air quality will be carried out on fortnightly basis. In general, the results of ambient air quality monitoring data were found within prescribed limits except few aberrations which can be attributed to the specific local conditions during the day of sampling.

(xix) No court cases, violation cases are pending against the project of the Project Proponent.

(xx) The project does not involve violation of the EIA Notification, 2006 and amendment issued thereunder. The commencement of mining operation from the mine will be started from April 2024 onwards.

(xxi) The project involves 1592 HSO R&R of the PAPs will be done as per JRRP, 2008 and RFCTLARR 2013. Total cost of the project is Rs. 5,546 Crores. Cost of production is Rs 2500 /- per tonne (Approx.), CSR cost is Rs.5 per tonne, R&R cost is Rs.1165 crores. Environment Management Cost: Capital cost is Rs. 11.73 Crores & Recurring cost is Rs 5.86 Crores

31.1.3 The EAC during deliberations noted the following:

- Banhardih coal mine is a green field, located in Latehar district of Jharkhand. Terms of Reference to this project was granted on 10.12.2020 by MoEFCC vide File No- J-11015/13/2020-IA-II (M) dated 02.10.2020

- M/s. Patratu Vidyut Utpadan Nigam Limited (PVUNL) has been incorporated on 15.10.2015 as a subsidiary of NTPC with 74 % stake in the Company and 26 % of stake held by M/s. Jharkhand Bijli Vitaran Nigam Limited (JBVNL) for capacity increase in two phases i.e. Phase-I (3 x 800 MW) and Phase-II (2 x 800 MW). Jharkhand is the principal beneficiary state with 85 % allocation while 15 % of power will remain as unallocated quota at the disposal of Govt. of India. Patratu Super Thermal Power Project (Patratu STPP) is located at Patratu village in Ramgarh district of Jharkhand.

- Ministry of Coal vide their vesting order no F.No.103/18/2015NA dated 30th June 2015 under clause (b) of sub-rule (2) of rule 7 & sub –rule (1) of rule 13 has allotted the Banhardih coal mine to M/s PVUNL.

- Ministry of Coal has accorded in-principal approval for Mining Plan including Mine Closure Plan of Banhardih Coal Block vide Letter No: CC/MP&MC/102/2021-22/Banhardih on 15.07.2021. So far Final mining plan approval has not been obtained by PP

- Public hearing for the project of 12 MTPA capacity in an area of 1818.10 ha was conducted on 29.12.2021 at Project High School, Sasang, Village-Ate, Panchayat-Bari, Tehsil – Chandwa, District Latehar under the Chairmanship of Additional Collector. Major issues raised in the public hearing include protection of green area & water bodies, water, noise & dust pollution, rehabilitation & employment to local people, cracks due to blasting, plantation, education, Health issues, Drinking water facility,

- PP is yet to obtain Stage-I forest clearance for 549.48 Ha.

- Schedule-I species viz. Sloth bear, Python, peacock & common monitor is reported in the buffer zone. The conservation plan for Schedule-I Species has been prepared but its acknowledgment for submission to competent authority has not been not submitted by PP.

- Environmental Baseline data was generated in the Non-monsoon season 2020 (1st December, 2020 to 30th November, 2021). Monitoring Parameters:

- Air Monitoring: Sampling locations were set up at 8 locations. Monitoring result indicates that maximum and minimum values of PM_{10} are in range of 27.1 to 62.8 µg/m3, whereas the PM2.5 are in the range of 11.3 to 33.7 µg/m3; while SO2 concentrations in range of 6.9 to 16.6 µg/m3 and the NOx in range of 10 to 21 µg/m3. The predicated incremental increase is 19.9 µg/m3 for PM10, 6.31 µg/m3 for PM2.5, 0.59 µg/m3 for SO2, and 8.86 µg/m3 for NOx. The total GLC is for PM10 is 81.5 µg/m3 for PM2.5 is 38.31 µg/m3, for SO2 is 17.19 µg/m3, and for NOx is 29.86 µg/m3. The observed pollutant levels were compared with CPCB National Ambient Air Quality Standards & Standards for Coal Mines issued by MoEF&CC, GSR-742 E dt. 25.09.2000 and found to be meeting standards.

- Surface water Monitoring: Sampling locations were 6 i.e u/s of Anuraga River near Kama, d/s of Anuraga River near Kendwahi, Ghaghari river near Barwakhand, Sukri river near Pakrar, Pond at Dhamdhamiyam, Bagdagga Nala. The result indicates that the pH value was observed to be in the range of 6.7 to 7.68, Electrical conductivity in the range of 256 µS/cm to 730 µS/cm, DO in the range of 5.6 mg/l to 6.2 mg/l, total hardness in range of 71.6 mg/l to 229.3 mg/. The total coliform counts are 620-1120 in all the samples against the standard limit of 10 MPN/100 ml

- The project area does not have any wildlife corridor of any endangered fauna. The project area does does not fall under corridors of any National Park and Wildlife Sanctuary and same was stated by DFO, Latehar vide his letter no. 913 dated 12.05.2022. Though the project is surrounded by 38 Protected Forest

- The nearest Sanctuaries are Lawalong Wildlife Sanctuary at a distance of 70 km in NE direction from project site. However, presences Schedule-I species have been reported in the study area. Accordingly, PP has submitted the Wildlife Conservation plan to Forest Department.

