

MINUTES OF 23rd MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENT APPRAISAL OF COAL MINING PROJECTS HELD ON 6th DECEMBER, 2021 THROUGH VIDEO CONFERENCE.

Monday 6th December, 2021

Confirmation of the Minutes of 22nd Meeting of the EAC (Coal) held on 17th November, 2021: The minutes of the 22nd meeting of the EAC held during 17th November, 2021 was confirmed by the Chairman.

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

Consideration of Proposals: The 23rd meeting of the Expert Appraisal Committee (EAC) for coal mining projects was held on 6th December, 2021 through video conferencing with support NIC team due to Covid-19 lockdown. The EAC considered proposals as per agenda adopted for the meeting. List of participant attended the meeting is annexed. The details of deliberations held & decisions taken in the meeting are as under.

Agenda No. 23.1

Expansion of Mugoli Nirguda Extension Deep OC Mine project from 4.375 MTPA to 6.125 MTPA within mine lease area of 1267.55 ha of M/s Western Coalfields Limited located in Village Mugoli, Tehsil Wani, District Yavatmal (Maharashtra) - For Environmental Clearance (as per Ministry's O.M 15.09.2017.)- reg

[Online proposal No. IA/MH/CMIN/240112/2021; F No. J-11015/299/2010-IA.II(M)]

23.1.1 The proposal is for Environment Clearance of Expansion of Mugoli Nirguda Extension Deep OC Mine project from 4.375 MTPA to 6.125 MTPA within mine lease area of 1267.55 ha of M/s Western Coalfields Limited located in Village Mugoli, Tehsil Wani, District Yavatmal (Maharashtra)

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

- (i) The block is covered in the Survey of India Toposheet No. 56 M/1. The mine lease area of the project under consideration is bounded by Latitude 19° 51' 23.48" N and 19° 54' 23.90" N and Longitude 79° 5' 48.31" E and 79° 8' 5.09" E.
- (ii) Coal linkage of the project is Basket Linkage for various consumers.
- (iii) There is no Joint venture involved.
- (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: Manpower requirement in existing proposal is 844 nos. In addition to this, temporary employment in the operation will be around 200 nos. (approx.)

(vi) The project is beneficial in terms of the following

- Environmental - Conservation of Coal. It will also lead to positive environmental impact like green cover, mine water utilization, etc.
- Financial - Substantial percentage of population is dependent on mining industry directly or indirectly. Because of this project some of the local population may be direct employment but a substantial impact will be on creation of indirect job opportunities and employment.
- Social - Project will lead to development of roads, ancillary industries, improvement of social & living standard.

(vii) Earlier, Environment Clearance to the project i.e. Mungoli Nirguda Extension Deep OC was obtained under EIA Notification, 2006 vide Ministry's letter no. J-11015/299/2010-IA.II(M) dated 26th February, 2020 for a production capacity of 4.375 MTPA and total leasehold area of 1317.55 Ha.

(viii) Present application is for grant of EC for increase in production capacity from 4.375 MTPA to 6.125 MTPA with land area of 1267.55 ha (with existing EC area of 1367.55 Ha) as per clause 7 (ii) of EIA Notification, 2006 and as per MOEF & CC O.M dated 15.09.2017, as such TOR is not applicable.

(ix) Total mining lease area is 1267.55 Ha.

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

Pre-mining land use details

Agricultural Land – 116.30 ha Govt. Land – 31.88 ha, Forest land – 0.00

Others - 1119.37 (Already acquired by WCL)

Total land – 1267.55 ha

Post-Mining: Area in Ha

Sl. No.	Land Use during Mining	Land use (ha)				
		Plantation	Water Body	Public use	Undis- turbed	Total
1	External OB Dump	112.89	0	82.00	0	194.89
2	Excavation	100.00	289.35	124.12	0	513.47
3	Roads	11.20	0	18.80	0	30.00
4	Built up area (Infrastructure)	20.00	0	65.00	0	85.00
5	*Green Belt	65.00	0	0	0	65.00
6	Undisturbed Area	100.00	0	0	182.19	282.19

	(Including safety					
7	Embankment around quarry	20.70	0	49.30	0	70.00
8	Outside ML Area (land for Village Rehabilitation)	2.00	0	10.00	0	12.00
9	Colony Land	3.00	0	12.00	0	15.00
	Total	434.79	289.35	361.22	182.19	1267.55

(xi) Total geological reserves is 106.558 MT with mineable reserves of 73.13 MT. Out of mineable reserves of 73.13 MT, 32.92 MT are available for extraction. Percent of extraction is 68.63 %.

(xii) One seam of intermittent band with thickness ranging from 11.16 m to 17.48 m (average - 15.20m) in four sections A, B, C & D are workable. Grade of Coal is G10. Stripping ratio 1: 6.63 m³/t.

(xiii) Shovel-Dumper combination is being practiced in existing Mugoli Nirguda Extension Deep OC for extraction of coal as well as removal of parting and Top OB along with Dragline. In the present proposal, Dragline will be deployed only for 1st year. Part Top OB and parting OB will be by departmental HEMM for 1st year. From second year onwards, parting OB and coal will be by Hiring of HEMM. Balance Top OB, parting OB and Coal will be done contractually from 2nd year. Coal extraction will be by deployment of Surface Miner.

(xiv) Life of mine : 6 years.

(xv) The project has 05 nos. of external OB dumps in an area of 112.89 ha with 90 m height and 110.29 Mm³ (including Embankment of 5.32 Mm³) of OB & 2 nos. of internal OB dumps in an area of 100.0 ha with 271.99 Mm³ of OB, is envisaged in the project.

(xvi) Total quarry area is 513.47 ha. Backfilled quarry area of 224.12 ha shall be reclaimed with plantation. Final mine void will be created in an area of 289.35 ha with maximum depth of 150 m will be converted into a water body.

(xvii) Coal transportation by road will be eliminated (around 90%) due to laying of railway siding with Coal handling Plant and Silo (8.0 MTPA capacity) within mine lease area. Action for this has already been initiated. However, for internal transportation, Coal transportation road of length 1.50 km to transport coal by 60 T Dumpers has been envisaged. Till the construction of proposed railway siding within the mine lease area, coal will continue to be transported to Ghughus Railway Siding from mine through covered tippers/trucks, located at a distance of approx. 8 kms. The coal will be transported to Thermal power plants of MAHAGENCO and to Basket linkage Consumers from Silo.

(xviii) Reclamation Plan in an area of 434.79 Ha includes external OB dumps, internal dumps, along road, township, around infrastructure and embankments., comprising of 112.89 ha of external dump, 100.0 ha of internal dump and 65.0 ha of green belt. In addition to this, an area of 156.90 Ha (Roads - 11.20 Ha, Built Up area (infrastructure) – 20 ha, Undisturbed Area – 100 ha, Embankment around Quarry- 20.70 Ha, Outside ML Area – 02 Ha, Colony Land – 03 Ha), has also been proposed for reclamation.

(xix) No forest land involved in the project. Area of 100.00 ha on external dump and 196.90 Ha of

undisturbed area will be utilized for plantation.

(xx) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones, within 10 km boundary of the project.

(xxi) The ground water level has been reported to be varying between 4.85 to 11.60 m during pre-monsoon and between 4.90 to 6.10 m during post-monsoon (core zone). Water requirements are 362 KLD (Domestic Demand – Colony requirement) & 780 KLD (Industrial Demand – Dust Suppression, firefighting, etc.).

(xxii) NOC from CGWA for ground water abstraction / dewatering has been obtained via application no. CGWA / NOC / MIN / ORIG / 2020 / 7435 valid upto 24.02.2022.

(xxiii) Environment Clearance has been secured for Mugoli Nirguda Extension Deep OC for increase in production capacity from 4.0 MTPA to 4.375 MTPA with increase in land area from 818.05 MTPA to 1317.55 ha, vide letter no. J-11015/229/2010-IA-II (M) dated 26.02.2021.

(xxiv) During the process of aforesaid EC, Public hearing has been carried out on 12.02.2019 at Manoranjan Kendra, Kailash Nagar Colony, Wani Yavatmal Dist, Maharashtra, as per the provisions of EIA Notification, 2006. This Public Hearing was completed for 1317.55 ha area and proposed expansion is limited to existing area only. Present proposal is for increase in production capacity from 4.375 MTPA to 6.125 MTPA with land area of 1267.55 ha (with existing EC area of 1367.55 Ha) as per clause 7 (ii) of EIA notification 2006 & MoEF & CC O.M dated 15.09.2017. Thus there is no requirement of additional area for proposed expansion and Public Hearing has already been conducted for the total land area involved in the proposed expansion project as per EIA Notification, 2006.

(xxv) Wardha river and Nirguda nala are flowing along the northern boundary of the mine and Penganga river on the southern boundary. Present proposal does not involve diversion of any Nallah/River

(xxvi) Baseline data for Ambient Air Quality has been generated during April to June'2021 (Pre Monsoon Season). Results are within prescribed limits.

(xxvii) No court cases, violation cases are pending pertaining to environment.

(xxviii) The project does not involve violation of the EIA Notification, 2006 and amendment issued thereunder. No excess production of coal from the sanctioned capacity has been realized in the project. Details are as under:

Financial Year	Sanctioned Capacity as per EC (MTPA)	Actual Production (MTPA)	Excess Production Beyond the EC
2011-12	4.000	3.29	NIL
2012-13	4.000	3.29	NIL
2013-14	4.000	3.60	NIL
2014-15	4.000	4.00	NIL
2015-16	4.000	4.00	NIL
2016-17	4.000	3.22	NIL
2017-18	4.000	3.54	NIL
2018-19	4.000	3.78	NIL

2019-20	4.375	4.11	NIL
2020-21	4.375	4.31	NIL
2019-20	2.50	2.395	Nil
2020-21	2.50	1.683	Nil

(xxix) The project involves 649 nos. of project affected families. R&R of the PAPs will be done as per provisions of R&R Policy of Coal India Limited.

