

MINUTES OF 49th MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENT APPRAISAL OF COAL MINING PROJECTS HELD ON 29th AUGUST 2023 THROUGH VIDEO CONFERENCE.

Confirmation of the Minutes of 47th Meeting of the EAC (Coal): The minutes of the 47th Meeting of the EAC (Coal) held during 21 to 22nd July 2023 has been 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 49th meeting of the Expert Appraisal Committee (EAC) for coal mining projects was held on 29th August 2023 through Video Conferencing. The EAC considered proposals as per agenda adopted for the meeting incorporated for discussion with chair. List of participant attended the meeting is annexed. The details of deliberations held & decisions taken in the meeting are as under.

AgendaNo. 49.1

Expansion of Baroud Opencast Mine for production capacity from 3.6 MTPA to 4.32 MTPA (i.e. increase of 20%) with mine lease area of 1111.40 ha of M/s SECL located at Village Baroud, Tehsil Gharghora, District Raigarh (Chhattisgarh) –For Environmental Clearance under OM vide F. No. IA3-22/10/2022-IA.III [E 177258] dated 11.04.2022 - reg.

[Online proposal number IA/CG/CMIN/274062/2022; File no. J-11015/228/2007-IA. II.(M)]

49.1.1 The proposal is for Environmental Clearance for Baroud Opencast Mine for production capacity from 3.6 MTPA to 4.32 MTPA (i.e. increase of 20%) with mine lease area of 1111.40 ha of M/s SECL located at Village Baroud, Tehsil Gharghora, District Raigarh (Chhattisgarh).

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

- (i) The project area is covered under Survey of India Topo Sheet No. 64 N/7 and is bounded by the geographical coordinates ranging from 22°15'14" and 22°17'39" N and longitudes 83°19'22" and 83°21'47" E
- (ii) Coal linkage: Thermal Power Stations
- (iii) Joint venture: No Joint Venture
- (iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance.
- (v) Employment generation/To be generated: 281
- (vi) Benefits of the Project: The project activities will directly or indirectly improve physical infrastructure (like road and rail network, bridges, telecommunication), social infrastructure (like educational facilities, medical facilities, women and child welfare facilities, water supply

and sanitary facilities, banking facilities, training and skill development facilities, employment opportunities), Central and state Exchequer, helps Nation in Energy self-sufficiency, Green cover and Water reserves.

- (vii) Earlier, the Environment Clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter No J-11015/228/2007-IA-II(M) dated 20.05.2009 for 3.5 MTPA in mine lease area of 1111.40 ha.
- (viii) Term of Reference granted: NA application is made under clause 7(ii) of EIA notification OM vide F.No. IA3-22/10/2022-IA.III dt: 07.05.2022 – Availing total 50% relaxation of OM dealing with exemption of public hearing.
- (ix) Total mining lease area as per block allotment is 1111.40 ha. Mining Plan (Including Progressive Mine Closure Plan) has been approved by the CIL Board on 20.05.2022

II. LAND USE DETAILS OF THE MINE

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

Pre-mining land use details (Area in Ha)

S.N.	LAND USE	Within ML Area (Ha.)	Outside ML Area (Ha.)	Total
1	Agricultural Land	567.553	0	567.553
2	Forest Land	381.273	0	381.273
3	Waste Land	0	0	0
4	Grazing Land	2.289	0	2.289
5	Surface Water Bodies	3.626	0	3.626
6	Settlements	32.412	0	32.412
7	Others	124.247	0	124.247
Total		1111.40	0	1111.40

Post-Mining land use details (Area in Ha)

Land Use	Plantation	Water Body	Public Use	Total
Excavation		111.65	0	111.65
Top soil storage	1.25	0	0	1.25
Ext OB Dump	38.7	0	0	38.7
Internal OB Dump	770	0	0	770
Roads		0	11.61	11.61
Built up Area (colony/office)	12.81	0	2.5	15.31
Green Belt-avenue plantation	10	0	0	10
Virgin Area	0	0	0	0
Other (Safety Zone as Green belt, ETP, Mineral Storage R&R)	151.99	0	0.89	152.88
TOTAL	984.75	111.65	15	1111.4

(xi) Total geological reserve reported in the mine lease area is 108.02 MT with 108.02 MT mineable

reserve. Out of total mineable reserve of 108.02 MT, 108.02 MT are available for extraction. Percent of extraction is 100%.