- EAC found that no final approval of mining plan has been obtained by PP and also TOR compliance has not been fully fulfilled as revealed from discussions. In this regard, M/s

Vimta Lab informed, that about incomplete application was intimated to PP; however, PP without mandatory docs like Approved Mine plan and compliance of ToR insisted them to file citing the reasons of Bank Guarantee. EAC expressed displeasure that PP had neither made proper document with annexures, which are not accessible nor proper ToR compliances in Tabular form.

31.1.4 *The EAC, after deliberations observed that it is a green field project. In absence of final approved mining plan, PP could not explain properly the progressive mining to avoid drains/rivers, utilization of non-forest land, OB dump etc. EAC asked to take first Final approval of mining plan as also mentioned in In -principal approval letter of CCO. The Committee noted that the mine plan includes 1467.42 Ha area; while the EC is being sought for 1818.10 ha so EAC suggested the PP to seek amendment in ToR w.r.t mine area by providing the revised land use & other respective details. Due to reduction land, there might be chance of compromising the environmental safeguard.*

Apart from above, ToR points are partially complied in terms of not having detailed study in EIA/ EMP for utilization of OB dump for sand extraction or road construction, only one AAQMS proposed, use of Belt conveyor system not properly mentioned. Also, there is lack of details on the surface plan, progressive evacuation plan & drainage pattern to be diverted. PP had proposed the diversion of 2 streams i.e. Bagdagga nala (Within Mine lease area, South) & Rajdaha nala (Within Mine lease area, W). The consultant and PP were not able to explain properly about its catchment area & it was also observed that the source streams are originating from the pond located within the mine lease. On enquiring about the necessity to divert the streams, PP told that stream is falling at Pit head and OB dump area proposed. Then EAC asked the PP to conduct cost benefit analysis regarding the diversion and without diversion of streams. PP intend to justifying that they can avoid the Bagdagga nala diversion but Rajdaha nala is unavoidable. The EAC asked the PP should come with proper study.

On enquiring about the technology adopted for excavation and mode of transportation PP informed that 65% of coal will be excavated from the surface miner to get 100 mm sized coal and it will be dispatched to power plant directly; while rest of coal will be extracted by drilling & blasting. Also there is provision of primary crusher (2 nos) to reduce the size less than 100 mm. EAC suggested the PP to reanalyse the methodology before seeking the final approval of mining. On transportation, PP is proposing it by closed conveyor belt of 7 km where railway siding is already located. EAC also asked PP to opt site specific EMP measures including both the crushers too.

EAC also observed that EMP cost suggested by PP is inadequate with the project cost. It was also seen that the cost for addressing the public hearing is being merged with CSR cost which should be separate. Accordingly, EAC asked PP to revise the EMP including separate cost of addressing public hearing issues in time bound manner, CSR cost with of its activity proposed as per proper need base survey of the study area. The committee also noted that more than 40% of forest land is proposed to be diverted which need to be relooked in a manner that no infrastructure, OB dump shall be located in forest land. The mine plan needs to be relooked in this aspect also.

On enquiring about the reason of incomplete application, it was justified that to save the bank

guarantee, PP had filed prematurely by compromising proper documentation and compliance of ToR, which resulting weak presentation. The committee expressed displeasure the way and manner consultant submitted the document under influence and made presentation and cautioned M/s Vimta Lab for not repeating this again.

*In view of above, the project was **returned in present form**.*

Agenda No. 31.2

Expansion of Bharatpur OCP of existing capacity of 20 MTPA with additional Mine lease area from 927.42 Ha to 1556.94 Ha of M/s Mahanadi Coalfields Limited (MCL) located at villages Expansion area in Nakeipasi, Niladripur, Satyabadipur, Kishorechandrapur, Sarang, Tileipasi, Khajuria, Prasannanagar, Solada, Danara, Existing: Nakeipasi, Lachhmanpur, Padmabatipur, Dasarathipur, Anantaberani, Baideswar, Jambubahali of Tehsil Talcher Sadar, District Angul (Odisha)- For Terms of Reference-reg

[Online Proposal No. IA/OR/CMIN/269880/2022; File No. J-11015/630/2007-IA-II(M)]

31.1.1 The proposal is for Terms of Reference to Expansion of Bharatpur OCP of existing capacity of 20 MTPA with increase in Mine lease area from 927.42 Ha to 1556.94 Ha of M/s Mahanadi Coalfields Limited (MCL) located at villages, Expansion area in Nakeipasi, Niladripur, Satyabadipur, Kishorechandrapur, Sarang, Tileipasi, Khajuria, Prasannanagar, Solada, Danara, Existing: Nakeipasi, Lachhmanpur, Padmabatipur, Dasarathipur, Anantaberani, Baideswar, Jambubahali of Tehsil Talcher Sadar, District Angul (Odisha).

31.2.2 The details of the proposal, as ascertained from the proposal documents are givenas 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 not been formed.

(iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance.

(v) Employment generation: Existing: 1804. Proposed additional: 429. 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 MTPA in the mine lease area of 1324.80 Ha. Subsequently Amendment in EC for reduction in mine lease area from 1324.80 ha to 927.42 ha has been obtained on 27th May 2021.

(viii) Total mining lease area as per block allotment is 1556.94 Ha and as per approved Mining Plan is 1556.94 Ha.