(xxx) Total cost of the project is Rs Rs. 826.80 Crores (including WDV of Rs 176.78 Crores). Cost of production is Rs 1128.02 per tonne (at 85%), CSR cost is Two percent of the average net profit of the company for the three immediate preceding financial years or Rs. 2.00 per tonne of total consolidated coal production of CIL as a whole of previous year whichever is higher, R&R cost is Rs. 67.34 crores. Environment Management Cost is Rs 740.0 Lakh (Capital Cost) & Rs. 6.00 per tonne (Revenue Cost).

(xxxi) Consent to operate (CTO) was obtained from the Maharashtra Pollution Control Board on 21.10.2021 and is valid till 31.03.2023.

(xxxii) Certified Copy of EC Compliance report has been secured from Integrated Regional office, MoEF & CC, Nagpur vide letter no F.No EC-1017/RON/2019-NGP(Part.)/8872 dated 17th Nov'2021.

23.1.3 The EAC during deliberations noted the followings:

The proposal is for Environment Clearance of Expansion of Mugoli Nirguda Extension Deep OC Mine project from 4.375 MTPA to 6.125 MTPA within mine lease area of 1267.55 ha of M/s Western Coalfields Limited located in Village Mugoli, Tehsil Wani, District Yavatmal (Maharashtra)

Compliance of the requirements of Ministry's OM dated 15th September, 2017 for 40% expansion without conducting Public Hearing is detailed as below :

Sr. No.	Requirements as per OM	Compliance
1	Predicted air quality parameters are within the prescribed norms	The predicted absolute values PM ₁₀ , PM _{2.5} , NO ₂ and SO _x are well within the permissible limits at all the locations considering maximum baseline value after the pollution control measures to be adopted by PP.

2	Coal Transportation is through conveyor system up to the silo and then loading to railway wagon, involving no transportation through roads.	<p>Construction of railway siding has been proposed within the mine lease area of the project. The coal will be transported from working mine face to siding located within mine lease area by tippers and further transported by railway wagons. Due to this, coal transportation through roads will be eliminated.</p> <p>Status of Railway Siding :</p> <ul style="list-style-type: none"> • A Memorandum of Understanding has been entered between Coal India Limited and Rail India Technical and Economic Service (RITES) on 03.07.2020, for Consultancy and Construction of Railway Siding at Mungoli Nirguda Opencast Mine of Wani Area. (Award Cost: 218.31 Crores). Payment of 20% of the contract award value i.e. Rs. 43.66/-Crores has been done to RITES in advance. • FSR for railway track extension and siding submitted by M/S RITES had approved by Central Railway on 09.09.2021. DPR under preparation at M/S RITES Advance of Rs 43.66 Cr deposited to RITES <p>Regarding Construction of CHP and Silo for capacity of 8 MTY, the NIT has been already floated.</p> <p>The total capital in Revised Project Report of Mungoli-Nirguda Extension (Deep) OC mine (4.375Mty) worked out to Rs. 826.80 Crores (including WDV of Rs. 176.78 Crores).</p>
3	The Coal mining is done through deployment of surface miner, replacing three dust generating operations of conventional mining system namely drilling, blasting and crushing in one go	Coal extraction is proposed to be done through surface miner, based on Mining Plan for Mungoli Nirguda Extension Deep OC mine for enhancement of mine production
4	Public hearing already conducted for the total mine lease area involved and no more area is required for the proposed expansion.	<p>Public Consultation has been 12.02.2019 at Manoranjan Kendra, Kailash Nagar Colony, Wani Yavatmal Dist, Maharashtra,.</p> <p>This Public Hearing was completed for 1317.55 ha area and proposed expansion is limited to existing</p>

		area only. Present proposal is for increase in production capacity with land area of 1267.55 ha
5	Compliance Status of EC conditions monitored by the concerned Regional Office of this ministry is found to be satisfactory	<p>Certified Compliance Report by Ministry's Integrated Regional Office, Nagpur submitted vide letter EC-1017/RON/2019-NGP(Part.)/8872 dated 17th November, 2021 after site inspection conducted on 30th December, 2021.</p> <p>Three no of partial compliances were reported in respect to which Action taken report is to IRO vide letter dated 19.11.2021</p>
6	Other statutory requirements like Consent to Establish/Operate, Clearance from CGWA, approval of Mining Plan and the Mine Closure Plan, Mine Closure Status Report as	<p>The mining plan along mine closure plan was approved by WCL board in its 335th meeting held on 9th September, 2021 vide letter WCL/Office of CS/BM-336/2021-22/492 dated 18th October, 2021.</p> <p>NOC for abstraction of Groundwater – NOC for groundwater abstraction has been obtained vide CGWA / NOC / MIN / ORIG / 2020 / 7435 valid upto 24.02.2022</p> <p>Consent to Establish: CTE has been obtained from Maharashtra Pollution Control Board vide letter no Format 1.0 / CC/ UAN 0000088073/CO – 2005000512 dated 20.05.2020</p> <p>Consent to Operate: The consent to operate for Mungoli Nirguda Extension Deep OC has been renewed Maharashtra Pollution Control Board vide letter no Format 1.0 / CC/ UAN 0000107557/CR – 2110000982 dated 21.10.2021.</p> <p>Forestry Clearance – Not Applicable as there is no forest land is involved.</p>

- As per the past production detail mentioned above it was found that the EC had in the year 2019-2020 was granted on 26th February 2020 and PP obtained the CTO in month of May 2020 but had reported the actual production of 4.11 though up till February 2020 the sanctioned capacity was only 4.0 MTPA.
- Mining Plan (including Mine Closure Plan) has been approved (within the provisions of revised Project Report) by WCL Board in its 336th meeting held on 11.10.2021 and communicated vide

resolution no. WCL/Office of CS/BM-336/2021-22/492 dated 18th October, 2021 pertaining to enhancement of production capacity from 4.375 MTPA to 6.125 MTPA within 1267.55 ha area

- Certified Compliance Report from Ministry IRO was submitted vide File No. E-File No. EC-1017 RON/2019-NGP (Part)/ 8872 Dt.17th November, 2021. As per the observation installation of Piezometer, use of Renewable energy and grassing of mine area or any other area like OB dumps have not been not properly done
- The EIA/EMP report furnished by the consultant was not appropriate as in ToR compliance and reply table page no was not mentioned, no Environmental policy of the company, also the standard operating procedure for reporting infringement, non-compliance etc was not given. The socio economic study do not furnish the occupational status of the villages located within the buffer zone. The risk assessment should also include about the HFL of both the river Wardha River and Penganga river stream is flowing adjacent to the boundary of the mine. No safety measures were proposed though the flood in nearby villages were one of the public hearing issues.
- The previous EC was granted for 1317.55 ha of land but as of now PP only required 1267.55 Ha of land as the railway siding proposed outside the lease area before will be laid down within the mine lease as detailed below:

Sl. No.	Parameters	Existing Project	Proposal	Change/ remarks
1.	Capacity	4.375 MTPA	6.125 MTPA	40 % Increase in production capacity
2.	Method of Mining			
2.(i)	Coal extraction	Dragline and Shovel dumper combination	Drilling and blasting and Surface miner	No Change
2.(ii)	OB removal	Dragline and Shovel dumper combination	Dragline and shovel dumper combination	No change
3.	Mine Area			
3.(i)	Within mine lease	1255.55	1255.55a	No change
3.(ii)	Outside mine lease area	62.00 Ha	12.00 Ha	Railway Siding has been proposed within Mining lease area.
3.(iii)	Total Area	1317.55 Ha	1267.55 Ha	Land requirement has been reduced

- Revised Project Report (RPR) has been approved by Coal India Board in its 414th meeting held on 11.11.2020, for the total capital of Rs 826.80 Crores (including WDV of Rs 176.78 Crores). As per RPR, Coal is being extracted by deployment of Surface Miner. RPR involves laying of railway siding within mine lease area. Construction of Coal handling Plant with Silo of capacity 8.0 MTPA.
- As per Ministry's O.M 15.09.2017 condition no 2 i.e Coal transportation is through conveyor system up to the silo and then loading to railway wagons, involving no transportation through roads.

And condition no 3 i.e Coal mining is done through deployment of surface miner, Both these condition are not fulfilled by the PP and is in progress as per the EDS point wise reply dated 30.11.2021 submitted by the PP

23.1.4 The EAC, after deliberations observed the proposal of expansion under Ministry's OM dated 15th September, 2017 and based on this PP has requested for expansion for 40% expansion without public hearing since there is no increase in area of the project. Moreover there is a decrease in area wherein earlier railway siding was proposed outside mine lease area of which now PP proposed to construct railway siding near its existing reclaimed OB dump area. The compliance with respect to requirement of OM were observed to be fulfilling except that of transportation of coal through conveyor system by silo loading of which PP has committed to implemented with strict timeline.

Observation such as proper addresses of issues raised in public hearing like rehabilitation, removal of weeds as due to this thorny bushes the wild animal is attracted in nearby areas, Air pollution, flood in nearby villages due to dump lying in flood zone etc and demands to local development. The plantation also was inadequate within mine boundaries in terms of local species and number. EAC desired that PP shall implement the EC conditions very strictly. EAC also inquired about the star rating of the mine by MoC, PP replied that the inspection by CCO has been done but result is awaited. EAC when enquired about the production of FY 2019-2020 as it seems on higher side as per the mentioned capacity PP explained that it is the peak production reported in March 2020 after obtaining EC and filed the application for CTE dated 20.01.2020 and CTO dated 31.01.2021 which was clubbed by the MPPCB and the Meeting CAC was held on 04th march, 2020 and grant approval from date 11.03.2020 and was valid uptill 31.03.2021 though the letter issued on 20.05.2021. It was desired that Ministry may take the view of PP's production beyond the CTO capacity since CTO was granted on 20th May, 2021.