- (xii) 09 seams with thickness ranging from 5.78 m to 9.88 m are workable. Grade of coal is G-12, stripping ratio 3.93 cum/tonne, while gradient is 1 in 3
- (xiii) Method of mining would be Opencast method (Coal- Surface miner and dumper; OB-Shovel and dumper combination)
- (xiv) Life of mine is 21 years.
- (xv) The project has one external OB dumps in an area of 38.70 ha with 60 m height and 9.5 Mcum of OB two internal OB in an area of 770 ha with 544.16 Mcum of OB is envisaged in the project.
- (xvi) Total quarry area is 881.65 ha out of which backfilling will be done in 770 ha while final mine void will be created in an area of 111.65 ha with a depth of 60 m. Backfilled quarry area of 770 ha shall be reclaimed with plantation. Final mine void will be converted water body

III. TRANSPORTATION OF COAL

- (xvii) Transportation of coal has been proposed by In-pit coal loaded into trucks by loader for transport to surface, from surface to siding by trucks and at sidings by rail and to local customers by trucks.
- (xviii) Total afforestation Plan in an area of 984.75 Ha, comprising of 38.70 ha of external dump, 770 ha of internal dump and 10 ha of avenue plantation. In addition to this, an area 151.74 of ha, included in the safety zone, has also been proposed for green belt development & 14.31 Ha others.
- (xix) 381.273 Ha of forest land has been reported to be involved in the project. Stage-II FC obtained for 19.001 Ha vide F. No 8C/21/2003-FCW/577 Dt: 02.04.2004 & Stage -II FC obtained for 123.899 Ha vide F. No 8-102/2005-FC Dt: 13.12.2006. Stage -I FC of Forest land of 238.373 Ha obtained vide letter No. 8-35/2019-FC dt 12.05.2023
- (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 has been submitted to PCCF Wildlife, Raipur and approved on dt 12.07.2023
- (xxii) The ground water level has been reported to be varying between 3.2 m to 11.3 m during pre-monsoon and between 1.15 m to 5.5 m during post-monsoon. Total water requirement for the project is 1248 m³/day
- (xxiii) Application for obtaining the approval of the Central Ground Water Authority for dewatering ground water has been submitted on 16.11.2022. EAC held on 05.07.2023 and the proposal has been approved by EAC on dated 07.07.2023 through mail NOC yet to be issued.

IV. DETAILS OF PUBLIC HEARING & RELATED ISSUES

- (xxiv) Public hearing for the project of Baroud OC 3.5 MTPA (Peak capacity) in an area of 1111.40 ha was conducted on 11.04.2008 at Gram Panchayat Bhawan, Baroud Tehsil- Gharghoda, Dist. Raigarh (C.G.) under the Chairmanship of Additional Collector Raigarh. Major issues raised in the public hearing include compensation, RR, Environment, employment. Appropriate action to

address the issues raised in the Public Hearing have already been taken.

- (xxv) Hearing have already been taken.
- (xxvi) Consent to Operate for the existing capacity was obtained from the State PCB on dt 18.08.2022 and is valid till 25.09.2025.
- (xxvii) Kurket river flowing adjacent to western boundary of lease. River/ nallah will not be diverted.
- (xxviii) Regular monitoring of ambient air quality is being carried out on fortnightly basis. The documented report is submitted to SPCB and also to MoEF&CC along with half yearly EC compliance report. In general, the results of ambient air quality monitoring data were found within prescribed limits except few aberrations which can be attributed to the specific local conditions during the day of sampling.
- (xxix) Pending legal litigations: -
Case No. 996/2021 – pending at High Court of Chhattisgarh Bilaspur
Kshetriya Adhikari v/s M/s Baroud Opencast Coal Mine
- (xxx) The project does not involves violation of the EIA Notification, 2006 and amendment issued thereunder. The coal production from the mine was started from the year 1994 onwards. Details of production of coal with sanctioned capacity since the commencement of mining operations is detailed blow