Sl. No.	Type of Land	Within ML	Outside ML	Total
1.	Agricultural	615.22	--	615.22
2.	Forest	222.41	--	222.41
3.	Waste land	469.82	--	469.82
4.	Grazing	38.80	--	38.80
5.	Surface water bodies	37.68	--	37.68
6.	Settlements	158.73	61.40	220.13
7.	Others (Roads)	14.28	--	14.28
	Total	**1556.94**	**61.40**	**1618.34**

(ix) The land usage pattern of the project is as follows:

Pre-mining land use details (Area in Ha):

Post Mining (Area in Ha):

Sl. No	Land Use During Mining	Land Use (Ha)				
		Plantation	Water Body	Public Use	Undisturbed	Total
1.	External OB Dump	49.50	0	0	0	49.50
2.	Top soil Dump	Stored temporarily and subsequently spread over backfilled area before taking up afforestation				0
3.	Excavation	1286.60	47.45	0	0	1334.05
4.	Roads and Built up areas	35.79	0	47.42	0	83.21
5.	Green belt	11.70	0	0	0	11.70
6.	Safety Zone	3.53	0	0	0	3.53
7.	Undisturbed Area	53.83	0	0	21.12	74.95
TOTAL		1440.95	47.45	47.42	21.12	1556.94

Post Mining

Category	Land use (in Ha)					
	Plantation/ Agriculture	Water Body	Undisturbed	Public Use	Quarry Bottom & Quarry slope	Total
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
Total	**1245.66**	**47.45**	**21.12**	**47.42**	**195.29**	**1556.94**

(x) Total geological reserve reported in the mine lease area is 456.57 Mt with 431.74 Mt as mineable reserves. Out of total mineable reserve, 431.74 Mt are available for extraction as on 01.04.2022. Percent of extraction is 94.56%.

(xi) 14 seams with thickness ranging from 0.2 to 46.9 are workable. Grade of Coal is G-12, Stripping ratio is 1:1.64 while gradient is 4^o to 6^o.

(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 22 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^3 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 and 361.94 Ha already exists. Total 708.77 Mm3 of OB material is envisaged for backfilling in internal OB dump and 201.02 Mm3 has already been backfilled in the existing project as on 31.03.2022.

(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 361.94 Ha is already backfilled) while final mine void will be created in an area of 47.45 Ha with a maximum depth of 15 to 30 m. Also 195.29 Ha of dip side quarry slope will also be brought under vegetation of grasses/shrubs. Backfilled quarry area of 1091.31 ha shall be reclaimed with plantation/grass/agriculture.

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

In mine pit: through Surface miner &by tippers

From surface to siding: 5 MTPA 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 5 MTPA coal will be sent to rail spur sidings 7 & 8 located about 500m from quarry mouth through tippers. 10 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 new Silo for dispatch to basket linkage.

Siding to loading:

i. 5.0 Mty by RLS to NALCO
ii. 10.0 Mty by Silo to basket linkage
iii. 5.0 Mty through spur siding nos. 7 & 8

(xvii) Reclamation Plan in an area of 1440.95 ha, comprising of 49.50 ha of external dump, 1286.60 ha of internal dump, 3.53 Ha of Safety Zone and 65.53 Ha of undisturbed area. In addition to this, an area of 35.79 ha included in the roads/infrastructure and built-up area, has also been proposed for green belt development.

(xviii) 222.41 ha of forest land has 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). In proposed expansion, an additional area of 44.64 Ha of forest land is required to be diverted for which FC application is under process.

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

(xx) The ground water level has been reported to be varying between 3.05 to 6.93 mbgl. Total water requirement for the project is 3.88 MLD.

(xxi) NOC for Ground water withdrawal was obtained from Central Ground Water Authority vide letter no. CGWA/NOC/MIN/ORIG/2021/11644.

(xxii) Public Hearing for expansion project (927.42ha to 1556.94ha) will be conducted and its proceedings will be incorporated in the Final EIA/EMP.

(xxiii) Consent to Operate for the existing capacity has been obtained vide 4893/IND-I-CON-574 Dt 28.03.2022 valid till 31.03.2023 from the State Pollution Control Board.

(xxiv) The seasonal stream, Bangaru Jhor is flowing within the expansion mine boundary. It will be shifted from the 4th year with advance of mine working. Detailed diversion plan will be submitted along with EIA-EMP.

(xxv) Baseline data generation study (Group-I) for this expansion projected has been conducted for the period from March 2021 to May 2021. Flora-Fauna studies and Socio-economic studies will be conducted. 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.

(xxvi) No court cases are pending.

(xxvii) The project does not involve violation of the EIA Notification, 2006 and amendment issued thereunder after obtaining EC for 15 MTPA in the year 2005-06. Environmental Clearance for 20.0 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	-
2021-22	20.0	9.25	-

* EC for 15.0 obtained on 27th March 2006

(xxviii) The project involves 1093 project affected families. R&R of the PAPs will be done as per Orissa Rehabilitation and Resettlement Policy 2006.

(xxix) Total cost of the project is Rs. 2838.87 Cr. Cost of production is Rs.758.12 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, 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.