*EAC appreciated the consultant for providing riverine ecosystem study and suggested them to take third party opinion to make it more technically viable which can also throw light on the revitalization of the river as per the NGT order to all the state government. EAC also expressed its concern regarding the application filled by PP for 40 % expansion directly though as per Ministry's O.M 15.09.2017, is should be applied in two stages of 20 % each. So EAC **recommends** the proposal for grant of Environment Clearance upto **20% Expansion** Expansion of Mugoli Nirguda Extension Deep OC Mine project from **4.375 MTPA to 5.25 MTPA** within mine lease area of 1267.55 ha of M/s Western Coalfields Limited located in Village Mugoli, Tehsil Wani, District Yavamati (Maharashtra) based on Ministry's OM dated 15th September, 2017 under the provision of clause 7(ii) of EIA Notification, 2006 and under the provisions of Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto subject to the compliance of the following terms & conditions / specific conditions for environmental safeguards:*

(i) All previous Environmental Clearances dated 30th March, 2011 and 26th February, 2020 issued by Ministry for this project shall be applicable along with this conditions

- (ii) PP shall obtain No Objection Certificate from Central Ground Water Authority and Consent to Establish/Operate (for proposed expansion).*
- (iii) PP shall apply for further expansion in capacity (if any) only after implementation of in-pit conveyor system and silo loading till railway system and accordingly no further expansion will be considered by EAC.*
- (iv) PP shall submit a third party assessment of EC Compliance shall be undertaken once in three years through agency like ICFRI/ NEERI/IIT or any other expert agency identified by the Ministry to Ministry's Regional Office.*
- (v) PP shall use only surface miners for the proposed expansion capacity*
- (vi) PP shall transport coal by road only for two years from the date of issue of this letter and accordingly transportation through in-pit conveyor system and by silo loading at Railway siding should be installed (as proposed) within 2 years.*
- (vii) PP to install 1 more continuous ambient air quality monitoring stations at suitable locations preferably village side in consultation of SPCB. The real time data so generated shall be uploaded on company website. In addition, data should also be displayed digitally at entry and exit gate of mine lease area for public display.*
- (viii) PP to replace the existing water sprinkler within two years with Fog cannon mist sprayer as these sprinklers create mud puddles. Also 10 nos. of additional Fog canon (mist sprayer) shall be installed to reduce the impact of air pollution at dust generating sources such as haul road, CHP within 1 year from the date of issue of EC letter.*
- (ix) PP should Install Wind breaker/shield arrangement atleast of 10 mtrs all along the railway siding for reducing the dust propagation in upwind direction.*
- (x) PP shall install sand/aggregate segregation plant from Overburden (OB) for suitable capacity to extract sand and construction aggregate within 2 years of issue of this letter.*
- (xi) PP to conduct riverine ecosystem study of the Wardha and Penganga River from reputed Institutes and help state government in revitalization of the rivers as both are tributaries of Godavari River.*
- (xii) PP needs to address the issues raised in public hearing and demands to local development with budgetary provision with time bound action plan.*
- (xiii) Top soil should be stored separately at marked area and necessary vegetation shall be maintained to avoid any entrainment of dust.*
- (xiv) Active OB Dump should not be kept barren/open and should be covered by temporary grass to avoid air born of particles.*
- (xv) Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and maintain records accordingly; also. Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smoking, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. The Recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented; The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.*

- (xvi) *Quality of polluted water generated from the operations which include COD and acid mine drainage and metal contamination shall be monitored along with TDS, DO, TSS. The monitored data shall be uploaded on the website of the company as well as displayed at the site in public domain.*
- (xvii) *PP to conduct need based assessment survey of the area to for in order to decide the activities to be carried under the CSR and to provide detail of the activity carried out with adequate budgetary provision and time bound action plan.*
- (xviii) *PP must provide safety measures and relief fund to the areas or nearby villages affected by the flood.*
- (xix) *PP shall develop 2 water harvesting pond near the villages of suitable area as suggested by Gram Panchayat within 1 year.*
- (xx) *PP to maintain the topped haul road properly to minimized the dust emission. PP to also develop pucca roads by seeking consent from the panchayat with widening of roads especially roads inter linking the villages within the study area of 10 km radius buffer zone.*
- (xxi) *PP to take action drive on removal of thorny bushes in consent with expert in the area where the villagers are facing problem as wild animals are attracted due to these thorny bushes*
- (xxii) *Persons of nearby villages shall be given training on livelihood and skill development to make them employable with its proper records.*
- (xxiii) *PP shall conduct slope stability study and install slope stability radar monitoring to monitor slope movement at OB Dump*
- (xxiv) *PP to plant 100,000 nos. of native trees with broad leaves along the villages (Borgaon, Takli, Chincholi, Kolgaon and Tilodhi villages) and 50,000 no of trees along the transportation route to prevent the effect of air pollution in 2 years. A proper Mechanism to be put in place for massive plantation by hiring independent expert agency in 2 years for proper survival of trees.*
- (xxv) *Persons of nearby villages shall be given training on livelihood and skill development to make them employable.*
- (xxvi) *PP to install solar lights along the road used for transportation of coal to avoid the accidents at night and also seek its maintenance. PP is asked to also identify the rural areas for installation of solar light with its maintenance within the study area of 10 km radius buffer zone within one year*
- (xxvii) *PP also to provide drinking water facilities like installation of RO with proper water supply pipe fittings to nearby rural areas and also to install hand pumps by seeking consent from panchayat of the villages located within the study area of 10 km radius buffer zone within two years*
- (xxviii) *PP to take proper care of health of R& R villages and a 24X 7 helpline call facility should be provided to such area and also to nearby villages for assisting any medical aid and ambulance facility*
- (xxix) *PP should conduct epidemiology study to (analysis of the distribution, patterns and determinants of health and disease conditions in defined populations).*
- (xxx) *PP must ensure an emergency action plan during pandemic in order to provide assistance to the nearby villages located within the 10 km radius buffer zone (If required)*
- (xxxi) *PP shall pay to farmers of agricultural land if there is any loss due to pollution/damange due to blasting activity found by concerned District Commissioner as per extent rules or norms*
- (xxxii) *The illumination and sound at night at project sites disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages*

located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day light/night hour.

(xxxiii) PP should establish in house (at project site) environment laboratory for measurement of environment parameter with respect to air quality and water (surface and ground. A dedicated team to oversee environment management shall be setup which should comprise of Environment Engineers, Laboratory chemist and staff for monitoring of air, water quality parameters on routine basis. Any non- compliance or infringement should be reported to the concerned authority.

(xxxiv) Hon'ble Supreme Court in an Writ Petition(s) Civil No. 114/2014, Common Cause vs Union of India & Ors vide its judgement dated 8th January, 2020 has directed the Union of India to impose a condition in the mining lease and a similar condition in the environmental clearance and the mining plan to the effect that the mining lease holders shall, after ceasing mining operations, undertake re-grassing the mining area and any other area which may have been disturbed due to their mining activities and restore the land to a condition which is fit for growth of fodder, flora, fauna etc. Compliance of this condition after the mining activity is over at the cost of the mining lease holders/Project Proponent". The implementation report of the above said condition shall be sent to the Regional Office of the MoEF&CC.

Agenda No. 23.2

Expansion of Jhingurda Opencast Coal Project of 3 to 5 MTPA capacity in ML area of 1200 ha for M/s Northern Coalfields Limited located in Jhinguda, Tehsil Morwa, district Singrauli (Madhya Pradesh)- For Extension of Validity of Environmental Clearance– reg.

[Online Proposal No. IA/MP/CMIN/236778/2021; File No. J – 11015/171/2003-IA.II (M)]

23.2.1 The proposal is for extension of validity of Environmental Clearance of of Jhingurda Opencast Coal Project of 3 to 5 MTPA capacity in ML area of 1200 ha for M/s Northern Coalfields Limited located in Jhinguda, Tehsil Morwa, district Sidhi (Madhya Pradesh)

23.2.2. The EAC during deliberations noted the following:

- Earlier, the Environment Clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter No. J-11015/171/2003-IA.II (M) dated 11.05.2005 for 5 MTPA. The revalidation of EC was obtained vide letter no. J-11015/171/2003-IA.II (M) dated 12.02.2021 under EIA Notification, 2006 based on Ministry's Notification dated 6th April, 2018.
- It is noted that as per EC dated 12.02.2021, revalidation was granted upto 2021-22 (as per mine life approved in mine plan)

- PP has requested for extension in validity of EC as per EIA Notification, 2006
- The extension in validity of EC has been applied since PP was not able to achieve its rated peak capacity of 5.0 MTY in most of the years of its mine life due to delay in land acquisition and issues related to R&R. The remaining reserves as assessed in the year 01.04.2021 was 8.12 MT.
- In above view PP has now requested for complete extraction of coal reserve, life of Jhingurda. OCP shall be extended by another 4 years from 2021-22 to 2025-26 from present life as per existing EC.
- Mining Plan including Mine Closure Plan for balance minable coal reserve of 8.12 Mt as on 01.04.2021 was approved by NCL Board in its 267th meeting held on 16th September, 2021.
- The change in Configuration will be as mentioned in the table given below

S. No.	Plant/ Equipment/ Facility	Existing Configuration	Proposed Configuration	Final configuration after amendment	Remark
1	Opencast Coal Mine	Capacity- 5.00 MTY; Area- 1200 Ha, Mine Life : 2021-22	Capacity- 5.00 MTY; Area- 1200 Ha, Mine Life : 2025-26	Capacity- 5.00 MTY; Area- 1200 Ha,	Validity of extension by 4 years

23.2.3 The EAC, after deliberations observed that the conditions mentioned in revalidation of EC dated 12.02.2021 had not being worked upon by PP like green belt development upto 40 % of the total project area. PP was also not able to provide the appropriate explanation of condition No. (vi) regarding the CER (1.5 times of the total project cost) of the project to be considered as commitment made during public consultation instead of EMP measures. The EAC also enquired about the readings of the Piezometer installed at the mine site and found that the readings provided by it is not appropriate as the during pre-monsoon the water level was high as compare to the post monsoon data. No proper justification was provided by the PP or the consultant on it, so EAC inferred that it might be due to the over extraction of ground water. The EAC also asked the status of mine closure activities carried out by the PP since it had to commence 5 years before the closure of the mine as per the Norms but no proper response was given by PP. In view of above, EAC desired further information on below mentioned observations:

- PP shall submit third party audit report by independent Agency of EC condition dated 11.05.2005 and 12.02.2021
- PP shall provide the list of mine closure activities carried out by the PP as per the mine closure plan approved by the M/s NCL Board of Directors.
- The justification of the readings of the two piezometer installed as shown must also be provided
- PP shall apply for star rating (If not yet applied) and should provide the details of its result.
- PP also to furnish the annual average value of air quality as per the readings of the CAAQMS

installed at site of last five years

(vi) PP shall provide the appropriate explanation of condition No. (vi) regarding the CER (1.5 times of the total project cost) of the project and list of activity as committed made during public consultation instead of EMP measures.