V. BENEFITS OF THE PROJECT

- (xxxii) The project involves 398 project affected families. The PAF's and PAP's are being rehabilitated and paid economic compensation/ employed as per State Govt. R&R package and Coal India rule.
- (xxxiii) Total cost of the project is Rs. 258.56 crores. Cost of production is Rs.386.21/- per tonne. at 85% production level, CSR cost is 2% of the average net profit of the company for the three immediate preceding financial years or Rs. 2.00 per tonne of coal production of previous year whichever is higher, R&R cost is Rs. 1486 lakhs. Environment Management Cost is Rs. 4731.51 lakhs (Capital cost) & Total Revenue nature cost per annum is Rs. 38.20 lakhs
- (xxxiiii) Consent to operate (CTO) was obtained from the State Pollution Control Board on 18.08.2022 and is valid till 25.09.2025
- (xxxiv) Past Production details comparison with existing EC

Year	EC capacity (MTPA)	Actual production (Million Tonnes)
2009-10	3.5	1.1300
2010-11	3.5	1.4361
2011-12	3.5	3.3404
2012-13	3.5	2.8527
2013-14	3.5	3.5000
2014-15	3.5	3.5000
2015-16	3.5	3.5000
2016-17	3.5	3.5000

2017-18	3.5	3.4378
2018-19	3.5	1.3942
2019-20	3.5	2.7002
2020-21	3.5	3.4547
2021-22	3.5	2.5153
2022-23	3.5	3.5000

VI. CONTROL OF POLLUTION: (A) AIR & (B) WATER

- (xxxvi) Environmental Baseline data was generated in the post monsoon season from October to December 2022 at 09 locations. The result indicates that the maximum and minimum values are 67.70 to 83.60 $\mu\text{g}/\text{m}^3$ for PM10, 37.20 to 49.10 $\mu\text{g}/\text{m}^3$ for PM2.5. The SO₂ concentrations are in the range of 18.3 to 30.5 $\mu\text{g}/\text{m}^3$ and NO_x in the range of 18.9 to 29.70 $\mu\text{g}/\text{m}^3$. The incremental increase is projected to be 12.2 $\mu\text{g}/\text{m}^3$ for PM10, 3.65 $\mu\text{g}/\text{m}^3$ for PM2.5, 4.21 $\mu\text{g}/\text{m}^3$ for SO₂, and 13.52 $\mu\text{g}/\text{m}^3$ for NO_x. The value of total GLC is estimated to be 95.80 $\mu\text{g}/\text{m}^3$ for PM10, 52.75 $\mu\text{g}/\text{m}^3$ for PM2.5, 34.71 $\mu\text{g}/\text{m}^3$ for SO₂, and 43.22 $\mu\text{g}/\text{m}^3$ for NO_x. The observed pollutant levels are compared with CPCB National Ambient Air Quality Standards.
- (xxxvii) Surface water Monitoring was done at 04 locations. The result indicates that the pH value in the range of 7.12 and 7.58, and its turbidity value is <0.1 NTU, dissolved oxygen in the range of 6.5 to 7.2 mg/l, dissolved solids ranged 112 to 401 mg/l, total hardness in range of 56 to 178 mg/l. Surface water samples have Coliforms ranges between 23 to 69 MPN/100 ml and contaminated due to surface runoff entering these sources.