30.4.3 The EAC during deliberations noted the following:

- Environment Clearance to 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. Subsequently Amendment in EC for reduction in mine lease area from 1324.80 ha to 927.42 ha has been obtained on 27th May 2021.
- Earlier, the project was deliberated on 11th EAC meeting held during 9th April, 2021 for grant of Terms of reference wherein EAC observed low mine production since inception and suggested for monitoring locations, new technologies to be adopted for the instant project. Again the project was deliberated on 21st EAC meeting held during 27th October, 2021 for grant of Terms of reference through another application for expansion from 20 to 26 MTPA along with area wherein EAC had observed that PP had unable to achieve the production level even 50% of the Existing EC so EAC asked the PP to achieve the production of 20 MTPA first and the proposal was returned.
- EAC in the background earlier application noted that PP kept changing its plan and without referring previous observation, keep applying fresh application. PP alongwith M/s CMPDI was cautioned not to repeat this deliberate attempt and must come with last EDS points.
- In proposed expansion, an additional area of 44.64 Ha of forest land is required to be diverted for which FC application is under process
- The project involves 1093 project affected families for which R&R of the PAPs will be done as per Orissa Rehabilitation and Resettlement Policy 2006.
- The seasonal stream, Bangaru Jhor/stream is flowing within the expansion mine boundary. It will be shifted from the 4th year with advance of mine working

31.4.4 *The EAC, after deliberations observed that the instant expansion project wherein PP earlier proposed to increase the production capacity with increase in area. However, PP could not achieve the desired production citing the reasons of land acquisition issue and therefore making another application with increase of land only with same production. In this application, PP has kept the same production capacity i.e 20 MTPA and only increasing the area from 927.42 Ha to 1556.94 Ha. The EAC opined that the PP must furnish the certified compliance report of the existing EC while applying for EC, which should be complied to the level of 95% compliance without fail.*

While acquiring adjacent area to meet the peak production level, PP emphasised for diversion of Bangaru Jhor/stream on the 5th year. EAC had asked PP opt proper strategic approach for mining operation so that the diversion of Bangaru Jhor/stream can be avoided for longer period as already existing area where mining is not possible due to encroachment could be resolved and that land can be utilised for coal extraction. Finally, in present circumstance, EAC opined not to divert the stream for next 10 year.

The EAC desired that the PP, to resolve the R&R of villages coming under new mine area so that PP may not face same issue again. PP informed that the produced coal in tipping trucks loaded from stock is proposed to be transported by two silo loading, one existing of 5 MTPA & other newly installed of 15 MTPA. So the dispatch arrangement is one RLS of 5 MTPA capacity dedicated for dispatch to M/s NALCO, 10.0 MTPA through Silo & 5.0 MTPA by railway Siding no. 7 & 8 In this aspect, EAC appreciated that efforts of the PP to minimize the road transportation as the project is located in District Angul.

It is also found that since the issue related to R&R seems serious as mentioned by PP also while conducting public hearing, PP must address the issue raised by the villages located within the existing as well as new area properly. EAC also enquired about the forest area involve for infra structure development and mandatorily asked PP to avoid any non -mining activity in forest area. PP clarify that the existing infra structure is located in 16 Ha of Forest area.

In view of above, EAC recommends the Terms of References to Expansion of Bharatpur OCP of existing capacity of 20 MTPA with additional Mine lease area from 927.42 Ha to 1556.94 Ha of M/s Mahanadi Coalfields Limited (MCL) located at villages: Expansion area: Nakeipasi, Niladripur, Satyabadipur, Kishorechandrapur, Sarang, Tileipasi, Khajuria, Prasannanagar, Solada, Danara, Existing: Nakeipasi, Lachhmanpur, Padmabatipur, Dasarathipur, Anantaberani, Baideswar, Jambubahali of Tehsil Talcher Sadar, District Angul (Odisha), under the provisions of EIA Notification, 2006 and its amendments therein, with standard ToR of opencast coal mine and with following additional specific conditions to be followed:

Specific TOR

(i) PP to undertake the public hearing and public consultation through the concerned SPCB as per the provisions/procedure contained in the EIA Notification, 2006 about the present coal mining operations inviting comments and their redressal. All the issues should be incorporated in EIA along with its time bound action plan and budgetary provision. Also the issue raised in public hearing held earlier should also be addressed with time line action plan and budgetary provision in EIA/EMP report.

(ii) PP to submit the stag-1 FC for additional forest land of 44.64 Ha at the time of submission of EIA-EMP report

(iii) In addition to existing data, PP must monitor the flora-fauna, soil, socio-economic data in the project area in one complete seasons.

(iv) PP should submit the real time aerial footage and video of the Mining lease area made through drone with a special focus on the area adjacent to the rivers.

(v) No diversion of streams namely Bangaru Jhor or any other stream diversion shall be undertaken. EIA-EMP report should include cost-benefit environment analysis in this regard.

(vi) PP shall implement inpit conveyor belt system with silo loading system at railway siding.

(vii) PP shall proposal mining operation only through usage of surface miner.

(viii) PP shall prepare a Plan for implementation of Continuous Automatic Air Quality Monitoring Station (CAAQMS) at mine site or its vicinity.

(ix) PP to furnish the IRO Certified Compliance of the Existing EC and its subsequent amendments,

which should be certified by IRO with proper documentation of compliance up to 95%. IRO must attach the relevant document/photos in support of compliances.

(x) PP to furnish the green belt development plan @ 2500/ Ha (considering total lease area) and suggested them to provide enough space for providing enabling surrounding for Great Indian Bustard and mostly native grasses, plants & trees for its proper survival.