*The proposal is **deferred** on above lines.*

Agenda No. 23.3

Expansion of Wet type coal washery project based on Heavy Media Cyclone from 2.5 MTPA to 5.0 MTPA in an area of 08 Ha by M/s Paras Power & Coal Beneficiation Limited at village Ghutku, Tehsil Takhtpur, district Bilaspur, Chhattisgarh - For Terms of Reference- reg

[Online proposal No. IA/CG/CMIN/241158/2021; F No. J-11015/70/2004-IA.II (M)]

23.3.1 The proposal is for Terms of Reference of Expansion of Wet type coal washery project based on Heavy Media Cyclone from 2.5 MTPA to 5.0 MTPA in an area of 08 Ha by M/s Paras Power & Coal Beneficiation Limited at village Ghutku, Tehsil Takhtpur, district Bilaspur, Chhattisgarh

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

- (i) The project area is covered under Survey of India Topo Sheet No. F44/K4 and is bounded by the geographical coordinates ranging from 22° 08'9.17"N to 22° 9'2.84"N and 82° 05'21.74"E to 82° 05'31.95"E
- (ii) 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.
- (iii) The project falls under Category 'A' of Schedule 2 (a), as per the EIA Notification, 2006 & its amendment till date and will be appraised by EAC (Coal Mining), MoEFCC, New Delhi.
- (iv) 85 persons will get direct employment from the project after expansion (Existing – 60 No's and Expansion – 25 No's).
- (v) The total existing power requirement load for the coal washing plant including crushing & screening is around 1500 kVA and for expansion is 1,000 kVA and will be sourced from CSPDCL Grid. In case of power failure the existing Two DG sets of 1250 KVA can meet the requirements of important loads.
- (vi) Total existing land is 8.0 Ha. Proposed project will be done within the existing premises. No additional land will be required and company has own private railway siding at project site.
- (vii) Water supply arrangement for the project will basically cover the industrial and potable water demand. Washery will operate on closed water circuit, therefore, only make-up water is required. Requirement of water for pollution control measures will be 18 m³/hr for dust suppression, floor washing and plantation. In accordance with the technology adopted, process and other features, the

process water [make-up] requirement of the washing circuit will be 91 m³/hr. Domestic water requirement (5 m³/hr) will be met from ground water source. There is no industrial waste water is being discharge as the plant is designed on zero effluent discharge principle. Septic tanks and soak pits is provided for sewage treatment and disposal.

(viii) Earlier, the environment clearance to the project was obtained under EIA Notification, 2006 dt. 22nd November, 2018 in an area of 19.77 Acre i.e 8.0 Ha.

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

S.No.	Land Use	Area (in Ha.)
1.	Washery plants (Existing & Expansion)	2.61
2.	Raw Coal Storage Yard	0.57
3.	Coal cleaning Middling and rejects	1.52
4.	Other Facilities-Office Building, internal roads, weight bridge, water reservoir, canteen, Labourers	0.66
5.	Plantation	2.64
	Total	8.0

(x) No forest land is involved in the project area

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

(xii) Consent to Operate for the existing capacity was obtained from the Chhattisgarh Environment Conservation Board (CECB) on 04.06.2021 vide letter no. No. 870/TS/CECB/2021

23.3.3 The EAC during deliberations noted the following:

- Earlier, EC obtained for existing 2.5 MTPA Heavy Media cyclone coal washery from MoEF&CC, dt. 22nd November, 2018, The cost of the existing project is INR 24 crores and of expansion is 12 crores i.e. the total cost of the project is 36 crores
- The raw coal transported to the washery via road due to shortage of wagons
- The ROM coal from is transported by Road. Washed coal and Washery rejects will be transported to parties through Road / Rail only. Company is having own Railway siding served from Ghutku Railway Station in the existing plant and same will be utilized for proposed expansion also.
- NOC for Ground water abstraction has been obtained from CGWA and application for proposed expansion is being filed by the project proponent.
- It was found that the PP had not mentioned the all the Pillar coordinates of the project boundary in the PFR neither management of washery reject was talked about,
- The EAC after deliberations observed the instant proposal is for expansion in production capacity. It was observed that the CTO was obtained by the PP in the month of July and PP had not yet achieved the 60% production sanctioned capacity of 2.5 MTPA and had commenced the Baseline

monitoring from October to December, 2021 month. PP was advised to first achieve the 60 % of sanctioned production capacity of 2.5 MTPA for three consecutive months and then opt for baseline monitoring. EAC found that the plantation carried out by PP in existing site not seems satisfactory. EAC asked mandatorily to opt for more plantation not only within mine site also in nearby areas.

23.3.4 *The EAC recommends the proposal for Terms of Reference Expansion of Wet type coal washery project based on Heavy Media Cyclone from 2.5 MTPA to 5.0 MTPA in an area of 08 Ha by M/s Paras Power & Coal Beneficiation Limited at village Ghutku, Tehsil Takhtpur, district Bilaspur, Chhattisgarh and specific conditions as below and as defined in the Standard ToR issued by this Ministry for such projects/activities under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto*

Specific conditions

- (i) PP shall collect baseline data with achieving the 60 % of the sanctioned production capacity i.e atleast 1.5 MTPA out of 2.5 MTPA sanctioned capacity and the base line monitoring to be conducted accordingly during period and should be incorporated in EIA/ EMP report.*
- (ii) PP shall submit Certified Compliance Report of EC granted by Ministry through Ministry's respective IRO.*
- (iii) Public Consultation, including public hearing, shall be conducted through concerned SPCB as per the provisions/procedure contained in the EIA Notification, 2006 for information of the stakeholders about the present coal mining operations inviting comments and their redressal should be need/requirement based of local people.*
- (iv) PP should submit the real time aerial footage and video of the Coal Washery made through drone*
- (v) PP must furnish all the Pillar coordinates of the project boundary along and also 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.*

Monitoring

- (vi) PP shall prepare EIA-EMP with detailed land use plan for washery infrastructure and furnish details of 33 % of the green belt plantation with trees within the plant boundary and also in adjoining area. Accordingly, three Tier Green belt developments all along the boundary in with time bound action plan in EIA/EMP report*
- (vii) For proper baseline air quality assessment, Wind rose pattern in the area should be reviewed and accordingly location of AAMSQ shall be planned by the collection of air quality data by adequate monitoring stations in the downwind areas. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.*
- (viii) 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.

(ix) 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.

(x) PP should submit the complete water balance cycle need to be submitted considering only mine water usage for washery operations. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. The PP should submit the year wise target for reduction in consumption of the ground water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.

(xi) PP shall submit clarification from PCCF that mine does not falls under corridors of any National Park and Wildlife Sanctuary with certified map showing distance of nearest sanctuary.

(xii) 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

(xiii) 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

(xiv) 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.

Infrastructure and Plant management

(xv) 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.

(xvi) PP shall propose to develop two water harvesting pond of 15 days storage capacity of washery operations.

(xvii) The washing technology so chosen should conform to 'Zero Liquid Discharge'.

(xviii) PP shall submit details of implementation of laying conveyor belt for transportation of coal from washery to railway siding.