49.1.3 The Committee during deliberations noted the followings:

- i. PP had obtained EC vide Ministry's letter No. J-11015/228/2007-IA-II(M) dated 20.05.2009 for 3.5 MTPA in ML area of 1111.40 ha.
- ii. Life of mine is 21 years.
- iii. Transportation of coal has been proposed by trucks through loader for transport to surface, from surface to siding by trucks and at sidings by rail and to local customers by trucks.
- iv. 381.273 Ha of forest land has been reported to be involved in the project. Stage-II FC obtained for 19.001 Ha vide F. No 8C/21/2003-FCW/577 Dt: 02.04.2004 & Stage -II FC obtained for 123.899 Ha vide F. No 8-102/2005-FC Dt: 13.12.2006. Further Stage -I FC of Forest land of 238.373 Ha obtained vide letter No. 8-35/2019-FC dt 12.05.2023.
- v. No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10 km boundary of the project.
- vi. Wildlife conservation plan for schedule – I species has been submitted to PCCF Wildlife, Raipur and approved on dated 12.07.2023
- vii. Application for obtaining the approval of the Central Ground Water Authority for dewatering ground water has been submitted on 16.11.2022. NOC yet to be issued.
- viii. Public hearing was conducted on 11.04.2008 for capacity of 3.5 MTPA under the Chairmanship of Additional Collector Raigarh.
- ix. Consent to Operate for the existing capacity was obtained from the State PCB vide dated

18.08.2022 and is valid till 25.09.2025.

- x. Kurket river flowing adjacent to western boundary of lease. River/ nallah will not be diverted.
- xi. Case No. 996/2021 – pending at High Court of Chhattisgarh Bilaspur- Instant matter was dismissed by the Hon'ble High court of Chhattisgarh Bilaspur on 21st April 2023.
- xii. PP has submitted the compliance of MoEF&CC vide OM Dated 11.04.2023 w.r.t. Baroud OC:

S. No	OM Condition	Brief summary of Compliance
i	The project should have gone through the public hearing process, at least once, for its existing EC capacity on which expansion is being sought, except those category of projects which have been exempted as per para 7 III (i) of EIA Notification 2006 and its amendments.	The existing EC capacity is 3.5 MTPA within a project area of 1111.4 Ha on which expansion is being sought. PH was conducted on 11.04.2008 for this capacity and project area. <u>ATR</u> on issues raised during PH has been submitted through email on 28.08.2023.
ii	There should not be change in Category of the project from 'B2' to BV or 'A' due to proposed modernization or expansion.	This project is of Category 'A' and it is not changing.
iii	There is no additional land acquisition or forest land diversion involved for the proposed expansion or there is no increase in lease area with regard to mining vis-a-vis the area mentioned in the EC, based on which public hearing has been held earlier.	The area mentioned in the EC, based on which public hearing has been held earlier is not changing.
iv	The proposed expansion shall not be more than 50% of production capacity as mentioned in the prior EC, issued on the basis of public hearing held and the same shall be allowed in minimum three phases.	This proposal is for first 20% expansion i.e. 3.5 MTPA to 4.2 MTPA (Phase I of 50% as per OM dt: 11.04.2022).
v	Predicted environmental quality parameters arising out of proposed expansion/modernization shall be within the prescribed norms and the same shall be maintained as per prescribed norms.	The predicted concentration levels of PM ₁₀ PM _{2.5} , SO ₂ and NO _x are within the limits as prescribed in GSR 742 (E) dated 25.09.2000 by MoEF&CC and NAAQS, 2009.
vi	The proposed expansion should not result in reduction in the greenbelt area as stipulated in the earlier EC, or if the existing ratio of greenbelt is more than 33%, after expansion it should not reduce below 33%.	The proposed expansion is not reducing the greenbelt area as stipulated in the earlier EC.

S. No	OM Condition	Brief summary of Compliance
vii	The project proponent should have satisfactorily complied the conditions stipulated in the existing EC(s) and satisfactorily fulfilled all the commitments made during the earlier public hearing/ consultation proceedings and also the commitments given while granting previous expansion, as may be applicable. This shall be duly recorded in the certified compliance report issued by the IRO/CPCB/ SPCB, which should not be more than one year old at the time of submission of application.	The Certified Compliance Status <u>Report</u> vide F.No.3-50/2009(Env) Dt 19.06.2023 is satisfactory and ATR with suitable budgetary provisions for Partially complied conditions has been submitted through email on 28.08.2023. The commitments made during the earlier public hearing are addressed duly and <u>ATR</u> along with budgetary provisions for the same has been submitted through email on 28.08.2023.
viii	Public Consultation shall be undertaken [if applicable as per table below] by obtaining response in writing, as per para 7 III (ii) (b) of EIA Notification 2006, except those category of projects which have been exempted as per para 7 III (i) of EIA Notification 2006 and its amendments.	Not applicable for this proposal.
ix	Effluent monitoring including air quality monitoring systems as specified in the existing EC, if stipulated, should have been installed.	Such conditions are not stipulated in the earlier EC. However, routine environmental monitoring at 8 location is being done regularly through CMPDIL an NABL accredited organization. Further, one no. of continuous ambient air quality monitoring system (CAAQMS) has been procured and installation & commissioning is in final stage.