(xi) Stage-I Forest Clearance for diversion for non-forestry activity shall be submitted for 44.64 Ha forest area.

(xii) PP shall explore the possibilities of utilization of OB material for different purposes (in construction of roads/ manufacture of artificial sand, aggregates/ use for farmers etc.) and accordingly Plan shall be included in EIA/EMP Report

Monitoring

(xiii) PP shall collect baseline data of all environmental parameters and shall compare with the data of earlier data collected for cumulative assessment of area.

(xiv) Air pollution impact predication shall be conducted by considering the maximum values.

(xv) Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned by the collection of air quality data. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.

(xvi) Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted

(xvii) The impact of mine operation on the river bodies flowing within the boundary of the mine with its mitigation measures adopted should be clearly spell in the EIA/EMP report with flood plain protection measures.

(xviii) Heavy metals including other parameters in surface water quality shall be analyzed and provided in EIA Report. Further, detailed mineralogical and chemical composition of the mineral and percentage of free silica in Air quality and other parameters Arsenic, Lead shall also be analyzed in ambient air quality & to be furnished in EIA/EMP report

(xix) The PP while carrying out base line monitoring should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this PP should also submit the original Lab reports of air, water, soil and noise quality and NABL/MoEF&CC certificates of the respective laboratory.

(xx) PP shall submit design details of all Air Pollution control equipment (APCEs) to be implemented as part of Environment Management Plan vis-à-vis reduction in concentration of emission for each APCEs.

(xxi) A detailed traffic study along with presence of habitation in 100 mts distance from both side of road, the impact on the air quality with its proper measures and plan of action with timeline for widening of road. The project will increase the no. of vehicle along the road which will indirectly contribute to carbon emission so what will be the compensatory action plan should be clearly spell out in EIA/ EMP report.

(xxii) The socio-economic study to conducted with actual survey report and a comparative assessment

to be provided from the census data of 2011-part B to be provided in EIA/ EMP report also economic status of the study area and what economically project will contribute should be clearly mention. The study should also include the status of infrastructural facilities and amenities present in the study area and a comparative assessment with census data of 2011 part A to be provided and to link it with the initialization and quantification of need based survey for CSR activities to be followed.

(xxiii) The Ecology and biodiversity study should also indicate the likely impact of change in forest area for surface infrastructural development or mining activity in relation to the climate change of that area and what will be the compensatory measure to be adopted by PP to minimize the impact of forest diversion.

Infrastructure & Mine Management

(xxiv) Inpit conveyor belt with silo loading should be proposed and installed for transportation of coal till railway siding. No transportation of coal by trucks/dumpers shall be proposed in EIA/EMP.

(xxv) PP shall submit detailed plan for implementation of railway siding for evacuation of coal with its target date of completion. Target date should be such that railway siding should be operational within 3 years of commissioning of mine operations. Forest Clearance shall be submitted if railway siding land comes under forest land.

(xxvi) PP shall provide the details of mining technology/methodology proposed to be adopted for coal mining operations and its associated environmental benefits of using from Climate Change perspective by i.e. the likely emissions of greenhouse gases from the mining operations to be estimated with the modelling for future prediction related to the climate of that study area.

(xxvii) PP should clearly bring out that what is the specific diesel consumption ~ (Liters/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted. Proposal for use of electric driven battery dumper shall be proposed being area is already polluted.

(xxviii) Details of toe wall and garland drain to be constructed along the OB dump and proper plantation to be carried out

(xxix) Reclamation to be done using geo-texturing technique of the dumps close to habitation and a cause of visual intrusion. Impact of proposed project/activity on hydrological regime of the area shall be assessed and report be submitted. Hydrological studies as per GEC 2015 guidelines to be prepared and submitted.

(xxx) PP should bring out the awareness campaign to be carried out on various Environmental issues, practical training facility to be provided to the environmental engineer/diploma holders, mining engineer/diploma holders, geologists, and other trades related to mining operations. Target for the same needs to be submitted.

(xxxi) Details of Fog mist sprayer (static water sprinklers) at coal stock yard and along the permanent haul road.

(xxxii) PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.

(xxxiii) No trucks or vehicles used for transportation of Coal to be passed by village roads or roads located near to the villages. PP shall develop a pucca haul raod for transportation of coal proper

widening considering its carrying capacity, lightening and three tire plantation along the haul road. Details of black topping of permanent haul roads to be furnished in EIA /EMP report with its measurement and budgetary provision.

Other

(xxxiv) The environmental sensitivity mentioning not only about the surface water bodies, Forest areas, Inter -state or country boundary etc but also the nearby other mines, coal washery, power plants and other industries etc located within the 10 km radius buffer zone present with its distance and direction from the periphery of the project boundary must be furnished in EIA/EMP report.

(xxxv) Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report

(xxxvi) Detailed Social Impact Assessment shall be prepared in villages for Rehabilitation and Re-settlement. R &R Activity shall be proposed with timeline and allotted fund with the approval of District Commissioner/collector. PP shall be submitting R &R in respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programs prepared and submitted accordingly, integrating the sectoral programs of line departments of the State Government.

Annexure-I

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

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

(a) Statutory compliance

(i) The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.

(ii) The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.