Others

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

Agenda No. 23.4

Radhikapur(East) Coal Mine of 5.0 MTPA capacity with inclusion of Coal washery of 5 MTPA

over an area of 1029.925 Ha. of M/s EMIL Mines And Mineral Resources Limited (EMMRL) located at Village Gopinathpur Jungle, Jhintipal, Jhintipal Jungle, Kosala, Nandichod, Tehsil-Chhendipada, District- Angul (Odisha). -For Terms of Reference- reg

[Online proposal No. IA/OR/CMIN/240929/2021; F No. J-11015/1073/2007-IA-II(M)]

23.4.1 The proposal is for Terms of Reference to Radhikapur(East) Coal Mine of 5.0 MTPA capacity with inclusion of Coal washery of 5 MTPA over an area of 1029.925 Ha. of M/s EMIL Mines And Mineral Resources Limited (EMMRL) located at Village Gopinathpur Jungle, Jhintipal, Jhintipal Jungle, Kosala, Nandichod, Tehsil-Chhendipada, District- Angul (Odisha)

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

- (i) The project area is covered under Survey of India Topo Sheet No 73 D/13 (R.F.1: 50,000) bounded between the coordinates: Latitudes (N) :20057'32" – 20059'35" and Longitudes (E) :84053'15" - 84055'46".
- (ii) Coal linkage of the project is proposed for commercial use after beneficiation at integrated coal washery.
- (iii) Joint venture cartel has been formed – No
- (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, employment to 1320 (178-Managerial & Supervisory Category) persons will be provided from the project.
- (vi) The project is reported to be beneficial in terms of Environmental, Social, Financial aspects.
- (vii) Earlier, the environment clearance to the project was obtained under EIA Notification, 2006-No
- (viii) The proposal is for obtaining terms of Reference for Opencast coal mine with coal washery.
- (ix) Total mining lease area as per block allotment is 1029.925 ha. Mining Plan (Including Progressive Mine Closure Plan) has been submitted for approval to the Ministry of Coal on 07.04.2008.
- (x) The land usage pattern of the project is as under

Pre Mining land Use

Village	Forest (Ha) (Revenue Forest)	Non-Forest Govt. Land (Ha)	Private Land (Ha)	Total Land (Ha)
Kosala	3.0315	23.5635	21.3375	47.9325

Nandichhod	40.9221	5.9823	102.6287	149.5331
Gopinathpur Jungle	70.9505	42.107	160.3190	273.3765
Jhintipal Jungle	67.4008	22.1995	60.7410	150.3413
Jhintipal Village	47.7850	47.3151	313.6415	408.7416
Total Area	230.0899	141.1674	658.6677	1029.9250

Land Use during Mining (Area in Ha)

Sl. No.	Purpose	Forest Land (Ha)	Non Forest Govt. land (Ha)	Private land (Ha)	Total (Ha)
1	Mining/Excavation	175.0250	38.4820	288.4930	502.00
2	Magazine with Safety Zone	1.4549	8.8580	6.6447	17.9577
3	Initial OB Dumps	0.0000	5.9800	145.02	151.00
4	Coal washery, Coal Stack Yard, Settling Pond, etc	0.0000	0.3500	27.0400	27.3900
5	Temp. labour Shed, Temp. Sites, etc	0	2.1500	17.4300	19.5800
6	Top soil Dump	4.3900	0.2300	11.3800	16.0000
7	Area set aside for future exploration	26.2891	40.0370	59.3400	125.6661
8	Green belt (Indirectly affected)	8.7600	28.5000	76.0630	113.3230
9	Subtotal(I)	215.9190	124.5870	632.4107	972.9167
10	Safety zone				
11	a) 7.5 m along the lease area	2.4700	0.5200	3.3900	6.3800
	b) 10m along the Road	0.0000	0.4400	4.0000	4.4400
	c) 50 m along the nala	11.7009	15.6200	18.8670	46.1879
	Sub Total(II)	14.1709	16.5800	26.2570	57.0079
12	Grand Total	230.0899	141.1670	658.6677	1029.9246

(xi) Total geological reserve reported in the mine lease area is 183.43 MT with 110.78MT mineable reserve for Opencast Mining. Extractable Reserve is 105.24 MT. Percent of extraction is 57.37%.

(xii) 11 seams with thickness ranging from 0.05 to 33 m are workable. Grade of coal is C to G, while gradient is 40 to 60.

(xiii) Method of mining operations envisages by Opencast method using Continuous Surface Miner Technology in Coal and Shovel Dumper Combination in OB along with drilling and blasting.

- (xiv) Life of mine is 23 years.
- (xv) The total overburden generated during initial 6-years will have to be located in surface dump over an area totaling 151 Ha. From 7th year onwards OB will partially be used for backfilling and partially kept in the temporary surface dump over the northern portion of the unexcavated quarry area up to 10th year. The concurrent backfilling with mining will be possible only after 10th year and with the advancement of mining benches. The temporary OB dump located over the northern portion of the Mine will be re-handled and accommodated over the excavated and de-coaled area. Thus reclamation of de-coaled area shall be 402.0 ha. The project has initially proposed one external Top Soil dump in an area of 16 Ha and with 6 m height and 2.52 Mm³ of Top Soil.
- (xvi) Total quarry area is 502 ha out of which backfilling will be done in 402 ha while final mine void will be created in an area of 100 ha with a depth of 200 m from the surface. Backfilled quarry of 402 ha shall be reclaimed with plantation. Final mine void will be converted into a water body.
- (xvii) Transportation of coal has been proposed by 50 T RD Dumpers to coal handling & processing plant and OB shall be transported by 100 T RD Dumpers to the designated sites. The transportation of Coal from Washery to proposed Siding at Jharpada (at a distance of 10.8 Km) shall be done by 50/20 T Dumpers.
- (xviii) Reclamation Plan in an area of 502 ha, comprising of 151 Ha external dump, 16 ha of topsoil dump, has been proposed. In addition to this, an area of 57.0079 ha, included in the safety zone/rationalization area besides plantation also been proposed for green belt development.
- (xix) Forest land of 230.0899 has been reported to be involved in the project. The necessary application for diversion of this Forest Land has been submitted and the proposal has already been presented before FAC on 26th November 2021.
- (xx) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10 km boundary of the project.
- (xxi) Wildlife Conservation Plan for Schedule I species shall be implemented.
- (xxii) The ground water level has been reported to be varying between 8 m to 10 m Total water requirement for the project is 2365 KLD for Mining and Washery.
- (xxiii) Fresh hydrogeological study & pumping test has already been completed. Application for NOC from CGWA shall be submitted by end of this month.
- (xxiv) Public hearing for the project of 5.0 MTPA Capacity in the same area of 1029.925 ha was successfully conducted after complying with the TOR conditions on 27/02/2009 at Gopinathpur Jungle Village. Major issues raised in the public hearing include Employment, Supply of drinking Water, provision of good roads, Environmental Pollution Mitigation measures, etc. Accordingly, appropriate action to address the issues raised in the Public Hearing shall be addressed in final EIA/EMP. Since the Public Hearing for this Project has been successfully completed, it is requested that exemption of Public Hearing may allowed while prescribing the TOR for this Project.
- (xxv) Consent to Operate for the shall be obtained from the Odisha State Pollution Control Board.
- (xxvi) Singhada Jhor Nala is flowing adjacent to the Northern Boundary of the lease. Nuabandha Nala exists along the western boundary of the mine lease.
- (xxvii) Regular monitoring of ambient air quality shall be carried out on fortnightly basis. The documented report shall be submitted to OSPCB and also to MoEF&CC along with half yearly EC

compliance report.

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

(xxix) The project does not involve violation of the EIA Notification, 2006 and amendment issued there under. The coal production from the mine was started (NA) from the year onwards. No excess production of coal from the sanctioned capacity has been realized since the commencement of mining operations. The coal production, realized from the project, from 1993-94 onwards: It is a new project.

(xxx) The project involves 1203 project affected families. R&R of the PAPs will be done as per LAAR, 2013.

(xxxi) Total cost of the project is Rs. 187800 lakhs. Cost of production is Rs.1450/- per tonne., CSR cost is Rs. 75 crore, R&R cost is Rs. 180 crores and will be estimated and disbursed as per the provisions LARR 2013. Environment Management Cost shall be provided in EIA/EMP as capital and as recurring cost.

(xxxii) Consent to operate (CTO) will be obtained from the Odisha State Pollution Control Board after obtaining environmental clearance.

23.4.3 The EAC during deliberations noted the following:

- Radhikapur East Coal Block (Including Utkal – F) [Presently it is named as Radhikapur (East) Coal Mine as per the allocation order] was allotted by Ministry of Coal, Govt. of India on 7th February 2006 to M/s TATA Sponge Iron Limited was to meet the coal requirement from their existing and proposed sponge iron and power plants. Ministry of Coal has cancelled all allocated coal blocks in the year 2014 following the Hon'ble Supreme Court of India order vide judgment dated 25th August, 2014 read with its order dated 24th September, 2014 and the Central Government in pursuance of the said directions has taken immediate action to implement the said order

- Essel Mining & Industries Limited (EMIL) through its wholly owned subsidiary EMIL Mines And Mineral Resources Limited (EMMRL) had participated in the auction of the Mine and emerged as a “Preferred Bidder” on 06th November 2020 at 16.75% of revenue sharing. Nominated Authority vide its letter dated 28th December 2020 had declared EMMRL as successful bidder for Radhikapur (East) Coal Mine. EMMRL has signed Coal Mine Development & Production Agreement (CMDPA) for Radhikapur (East) Coal Mine on 11th January 2021.

- The application for Forest Clearance has been submitted for diversion of 230.0899 Ha forest land for non-forest use and the proposal has been deliberated before FAC on 26th November 2021 for the grant of FC Stage –I

- The Mining Plan for Radhikapur (East) Coal Block was approved by Ministry of Coal, GOI vide letter no. Ni.13016/42/2007-CA-I dated 07.04.2008. The Nominated Authority, Ministry of Coal, Govt. of India has vested Radhikapur (East) Coal Block to M/s EMIL Mines and Minerals Resources Limited (EMMRL) vide order no. NA-104/15/2020-NA dated 03.03.2021.

- Since the public hearing is already conducted in 2009 so PP had requested to exempt public hearing for Radhikapur (East)

- PP also informed that the coal block will be connected to MCRL by railway siding but expected time to complete is around 5 to 6 years so till that the coal and washery reject will be transported by

road and 50 tonnes of trucks covered may be used.