49.1.4 *The Committee noted that the instant proposal is for increase in production capacity from 3.6 to 4.32 MTPA (i.e. 20% Stage I) as expansion of EC under OM vide dated 11.04.2022. The PP has complied conditions of OM dated 11.04.2023 w.r.t. the Baroud ML area. The instant CTO valid upto 2025.*

During the discussions, committee noted that works of mechanized system is in advance stages of progress, at the same time committee expressed displeasure for non-completion of important EC conditions. The Committee asked the PP to assure the completion of the in-pit belt conveyor along with Silo loading system by November 2023. Subsequently, completion of ETP before March 2024 & installation of CAAQMS within a Month.

In the meanwhile, IA-Monitoring Division had issued the show cause notice to this project on 31.08.2023 under section 5 of EPA Act, 1986. The show cause was issued on the ground for not obtaining CGWA clearance, improper greenbelt & dump stabilisation, road transportation of coal in place of rail, absence of garland drains, Non-implementation of wildlife conservation plan etc.

Above stated non-compliances of existing EC have already been discussed in the EAC meeting held on 29.08.2023 wherein PP was directed to submit the action plan of pending works in time bound manner, an updated report to be submitted to the Ministry before October 2023.

In view of the above committee asked the PP to submit the reply for following Observations:-

- (i) PP should submit the updated report on all the pending work before October 2023 and submit the time bound action plan for compliances of existing EC.*
- (ii) PP should submit an undertaking w.r.t. completing the pending work on time.*
- (iii) PP shall complete the compliance as per the OM dated 11.04.2022 w.r.t expansion under 7 (ii)
(a) Stage I (20%) for the instant coal mine.*

*In view of the above the project has been **deferred** for the submission of the information.*

Agenda No. 49.2

Kuraloi-A North Coal Block Opencast Coal mine with Production Capacity of 8.0 MTPA in the project area of 965.58 Ha of M/s Vedanta Limited located at Villages Pipilimal, Dhauramunda, Kuraloi, Belpahar, Banjari, Bartap, Tehsil Lakhanpur, District Jharsuguda (Odisha) - For Environmental Clearances - reg. [Online proposal no. IA/OR/CMIN/440576/2023; File No. J-11015/34/2022-IA-II(M)]

49.2.1 The proposal is for Environmental Clearance for Kuraloi-A North Coal Block Opencast Coal mine with Production Capacity of 8.0MTPA in the project area of 965.58 Ha of M/s Vedanta Limited located at Villages Pipilimal, Dhauramunda, Kuraloi, Belpahar, Banjari, Bartap, Tehsil Lakhanpur, District Jharsuguda (Odisha).

49.2.2 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. LOCATION OF PROJECT

- i. The project area is covered under Survey of India Topo Sheet No. Core zone: (F44R13); Buffer zone: (F44R9), (F44R10), (F44R13) & (F44R14) and is bounded by the geographical coordinates ranging from latitude 21°47'58" N to 21°50'21" N and longitude 83°48'14" E to 83°50'41" E.
- ii. Coal from this project will be used for the purpose of sale of coal, including sale to affiliates and related parties, utilization of coal for any purpose including but not limited to captive use (Power Plant located at Vedanta Aluminum Ltd. Jharsuguda), Coal Gasification, Coal Liquefaction and Export of coal.
- iii. As per the Vesting Order, Kuraloi-A North Coal block is allotted for Sale of coal, including sale to affiliates & related parties, utilization of coal for any purpose including but not limited to captive consumption, coal gasification coal liquefaction and export of coal. Based on the

economics, the Coal will be commercially sold at pit head, coal gasification, coal liquefaction or shall be used in the Vedanta plant which is located at a distance of about 25 Km from the mine.