(iii) The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan/Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report (in case of the presence of Schedule-I species in the study area).

(iv) The project proponent shall obtain Consent to Establish/Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.

(v) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.

(vi) Solid/hazardous waste generated in the mines needs to addressed in accordance to the Solid Waste Management Rules, 2016/Hazardous & Other Waste Management Rules, 2016.

(b) Air quality monitoring and preservation

(i) Continuous ambient air quality monitoring stations as prescribed in the statuebe established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM_{10}, $PM_{2.5}$, SO_2 and NO_x. Location of the stations shall be decided based on themeteorological 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 25th

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 PM10/PM2.5) such as haul road, loading/unloading and transfer points. Fugitive dust emissions from allsources 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 couldbe 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 airborne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.

(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 25th 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-lA.11 (M) dated 27th May, 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regardfor 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 monitoringof

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 shallbe 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 theriver 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 soconstructed shall be regularly de-silted particularly before onset of monsoonand 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 thetoe of the OB dumps within the mine to check run-off and siltation should bebased on the rainfall data. The plantation of native species to be made betweentoe of the dump and adjacent field/habitation/water bodies.

(vii) Adequate groundwater recharge measures shall be taken up for augmentationof 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 purposive. watering the mine area, roads, green belt developmentetc. 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 surfacewater into the mine should be as per the approved Mining Plan and as per thepermission 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 5km. 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 blastingand 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 accessoriesto 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 prescribedby 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 onsix-monthly basis.

(e) Mining Plan

(i) Mining shall be carried out under strict adherence to provisions of the MinesAct 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 monitoringland 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 shallbe 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 interventionsshall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining landbe rendered usable for agricultural/forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation ofMine Closure Plan issued by the Ministry of Coal dated 27th 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 shallbe submitted to the MOEFCC/RO.

(iv) Fly ash shall be used for external dump of overburden, backfilling or stowingof 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 asamended from time to time. Efforts shall be made to utilize gypsum generatedfrom 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 shalltemporarily 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 andafforested 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 Ministryof 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 allalong 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 submittedto 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% ofthe 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 OMNo.Z-11013/5712014-IA.I1 (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the miningprojects 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 1st May 2018, as applicable, regarding Corporate Environment Responsibility.

(ii) The company shall have a well laid down environmental policy duly approveby the Board of Directors. The environmental policy should prescribe for standard operating proceduresto 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 ofaction 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 grantedfor their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of theDistrict or State, of which one shall be in the vernacular language within sevendays 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 displaythe 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; PM10, SO_2, NOx(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 OMNo.Z-11013/5712014-IA.I1 (M) dated 29th 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 AppraisalCommittee.

(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 anyof 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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Annexure-II

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

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

I. Statutory compliance:

(i) The Environmental clearance shall be subject to orders of Hon'ble Supreme Court of India, Hon'ble High Courts, NGT and any other Court of Law, from time to time, and as applicable to the project

(ii) The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.

(iii) The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.

(iv) The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (in case of the presence of schedule-I species in the study area)

(v) The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State Pollution Control Board/ Committee.

(vi) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.

(vii) Solid waste/hazardous waste generated in the mines needs to 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_2 and NO_x.Location of the stations shall be decided based onthe 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.tobe carried out at least once in six months. Online ambient air quality monitoring

station/stations may also be installed in addition to the regular airmonitoring 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 ControlBoard. 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 criticalareas prone to air pollution with higher level of particulate matter all throughthe coal transport roads, loading/unloading and transfer points. Fugitive dustemissions from all sources shall be controlled regularly. It shall be ensured that the ambient air quality parameters conform to the norms prescribed bythe 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. Allthe vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.

vii. Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid airborne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated orfitted 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 bemonitored in terms of the parameters notified under the Water Act, 1974 CoalIndustry Standards vide GSR 742 (E) dated 25.9.2000 and as amended fromtime 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-lA.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate

Change shall also be referred in this regardfor 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 monitoringof 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 shallbe 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 shallbe 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 purposive. watering the mine area, roads, green belt developmentetc. 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 augmentationof 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 asper 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 beconducted.

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 minepremises, and report in this regard shall be submitted to the Ministry/RO onsix-monthly basis.

V. Mining Plan

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

ii. No change in mining method i.e. UG to OC, calendar programme and scopeof 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 adheringto The Scheduled Tribes and Other Traditional Forest Dwellers (Recognitionof 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 monitoringland use pattern and report in1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change(MOEFCC) from time to time shallbe 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 aroundthe 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 beeffectively plugged in with ballast and clay soil/suitable material.

iv. Fly ash shall be used for external dump of overburden, backfilling or stowingof 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 asamended from time to time. Efforts shall be made to utilize gypsum generatedfrom Flue Gas Desulfurization (FGD), if any, along with fly ash for external dump of overburden, backfilling or stowing of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.

v. A separate team for subsidence monitoring and surface mitigation measures shall be constituted and continuous monitoring & implementation of mitigation measures be carried out.

vi. Thorough inspection of the mine lease area for any cracks developed at the surface due to mining activities below ground shall be carried out to prevent inrush of water in the mine.

vii. Native tree species shall be selected and planted over areas affected by subsidence.