23.4.4. *The EAC, after deliberation, found that it is a green field project and found that there is no pollution load arising from adjoining area. There is no change in area and proposed capacity for which earlier EIA/EMP and public hearing was submitted to Ministry. EAC, accordingly recommended PP to exempt the public hearing but with issue of public notice. EAC observed the provision of 7(ii) clause of EIA Notifications, 2006 and its amendments therein and Ministry's OM dated 29th August, 2017 regarding public hearing and collection of baseline. Based on this facts, EAC **recommended the** proposal for grant of Terms of Reference to Radhikapur(East) Coal Mine of 5.0 MTPA capacity with inclusion of Coal washery of 5 MTPA over an area of 1029.925 Ha. of M/s EMIL Mines and Mineral Resources Limited (EMMRL) located at Village Gopinathpur Jungle, Jhintipal, Jhintipal Jungle, Kosala, Nandichod, Tehsil-Chhendipada, District- Angul (Odisha) under the provisions of EIA Notification, 2006 and its amendments therein with specific conditions mentioned below:*

Specific condition

- (i) PP shall issue public notice in local media, newspapers (English, Hindi and local language Report through concerned SPCB in the concerned districts as per the provisions/procedure contained in the EIA Notification, 2006 for information of the stakeholders about the present coal mining operations inviting comments and their redressal.*
- (ii) PP shall prepare the Mining Plan in such a manner that condition prescribed by EAC shall intact from environment point of view. EIA-EMP shall accordingly be prepared on the suggested stipulation with point-wise compliance & in accordance with recommendations of Mining Plan*
- (iii) PP shall submit letter from PCCF that mine does not fall under corridors of any National Park and Wildlife Sanctuary and does not involve any violation of forest area and wild sanctuary with certified map showing distance of nearest sanctuary*
- (iv) Stage-I Forest Clearance for diversion for non-forestry activity shall be submitted, if applicable.*
- (v) 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.*
- (vi) PP shall prepare a Plan for implementation of Continuous Automatic Air Quality Monitoring Station (CAAQMS) at mine site or its vicinity.*
- (vii) Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.*
- (viii) PP to mention the location of washery providing its coordinates separately in EIA/EMP report and its site lay out plan. PP shall prepare EIA-EMP with detailed land use plan for washery infrastructure and furnish details of 33 % of the green belt plantation with trees within the plant boundary and also in adjoining area. Accordingly, three Tier Green belt developments all along the boundary in with time bound action plan in EIA/EMP report*
- (ix) PP to prepare water augmentation plan with its budgetary provision in respect to the water withdrawal in nearby location like Bhuvanpur colony and PP shall propose to develop two water*

harvesting pond of 15 days storage capacity of washery operations.

(x) PP should submit the complete water balance cycle need to be submitted considering only mine water usage for washery operations. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. The PP should submit the year wise target for reduction in consumption of the ground water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.

(xi) The washing technology so chosen should conform to 'Zero Liquid Discharge'.

(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.

(xiii) The utilization of washery rejects as per Ministry's notification should also be clearly defined with MoU with reject consumers (Thermal power plants).

(xiv) PP shall not propose to create overburden dump on any forest land.

Monitoring

(xv) PP has to collect additional one season data and compare with already collected (if any) and with data of earlier EIA report. Additionally, PP to carry out source apportion study of the area from reputed Institutes for calculating %age of different sources present in the area.

(xvi) PP shall conduct ecosystem services and biodiversity study of the area and detail report should be submitted.

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

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

(xix) 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

(xx) 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

(xxi) 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.

(xxii) 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.

(xxiii) 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.

(xxiv) 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.

(xxv) 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

(xxvi) PP should propose strict timeline for Inpit conveyor belt with silo loading and installation of railway siding for transportation of coal. No transportation of coal by trucks/dumpers shall be proposed in EIA/EMP.

(xxvii) PP shall submit detailed project report for implementation of railway siding for evacuation of coal with its target date of completion. Target date should be such that railway siding should be operational within 2 years of commissioning of mine operations. Forest Clearance shall be submitted if railway siding land comes under forest land.

(xxviii) 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.

(xxix) 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.

(xxx) PP shall provide provision of integrated mine plan and mine reclamation cum land form / land scape plan for both underground and open cast coal mining projects. The plan must show the predicted post mining reclaimed and reformed surface by regarding and reshaping to reduce its height as close to the original surface level and proper sloping benching and terracing of external dump should be clearly brought out in the post mine closure plan. This would also include water management strategies such as surface water catchment and drainage paths etc. of post mining land surface. The final mine void shall be reduced and brought as near as ground so that land can be restored and reclaimed

(xxxi) Details of toe wall and garland drain to be constructed along the OB dump.

(xxxii) 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.

(xxxiii) 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.

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

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

(xxxvi) 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 road for transportation of coal and washery rejects with 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. The roads laid within the washery plant should also be pucca and to be made motor able

(xxxvii) PP shall submit details of implementation of laying conveyor belt for transportation of coal from nearest mine to the washery.

(xxxviii) PP shall work on the layout and siting of washery so that coal storage area, crushing units and

Other

(xxxix) 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.

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

(xli) 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.

The meeting ended with thanks to the Chair.

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

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

(a) Statutory compliance

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

(b) Air quality monitoring and preservation

- (i) Continuous ambient air quality monitoring stations as prescribed in the statute established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM₁₀, PM_{2.5}, SO₂ and NO_x. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the State Pollution Control Board. Online ambient air quality monitoring stations may also be installed in addition to the regular monitoring stations as per the requirement and/or in consultation with the SPCB. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc to be carried out at least once in six months.
- (ii) The Ambient Air Quality monitoring in the core zone shall be carried out to

ensure the Coal Industry Standards notified vide GSR 742 (E) dated 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 all sources shall be controlled regularly. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.
- (iv) The transportation of coal shall be carried out as per the provisions and route envisaged in the approved Mining Plan or environment monitoring plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct a 'bypass' road, it should be so constructed so that the impact of sound, dust and accidents could be appropriately mitigated.
- (v) Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
- (vi) Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid 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. Environmentally 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- 20012/1/2006-1A.11 (M) dated 27th May, 2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.
- (iii) Regular monitoring of ground water level and quality shall be carried out in and

around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.

- (iv) Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
- (v) Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
- (vi) Catch and/or garland drains and siltation ponds in adequate numbers and appropriate size shall be constructed around the mine working, coal heaps & OB dumps to prevent run off of water and flow of sediments directly into the river and water bodies. Further, dump material shall be properly consolidated/compacted and accumulation of water over dumps shall be avoided by providing adequate channels for flow of silt into the drains. The drains/ ponds so constructed shall be regularly de-silted particularly before onset of monsoon and maintained properly. Sump capacity should provide adequate retention period to allow proper settling of silt material. The water so collected in the sump shall be utilised for dust suppression and green belt development and other industrial use. Dimension of the retaining wall constructed, if any, at the toe of the OB dumps within the mine to check run-off and siltation should be based on the rainfall data. The plantation of native species to be made between toe of the dump and adjacent field/habitation/water bodies.
- (vii) Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) after due treatment conforming to the specific requirement (standards).
- (viii) Industrial waste water generated from CHP, workshop and other waste water, shall be properly collected and treated so as to conform to the standards prescribed under the standards prescribed under Water Act 1974 and Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time. Adequate ETP /STP needs to be provided.
- (ix) The water pumped out from the mine, after siltation, shall be utilized for industrial purposive. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- (x) The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations, considering the

presence of river/rivulet/pond/lake etc, shall be prepared and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the approved Mining Plan/EIA/EMP report and with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved Mining Plan and as per the permission of DGMS or any other authority as prescribed by the law.

- (xi) The project proponent shall take all precautionary measures to ensure riverine/riparian ecosystem in and around the coal mine up to a distance of 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 blasting and drilling operations, operation of HEMM, etc shall be provided with personal protective equipments (PPE) like ear plugs/muffs in conformity with the prescribed norms and guidelines in this regard. Adequate awareness programme for users to be conducted. Progress in usage of such accessories to be monitored.
- (ii) Controlled blasting techniques shall be practiced in order to mitigate ground vibrations, fly rocks, noise and air blast etc., as per the guidelines prescribed by the DGMS.
- (i) The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

(e) Mining Plan

- (i) Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.
- (ii) Mining shall be carried out as per the approved mining plan (including Mine Closure Plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
- (iii) No mining shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980.
- (ii) Efforts should be made to reduce energy and fuel consumption by conservation, efficiency improvements and use of renewable energy.

(f) Land reclamation

- (i) Digital Survey of entire lease hold area/core zone using Satellite Remote

Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MOEFCC) from time to time shall be submitted to MOEFCC/Regional Office (RO).

- (ii) The final mine void depth should preferably be as per the approved Mine Closure Plan, and in case it exceeds 40 m, adequate engineering intervention shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land shall be rendered usable for agricultural/forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation of Mine Closure Plan issued by the Ministry of Coal dated 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 shall be submitted to the MOEFCC/RO.
- (iv) Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3rd November, 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, along with fly ash for external dump of overburden, backfilling of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.
- (v) Further, it may be ensured that as per the time schedule specified in mine closure plan it should remain live till the point of utilization. The top soil shall temporarily be stored at earmarked site(s) only and shall not be kept unutilized. The top soil shall be used for land reclamation and plantation purposes. Active OB dumps shall be stabilised with native grass species to prevent erosion and surface run off. The other overburden dumps shall be vegetated with native flora species. The excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change/ Regional Office.
- (vi) The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.
- (g) **Green Belt**

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

(h) Public hearing and Human health issues

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

(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 approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to

bring into focus any infringements/deviation/violation of the environmental/forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/wildlife norms/conditions and/or shareholders/stake holders.

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

(j) Miscellaneous

- (i) The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- (ii) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- (iii) The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- (iv) The project proponent shall monitor the criteria pollutants level namely; PM₁₀, SO₂, NO_x (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- (v) The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- (vi) The project proponent shall follow the mitigation measures provided in this Ministry's OM No. Z-11013/5712014-IA.II (M) dated 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 Appraisal Committee.
- (xi) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change.
- (xii) Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- (xiii) The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- (xiv) The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- (xv) The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- (xvi) The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.