- iv. Company is incorporated as Public Limited Company under Company's Act and no Joint venture cartel is formed.
- v. Ib Valley Critically Polluted Area (CPA) falls within study area of the project as per MoEF&CC, OM dated 13.01.2010. The Critically Polluted Area of Ib Valley-Jharsuguda spreads over an area of about 580 Km² which falls partly in Sambalpur district and partly in Jharsuguda district. Rengali (partly) Block of Sambalpur district and Jharsuguda including Brajarajnagar NAC and Lakhanpur Block of Jharsuguda districts either partly or fully falls within this area. Estimated population living with the Critically Polluted Area of Ib Valley - Jharsuguda is about 218000, based on 2011 census. The Action Plan for abatement of environmental pollution in CPA of Ib Valley-Jharsuguda was prepared based on the background information, monitoring reports, findings of REMP and factoring into the public concerns on local environmental issues voiced through the local newspapers and through the public hearings conducted by SPCB for the proposed project in this area.
- vi. It is proposed to operate the Kuraloi-A North Coal Block by opencast method of mining for which there is a potential direct & Indirect employment opportunity in this project. Total 1235 persons will be employed (directly and indirectly)
- vii. Socio-economic conditions of the nearby people will improve due to generation of direct-indirect employment besides opportunities/means as source of income. Infrastructure facilities i.e. Communication, transport etc will be improved. The mine shall be contributing to the State & Central Govt. exchequer by way of mining revenue (Premium/Revenue sharing Royalty, DMF, NMET etc.)
- viii. This is a Greenfield Coal Mining Project and obtaining EC is under process.
- ix. This proposal is for EC. ToR Letter was issued by MoEF&CC, New Delhi on 25.10.2022 and Application for EC was submitted on 18.08.2023.
- x. This is an Auction Block, Total Area: 965.58 ha (Private land: 502.90 ha, Govt. land: 249.31 ha, Forest land: 213.37 ha). Mining Plan and Mine Closure Plan has been approved by Ministry of Coal vide letter no. Kuraloi (A) North Coal Mine ORJH/APP0080/2021, dated 05.08.2022.

II. LAND USE DETAILS OF MINE

- xi. The land usage pattern of the project is as follows:

a. Pre-Mining Land use details (Area: In Ha)

S. No.	Particular	Pvt. Land	Govt. Land	Forest Land	Total Land
1.	Agricultural Land	225.60	47.85	-	273.45
2.	Tenancy	264.29	-	-	264.29
3.	Water bodies	5.79	9.75	-	15.54
4.	Road	7.11	37.05	-	44.16
5.	Community /Other use	0.12	0.44	-	0.56
6.	Gochar	-	9.17	-	9.17

7.	Other Govt.	-	145.04	-	145.04
8.	Forest	-	-	213.37	213.37
Total		502.91	249.3	213.37	965.58

b. Post Mining Land use details: (Area: In Ha)

S. No.	Particular	Agriculture	Plantation	Water Body	Public Use	Forest Land (Returned)	Undisturbed	Total
	Total Excavation	-	-	-	-	-	-	635.50
	A. Backfilled Area	20	329.81	-	-	100	-	449.81
	B. Excavated Void	-	168.69	17.0	-	-	-	185.69
	Diversion or Below River or Nala or Canal	-	-	24.58	-	-	-	24.58
	Settling Pond	-	1.28	-	-	-	-	1.28
	Road & Infrastructure	-	28.87	-	12.10	-	-	40.97
	Rationalization Area	-	-	-	120.32	-	-	120.32
	Garland Drains	-	7.50	-	-	-	-	7.50
	Greenbelt	-	17.62	-	-	-	-	17.62
	Undisturbed or Mining Right for UG	-	-	-	-	-	117.81	117.81
Total		20	553.77	41.58	132.42	100	117.81	965.58

Source: Derived from Approved Mining Plan with Mine Closure Plan

- xii. Coal mine spreads over an area of 965.58 ha. As per the initial exploration carried out, total net geological reserves and resources are estimated - 1680.22. million tonnes, out of which total mineable reserves are 148.29 million tonnes and extractable reserves 145.32 million tonnes by opencast method upto a depth of 220m. Percent of extraction/recovery is 8.65%. Further, exploration shall be carried out within 2 years of opening the mine and feasibility study shall be carried out for extraction of balance resources by Underground Mining method/ alternative technology, as per approved Mining Plan.