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

VII. Green Belt

i. The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered flora/fauna, if any, spotted/reported in the study area. Action plan, in this regard, if any, shall be

prepared and implemented in consultation with the State Forest and Wildlife Department.

ii. Greenbelt, consisting of three-tier plantation, of width not less than 7.5 m, shall be developed all along the mine lease area in a phased manner. The greenbelt 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 initialand 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 shallbe 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 adequatetraining 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 PublicHearing. Land oustees shall be compensated as per the norms laid out R&R Policy of the Company/ or the National R&RPolicy/ R&R Policy of the StateGovernment, as applicable

vii. The project proponent shall follow the mitigation measures provided in this Ministry's OMNo.Z-11013/5712014-IA.I1 (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the miningprojects 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 1st May 2018, as applicable, regarding Corporate Environment Responsibility.

ii. The company shall have a well laid down environmental policy duly approveby 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 ofaction 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 sevendays 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 AppraisalCommittee.

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 inrevocation 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 subjectmatter.

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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Annexure-III

Standard EC Conditions for Coal Washery Project

I. Statutory compliance:

(i) The project proponent shall obtain forest clearance under the provisions of Forest (Conservation) Act, 1986, in case of the diversion of forest land for non-forest purpose involved in the project.

(ii) The project proponent shall obtain clearance from the National Board for Wildlife, if applicable.

(iii) The project proponent shall prepare a Site-Specific Conservation Plan / Wildlife Management Plan and approved by the Chief Wildlife Warden. The recommendations of the approved Site-Specific Conservation Plan / Wildlife Management Plan shall be implemented in consultation with the State Forest Department. The implementation report shall be furnished along with the six-monthly compliance report. (incase of the presence of schedule-I species in the study area)

(iv) The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.

(v) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.

(vi) Solid waste/hazardous waste generated in the washery needs to 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, SO2 and NOx. Location of the stations shall be decided based onthe 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 statuebe established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM10, PM2.5, SO2 and NO_x. Location of the stations shall be decided based on themeteorological 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 railwith 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 allsources 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 thewashery up to 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 shallbe 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 withhigh 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 properlyat 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 avoidair and water pollution from such sites.

III. Water quality monitoring and preservation

i. The effluent discharge (mine waste water, workshop effluent) shall bemonitored 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-lA.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regardfor compliance.

iii. Industrial waste water shall be properly collected and treated so as to conformto the standards prescribed under the Environment (Protection) Act, 1986 andthe 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 alongthe river/nallah boundary shall be of suitable dimensions and critical patchesshall be strengthened by stone pitching on the riverfront side stabilised withplantation 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 ina 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 of 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 m3/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 monitoringof 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 shallbe 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 minepremises, and report in this regard shall be submitted to the Ministry/RO onsix-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 blastingand 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 accessoriesto 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/transferpoints 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 submittedto 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% ofthe 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.I1 (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the miningprojects 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 1st May 2018, as applicable, regarding Corporate Environment Responsibility.

ii. The company shall have a well laid down environmental policy duly approveby 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 systemof 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 grantedfor their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local n

ii. newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.

iii. The copies of the environmental clearance shall be submitted by the project proponents tithe Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to displaythe same for 30 days from the date of receipt.

iv. 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.

v. The project proponent shall monitor the criteria pollutants level namely; PM10, SO_2, NOx (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

vi. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.

vii. The project proponent shall submit the environmental statement for each financial year in form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.

viii. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.

ix. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.

x. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert AppraisalCommittee.

xi. No change in coal beneficiation process and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC) with such conditions mentioned therein. No change in

the maximum quantum of raw material feed per annum against the approved washery capacity shall be made

xii. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xiii. The Ministry may revoke or suspend the clearance, if implementation of anyof 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 period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

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ANNEXURE-IV

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 shouldbe transported from mine to the washer preferably through closed conveyerbelt to avoid air pollution.

ii. The washery shall not be located in eco-sensitive zones areas.

iii. The washery should have a closed system and zero discharge. The storm drainage should be treated in settling ponds before discharging into rivers/streams/water bodies.

iv. A thick Green belt of about 50 m width should be developed surrounding the washery.

v. A brief description of the plant along with a layout, the specific technology used and the source of coal should be provided.

vi. The EIA-EMP 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 forair and water should be a part of ElA in case coal mine, TPP and other washeries are located within 10km radius. The ElA should also include mitigative measures needed to minimize adverse environmental impacts.

vii. A Study Area Map of the core zone as well as the 10km area of buffer zone showing major industries/mines and other polluting sources should be submitted. These maps shall also indicate the migratory corridors of fauna, if any and areas of endangered fauna; plants of medicinal and economic importance; any ecologically sensitive areas within the 10 km buffer zone; the shortest distance from the National Park/WL Sanctuary Tiger Reserve, etc. along with the comments of the Chief Wildlife Warden of the State Govt.

viii. Data of one-season (non-monsoon) primary- base-line data on environmental quality of air (PM_{10}, $PM_{2.5}$, SOx and NOx, 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/orground 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, transferand 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 emissionscan 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 ofthe area, the option for transport by road be examined in detail and its impactsalong with the mitigation measures should be clearly brought out in ElA/EMP report.

xii. Details of various facilities proposed to be provided in terms of parking, restareas, canteen etc. to the personnel involved in mineral transportation, workshop and effluents/pollution load from these activities should be provided.

xiii. Impacts of CHP, if any, on air and water quality should also be spelt out along with Action Plan.

xiv. O.M.no.J-ll0I3/25/2014-IA.I dated 11th 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 thesame 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 dealwith environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.

d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

xx. A detailed action Plan for Corporate Social Responsibility for the project affected people and people living in and around the project area should be provided.

xxi. Permission of drawl of water shall be pre-requisite for consideration of EC.

xxii. Wastewater /effluent should confirm to the effluent standards as prescribed under Environment (Protection) Act, 1986

xxiii. Details of washed coal, middling and rejects along with the MoU with the end-users should be submitted.