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

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

I. Statutory compliance:

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

II. Air quality monitoring and preservation

- i. Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely particulates, SO₂ and NO_x. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc. to be carried out at least once in six months. Online ambient air quality monitoring station/stations may also be installed in addition to the regular air monitoring stations as per the requirement and/or in consultation with the

SPCB

- ii. The Ambient Air Quality monitoring in the core zone shall be carried out to ensure the Coal Industry Standards notified vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board. Data on ambient air quality and heavy metals such as Hg, As, Ni, Cd, Cr and other monitoring data shall be regularly reported to the Ministry/Regional Office and to the CPCB/SPCB.
- iii. Transportation of coal, to the extent permitted by road, shall be carried out by covered trucks/conveyors. Effective control measures such as regular water sprinkling/rain gun/ mist sprinkling etc., shall be carried out in critical areas prone to air pollution with higher level of particulate matter all through the coal transport roads, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled regularly. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/State Pollution Control Board.
- iv. Major approach roads shall be black topped and properly maintained.
- v. The transportation of coal shall be carried out as per the provisions and route proposed in the approved mining plan. Transportation of the coal through the existing road passing through any village shall be avoided. In case, it is proposed to construct a 'bypass' road, it should be so constructed that the impact of sound, dust and accidents could be appropriately mitigated.
- vi. Vehicular emissions shall be kept under control and regularly monitored. All the vehicles engaged in mining and allied activities shall operate only after obtaining 'PUC' certificate from the authorized pollution testing centres.
- vii. Coal stock pile/crusher/feeder and breaker material transfer points shall invariably be provided with dust suppression system. Belt-conveyors shall be fully covered to avoid airborne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
- viii. Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.

III. Water quality monitoring and preservation

- i. The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board.
- ii. The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No. J-20012/1/2006-IA.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for its compliance.

- iii. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.
- iv. Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
- v. Ground water, excluding mine water, shall not be used for mining operations. Rainwater harvesting shall be implemented for conservation and augmentation of ground water resources.
- vi. The project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the mine. The embankment constructed along the river/nallah boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side, stabilized with plantation so as to withstand the peak water pressure preventing any chance of mine inundation.
- vii. Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of silt material of the surface runoff
- viii. The water pumped out from the mine, after siltation, shall be utilized for industrial purpose, watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- ix. Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.
- x. Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- xi. The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations shall be prepared,

considering the presence of any river/rivulet/pond/lake etc., with impact of mining activities on it, and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan/ EIA-EMP submitted to this Ministry and the same should be done with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved mining plan and as per the permission of DGMS.

- xii. The project proponent shall take all precautionary measures to ensure riverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A riverian /riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.

IV. Noise and Vibration monitoring and prevention

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

V. Mining Plan

- i. Mining shall be carried out under strict adherence to provisions of the Mines Act 1952 and subordinate legislations made there-under as applicable.
- ii. No change in mining method i.e. UG to OC, calendar programme and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC).
- iii. Mining shall be carried out as per the approved mining plan (including mine closure plan) abiding by mining laws related to coal mining and the relevant circulars issued by Directorate General Mines Safety (DGMS).
- iv. Underground work place environmental conditions shall be rendered ergonomic and air breathable with adequate illumination in conformance with DGMS standards.
- v. No mining activity shall be carried out in forest land without obtaining Forestry Clearance as per Forest (Conservation) Act, 1980 and also adhering to The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 read with provisions of Indian Forest Act, 1927.
- vi. Efforts should be made to reduce energy and fuel consumption by

conservation, efficiency improvements and use of renewable energy.

VI. Land reclamation

- i. Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MOEFCC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
- ii. Post-mining land be rendered usable for agricultural/forestry purposes and shall be handed over to the respective State Government, as specified in the Guidelines for Preparation of Mine Closure Plan, issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.
- iii. Regular monitoring of subsidence movement on the surface over and around the working areas and its impact on natural drainage pattern, water bodies, vegetation, structure, roads and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence beyond the limit prescribed, appropriate effective mitigation measures shall be taken to avoid loss of life and materials. Cracks should be effectively plugged in with ballast and clay soil/suitable material.
- iv. Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 3rd November, 2009 as amended from time to time. Efforts shall be made to utilize gypsum generated from Flue Gas Desulfurization (FGD), if any, along with fly ash for external dump of overburden, backfilling 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 initial and Periodical medical examination of the workers engaged in the Project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS Circulars. Besides carrying out regular periodic health check-up of their workers, 20% of the workers engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any.
- iii. Personnel (including outsourcing employees) working in dusty areas shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- iv. Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.
- v. Effective arrangement shall be made to provide and maintain at suitable points conveniently situated, a sufficient supply of drinking water for all the persons employed.
- vi. Implementation of Action Plan on the issues raised during the Public Hearings shall be ensured. The Project Proponent shall undertake all the tasks as per the Action Plan submitted with budgetary provisions during the Public Hearing. Land oustees shall be compensated as per the norms laid out R&R Policy of the Company/ or the National R&R Policy/ R&R Policy of the State Government, as applicable
- vii. The project proponent shall follow the mitigation measures provided in this Ministry's OM No. Z-11013/5712014-IA.II (M) dated 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'.

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 approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring

into focus any infringements/deviation/violation of the environmental / forest

/ wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation/ violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.

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

X. Miscellaneous

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- v. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vi. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.

- vii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- viii. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- ix. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
- x. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xi. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xii. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xiii. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- xiv. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xv. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Standard EC Conditions for Coal Washery Project

I. Statutory compliance:

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

II. Air quality monitoring and preservation

- i. Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely particulates, SO₂ and NO_x. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive receptors in consultation with the State Pollution Control Board. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc. carried out at least once in six months.
- ii. Continuous ambient air quality monitoring stations as prescribed in the statute be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely PM₁₀, PM_{2.5}, SO₂ and NO_x. Location of the stations shall be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets in consultation with the

State Pollution Control Board. Online ambient air quality monitoring stations may also be installed in addition to the regular monitoring stations as per the requirement and/or in consultation with the SPCB. Monitoring of heavy metals such as Hg, As, Ni, Cd, Cr, etc to be carried out at least once in six months.

- iii. Transportation of coal by road shall be carried out by covered trucks/conveyors. The transportation of clean coal and rejects shall be by rail with wagon loading through silo. Effective measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of particulates such as roads, belt conveyors, loading/unloading and transfer points. Fugitive dust emissions from all sources shall be controlled at source. It shall be ensured that the ambient air quality parameters conform to the norms prescribed by the Central/State Pollution Control Board
- iv. All approach roads shall be black topped and internal roads shall be concreted. The roads shall be regularly cleaned. Coal transportation shall be carried out by covered trucks.
- v. Covered trucks shall be engaged for mineral transportation outside the washery 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 shall be created within the unit.
- vii. Vehicular emissions shall be kept under control and regularly monitored. The vehicles having 'PUC' certificate from authorized pollution testing centres shall be deployed for washery operations.
- viii. Hoppers of the coal crushing unit and other washery units shall be fitted with high efficiency bag filters/mist spray water sprinkling system shall be installed and operated effectively at all times of operation to check fugitive emissions from crushing operations, transfer points of closed belt conveyor systems and from transportation roads.
- ix. The raw coal, washed coal and coal wastes (rejects) shall be stacked properly at earmarked site (s) within stockyards fitted with wind breakers/shields. Adequate measures shall be taken to ensure that the stored mineral does not catch fire.
- x. The temporary reject sites should be appropriately planned and designed to avoid air and water pollution from such sites.

III. Water quality monitoring and preservation

- i. The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25.9.2000 and as amended from

time to time by the Central Pollution Control Board.

- ii. The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No. J-20012/1/2006-IA.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for compliance.
- iii. Industrial waste water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time.
- iv. The project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the washery. The embankment constructed along the river/nallah boundary shall be of suitable dimensions and critical patches shall be strengthened by stone pitching on the river front side stabilised with plantation so as to withstand the peak water pressure preventing any chance of inundation.
- v. Heavy metal content in raw coal and washed coal shall be analysed once in a year and records maintained thereof.
- vi. The rejects should preferably be utilized in FBC power plant or disposed off through sale for its gainful utilization. If the coal washery rejects are to be disposed off, it should be done in a safe and sustainable manner with adequate compaction and post closure arrangement to avoid water pollution due to leachate from rejects and surface run off from reject dumping sites.
- vii. An Integrated Surface Water Management Plan for the washery area up to its buffer zone considering the presence of any river/rivulet/pond/lake etc. with impact of coal washing activities on it, shall be prepared, submitted to MoEFCC and implemented.
- viii. Waste Water shall be effectively treated and recycled completely either for washery operations or maintenance of green belt around the plant.
- ix. Rainwater harvesting in the washery premises shall be implemented for conservation and augmentation of ground water resources in consultation with Central Ground Water Board.
- x. No ground water shall be used for coal washing unless otherwise permitted in writing by competent authority (CGWA) or MoEFCC. The make-up water requirement of washery should not exceed 1.5 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 monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.

- xii. Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
- xiii. The project proponent shall take all precautionary measures to ensure riverine/ riparian ecosystem in and around the coal mine up to a distance of 5 km. A riverine/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government

IV. Noise and Vibration monitoring and prevention

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

V. Coal beneficiation

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

VI. Green Belt

- i. Three tier greenbelt comprising of a mix of native species, of minimum 30 m width shall be developed all along the washery area to check fugitive dust emissions and to render aesthetic to neighbouring stakeholders. A 3-tier green belt comprising of a mix of native species or tree species with thick leaves shall be developed along vacant areas, storage yards, loading/transfer points and also along internal roads/main approach roads.
- ii. The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

VII. Public hearing and Human health issues

- i. Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & its RO on six-monthly basis.

- ii. The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended time to time.
- iii. Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- iv. Implementation of the action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.
- v. The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 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'.