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ANNEXURE-V

GENERIC TOR FOR AN OPENCAST COALMINE PROJECT for EC

(i) An EIA-EMP Report shall be prepared for MTPA rated capacity in an ML/project area of.....ha based on the generic structure specified in Appendix III of the EIA Notification, 2006.

(ii) An EIA-EMP Report would be prepared for..... MTPA rated capacity to cover the impacts and environment management plan for the project specificactivities 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 inthe 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 mayalso be provided with explanatory note on the land use.

(vi) Map showing the core zone delineating the agricultural land (irrigated andun-irrigated, uncultivable land as defined in the revenue records, forest areas(as per records), along with other physical features such as water bodies, etcshould 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 landfor mining operations such as the quarry area, OB dumps, green belt, safetyzone, 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-channeling 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 embankmentetc. 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 shouldbe 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 followingtable:

Sl. No.	Land use	Within MLarea (ha)	Outside MLarea (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 (PM10, PM2.5, SO_x, NO_x 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 beselected on the basis of size of lease/project area, the proposed impacts in thedownwind (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 surfacewater 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 ahabitat 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 seamsto 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, diversionand channeling of the existing rivers/water courses flowing though 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 theState 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 hydrogeologyand 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/orif 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 outsidemine 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 stabilitystudies with a max of 28^{o} angle as the ultimate slope should be given. Sections of final dumps (both longitudinal and cross section) with relation tothe adjacent area should be shown.

(xxviii) Efforts be made for maximizing 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 intext, figures and in the tabular form as per the format of MOEFCC given below) and selection of species (native) based on original survey/land-use should be given.

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

S.N.	Land use Category	Present (1st Year)	5th Year	10th Year	20th Year	24th Year (end o fmine 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 buildingsand 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.	1st year										
2.	3rd year										
3.	5th year										
4.	10th year										
5.	15th year										
6.	20th year										
7.	25th year										
8.	30th year										
9.	34th year (end ofmine life)										
10.	34-37thYear (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 landuse should be prepared with detailed cost provisions. Impact andmanagement 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 inthe 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 useof natural resources - water, land, energy, etc. should be carried out.

(xxxvi) Cost of EMP (capital and recurring) should be included in the project costand 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 thestudy area and broad plan for resettlement of thedisplaced 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 implementationof 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 welllaid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/orshareholders 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 publicand commitments made by the proponent and the action proposed with budgets in suitabletime frame. These details should bepresented in a tabular form. If the Public Hearing is inthe regional language, an authenticated English Translation of the same should be provided.

(xli) In built mechanism of self-monitoring of compliance of environmental regulations shouldbe 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 isyet to be obtained	Status of appl for. diversion of forest land

		If more than, provide details of each FC			

ANNEXURE -VI

GENERIC TORs FOR AN UNDERGROUND COALMINEPROJECT

(i) An EIA-EMP Report shall be prepared for MTPA rated capacity in an ML/project areaof 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 theimpacts
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 bufferzone (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 inthe 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, etcshould be furnished.

(v) A contour map showing the area drainage of the core zone and 25 km of thestudy area (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicatedin 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, safetyzone, 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. Impactsof 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 ahabitat 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., rationalefor 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 though 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_{10}, $PM_{2.5}$, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-seasonmet 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 beselected on the basis of size of lease/project area, the proposed impacts in thedownwind (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 surfacewater 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 hydrogeologyand groundwater regime within the core zone and 10 km buffer zoneincluding 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 breakup of water requirement as per different activities in the mining operations, including useof water for sand stowing should be given separately. Source of water for usein mine, sanction of the Competent Authority in the State Govt. and impactsvis-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 outsidemine 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 landuse should be prepared with detailed cost provisions. Impact and managementof wastes and issues of re-handling (wherever applicable) and backfilling andprogressive 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 shouldbe given.

(xxviii) Corporate Environment Responsibility:

a) The Company must have a well laid down Environment Policy approved bythe Board of Directors.

b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violationof the environmental or forest norms/conditions.

c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.

d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

(xxix) Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language,an authenticated English Translation of the same should be provided.

(xxx) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.

(xxxi) Status of any litigations/ court cases filed/pending on the project should be provided.

(xxxii) Submission of sample test analysis of Characteristics of coal: This should include details on grade of coal and other characteristics such as ash content,S and heavy metals including levels of Hg, As, Pb, Cr etc.

(xxxiii) Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept.(if req.), etc. wherever applicable.

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

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

		If more than one provide details of each FC			

ANNEXURE-VII

GENERIC TORs FOR A N O P E N C A S T -CUM UNDERGROUND COAL MINE 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 anML/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 foropencast – cum underground mining.

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LIST OF PARTICIPANTS OF EAC (COAL) IN 31st MEETING OF HELD DURING 9th JUNE, 2022 THROUGH VIDEO CONFERENCING

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