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 approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stakeholders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
- iii. A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.
- iv. Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of

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

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

IX. Miscellaneous

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall monitor the criteria pollutants level namely; PM10, SO2, 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 submit the environmental statement for each financial year in form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vii. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
- viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- x. No change in coal beneficiation process and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC) with such conditions mentioned therein. No change in

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

- xii. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xiii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- xiv. The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
- xv. The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by furnishing the requisite data / information/monitoring reports.
- xvi. The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
- xvii. Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Generic ToR for coal washery

- i. Siting of washery is critical considering to its environmental impacts. Preference should be given to the site located at pit head; in case such a site is not available, the site should be as close to the pit head as possible and coal should be transported from mine to the washer preferably through closed conveyor belt to avoid air pollution.
- ii. The washery shall not be located in eco-sensitive zones areas.
- iii. The washery should have a closed system and zero discharge. The storm drainage should be treated in settling ponds before discharging into rivers/streams/water bodies.
- iv. A thick Green belt of about 50 m width should be developed surrounding the washery.
- v. A brief description of the plant along with a layout, the specific technology used and the source of coal should be provided.
- vi. The EIA-EMP Report should cover the impacts and management plan for the project of the capacity for which EC is sought and the impacts of specific activities, including the technology used and coal used, on the environment of the area (within 10km radius), and the environmental quality of air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts for the rated capacity. Cumulative impacts for air and water should be a part of EIA in case coal mine, TPP and other washeries are located within 10km radius. The EIA should also include mitigative measures needed to minimize adverse environmental impacts.
- vii. A Study Area Map of the core zone as well as the 10km area of buffer zone showing major industries/mines and other polluting sources should be submitted. These maps shall also indicate the migratory corridors of fauna, if any and areas of endangered fauna; plants of medicinal and economic importance; any ecologically sensitive areas within the 10 km buffer zone; the shortest distance from the National Park/WL Sanctuary Tiger Reserve, etc. along with the comments of the Chief Wildlife Warden of the State Govt.
- viii. Data of one-season (non-monsoon) primary- base-line data on environmental quality of air (PM10, PM2.5, 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/or ground water, the same may be justified besides obtaining approval of the

Competent Authority for its drawl.

- xi. The entire sequence of mineral production, transportation, handling, transfer and storage of mineral and waste, if any, and their impacts on air quality should be shown in a flow chart with specific points where fugitive emissions can arise and specific pollution control/mitigative measures proposed to be put in place. The washed coal and rejects should be transported 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 conveyor belt. If transport by rail is not feasible because of the topography of the area, the option for transport by road should be examined in detail and its impacts along with the mitigation measures should be clearly brought out in EIA/EMP report.
- xii. Details of various facilities proposed to be provided in terms of parking, rest areas, canteen etc. to the personnel involved in mineral transportation, workshop and effluents/pollution load from these activities should be provided.
- xiii. Impacts of CHP, if any, on air and water quality should also be spelt out along with Action Plan.
- xiv. O.M.no.J-II0I3/25/2014-IA.I dated 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 should be submitted in tabular form. If the Public Hearing is in the regional language, an authenticated English translation of the same should be provided. Status of any litigations/ court cases filed/pending, if any, against the project should be mentioned in EIA.
- xvi. Analysis of samples indicating the following should be submitted:
 - Characteristics of coal prior to washing (this includes grade of coal, other characteristics of ash, S and heavy levels of metals such as Hg, As, Pb, Cr etc).
 - Characteristics and quantum of coal after washing.
 - Characteristics and quantum of coal rejects.
- xvii. Details of management/disposal/use of coal rejects should be provided. The rejects should be used in TPP located close to the washery as far as possible. If TPP is within a reasonable distance (10 km), transportation should be by conveyor belt. If it is far away, the transportation should be by rail as far as possible.
- xviii. Copies of MOU/Agreement with linkages (for stand-alone washery) for the capacity for which EC is being sought should be submitted.
- xix. Corporate Environment Responsibility:
 - a) The Company must have a well laid down Environment Policy approved

by the Board of Directors.

- b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
- c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
- d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
- xx. A detailed action Plan for Corporate Social Responsibility for the project affected people and people living in and around the project area should be provided.
- xxi. Permission of drawl of water shall be pre-requisite for consideration of EC.
- xxii. Wastewater /effluent should confirm to the effluent standards as prescribed under Environment (Protection) Act, 1986
- xxiii. Details of washed coal, middling and rejects along with the MoU with the end-users should be submitted.

ANNEXURE-V

GENERIC TOR FOR AN OPENCAST COALMINE PROJECT for EC

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

undisturbed along with any natural drainage adjoining the lease /project areas, and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-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 ofacquisition 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-seasonmet 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 thelocation of various sampling stations superimposed with location of habitats,

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

- (xvi) Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.
- (xvii) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.
- (xviii) Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.
- (xix) Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (xx) Detailed water balance should be provided. The break-up of water requirement for the various mine operations should be given separately.
- (xxi) Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users in the upstream and downstream of the project site. should be given.

- (xxii) Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
- (xxiii) Impact of blasting, noise and vibrations should be given.
- (xxiv) Impacts of mining on the AAQ and predictions based on modeling using the ISCST-3 (Revised) or latest model should be provided.
- (xxv) Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
- (xxvi) Effort be made to reduce/eliminate road transport of coal inside and outside mine and for mechanized loading of coal through CHP/ Silo into wagons and trucks/tippers.
- (xxvii) Details of waste OB and topsoil generated as per the approved calendar programme, and their management shown in figures as well explanatory notes tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use should be given. OB dump heights and terracing based on slope stability studies with a max of 28° angle as the ultimate slope should be given. Sections of final dumps (both longitudinal and cross section) with relation to the adjacent area should be shown.
- (xxviii) Efforts be made for 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 in text, figures and in the tabular form as per the format of MOEFCC given below) and selection of species (native) based on original survey/land-use should be given.

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

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

* As a representative example

Table 2 : Stage Wise Cumulative Plantation

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

* As a representative example

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

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

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

- (xxxix) 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.
- (xxxix) 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.
- (xxxix) Risk Assessment and Disaster Preparedness and Management Plan should be provided.
- (xxxix) Integration of the Env. Management Plan with measures for minimizing useof natural resources - water, land, energy, etc. should be carried out.
- (xxxix) Cost of EMP (capital and recurring) should be included in the project costand for progressive and final mine closure plan.
- (xxxix) 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 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 implementationof the R&R Plan should be given.
- (xxxix) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.

(xxxix) Corporate Environment Responsibility:

- a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
- b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
- c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
- d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

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

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

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

(xlili) 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 FOREST LAND (ha)	Date of FC	Extent of forestland	Balance area for which FC is yet to be obtained	Status of appl for. diversion of forest land
		If more than, provide details of each FC			

FOR AN UNDERGROUND COAL MINE PROJECT

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

embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc should be indicated.

- (vii) Original land use (agricultural land/forestland/grazing land/wasteland/waterbodies) 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 andacquired 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 faunaduly 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 approvedMining 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 planapproval 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 through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (xii) One-season (other than monsoon) primary baseline data on environmental quality - air (PM₁₀, 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-season met data coinciding with the same season for AAQ collection period should be provided.
- (xiii) Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.
- (xiv) Impact of mining and water abstraction from the mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term monitoring measures should be provided. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
- (xv) Study on subsidence including modeling for prediction, mitigation/prevention of subsidence, continuous monitoring measures, and safety issues should be carried out.
- (xvi) Detailed water balance should be provided. The breakup of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
- (xvii) Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, coal handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
- (xviii) Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
- (xix) Effort be made to reduce/eliminate road transport of coal inside and outside mine and for mechanized loading of coal through CHP/ Silo into wagons and trucks/tippers.
- (xx) Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
- (xxi) The number and efficiency of mobile/static water sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the

- frequency of their use in impacting air quality should be provided.
- (xxii) Impacts of CHP, if any on air and water quality should be given. A flow chart showing water balance along with the details of zero discharge should be provided.
 - (xxiii) Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
 - (xxiv) Greenbelt development should be undertaken particularly around the transport route and CHP. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine should be submitted.
 - (xxv) Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
 - (xxvi) Details of R&R. Detailed project specific R&R Plan with data on the existing socio- economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.
 - (xxvii) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
 - (xxviii) Corporate Environment Responsibility:
 - a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
 - b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
 - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
 - d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
 - (xxix) Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
 - (xxx) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.
 - (xxxi) Status of any litigations/ court cases filed/pending on the project should be provided.
 - (xxxii) Submission of sample test analysis of Characteristics of coal: This should include details on grade of coal and other characteristics such as ash content, S and heavy metals including levels of Hg, As, Pb, Cr etc.
 - (xxxiii) Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer

plan approval. NOC from Flood and Irrigation Dept.(if req.), etc. wherever applicable.

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

Total ML /Project Area (ha)	Total Forest Land (ha)	Date of FC	Extent of Forest Land	Balance are a for which FC is yet to be obtained	Status of appl. For diversion of forest land
		If more than one provide details of each FC			

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

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

List of Participants of EAC (Coal) in 23rd meeting held on 6th December, 2021 through Video Conferencing

1.	Shri G.P Kundargi			DAY
		-	Chairman	P
2.	Dr. N. P. Shukla	-	Member	P
3.	Shri Suramya Dolarray Vora, IFS (Retd)	-	Member	P
4.	Dr. Umesh Jagannathrao Kahalekar	-	Member	P
5.	Shri K.B. Biswas	-	Member	P
6.	Dr. Nandini.N	-	Member	P
7.	Dr. Unmesh Patnaik	-	Member	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	A
11.	Dr. Santosh Kumar Hampannavar	-	Member	P
12.	Prof R.K. Giri Representative of IMD	-	Member	P
13.	Dr. Nazimuddin Representative of Central Pollution Control Board	-	Member	A
14.	Shri Lalit Bokolia, Director, MoEFCC	-	Member Secretary	P