- xiii. The mine will be worked by opencast mining method. There are total 18 no. of working coal seams upto the depth of 220m (Seam Raniganj 2, Raniganj 1, Local 15, Local 14, Belpahar Top Top, Belpahar Top Bot, Belpahar Top Comb, Belpahar Bot, Local 13, Local 12, Local 11, Local 10, Local 9, Parkhani Top Top, Parkhani Top Bot, Parkhani Top Comb, Parkhani Bot and Local 07) with maximum thickness 8.20 m in Belpahar Bot Seam. Grade of coal is G-13, G-14, G-15, G-16 and G-17. Average stripping ratio of Coal to OB is 1:4.79 (Tonnes: CuM).
- xiv. Mining operations will be carried out by adopting opencast mining method with use of surface miner in extraction of Coal and shovel & dumper for OB removal along with drilling, blasting, crushing, loading, unloading, transportation combination.
- xv. Life of Mine is 23 years with 2 years of construction period with targeted production capacity of 8.0 Million TPA.
- xvi. There will be no internal & external dump. Initially waste will be managed in two temporary external dumps, which are planned to be rehandled into the excavated pits. There will be no external dumps left at the end of the mine life.
- xvii. Total quarry area 635.50 ha will be excavated out of which 449.81 ha will be backfilled (rehabilitated by plantation/regrassing), out of 449.81 ha of backfilled area, (Agriculture: 20ha, Plantation: 329.81ha & of Forest Land to be returned: 100ha). Total excavated void area is 185.69 ha out of which 168.69 ha will be covered under plantation & 17 ha would be converted into water body.

III. TRANSPORTATION OF COAL

- xviii. Coal movement within pit will be done by dumpers. Initially, coal will be transported by road for 02 years. Later on, coal is proposed to be transported via rail after commissioning of railway siding and railway siding will be commissioned within 02 years from the start of the mining operation.

Note: Railway siding will be located within the Mining Lease area along the western Boundary within the ML area. The proposal for construction of Railway siding has already been initiated and DPR is under final approval stage with Railways. It has been proposed to carry out the construction of railway siding work as soon as the land will be acquired for the project, so that coal produced from the mine can be transported through Rail. In the meantime, if due to any unknown reason, Construction of siding work gets delayed and mine operation commences, in that case the transportation shall be carried through Road till the Railway siding work is completed.

- xix. Total area is 965.58 ha out of which 635.50 ha will be excavated wherein 449.81 ha will be backfilled (rehabilitated by plantation/regrassing), out of 449.81 ha of backfilled area, (Agriculture: 20ha, Plantation: 329.81ha & of Forest Land to be returned: 100ha). Total excavated void area is 185.69 ha out of which 168.69 ha will be covered under plantation & 17.0 ha would be converted into water body. About 132.42 ha area will come under the public use. Total 117.81 ha area will remain undisturbed.

Application for diversion of 204.332 ha Forest Land for the Project was submitted on 10.10.2022 vide proposal no FP/OR/MIN/QRY/402637/2022 as per the land schedule of the approved mining plan. As per the requirement of Project Screening Committee communicated vide Point No. 14 of the minutes of the meeting, MoM received on 15.12.2022, total Forest Land within the project area

has been estimated as 213.37 ha on the basis of Hal & Sabik land record as on 25.10.1980. The same has been certified by the Revenue and Forest department. The DGPS map of 213.37 ha. Forest Area has been authenticated by ORSAC- Govt. of Odisha and same has now been considered as total Forest Land falling within the Project Area. There is no change in the total Project Area. The Company is in the process of arranging 213.37 ha of land required for the purpose of compensatory afforestation. Till date status to obtain the Forest Clearance is given in table below:

Status of Proposal for Forest Clearance

S. No.	Project Activity	Date
1	Forest Diversion Proposal Form-A Application was submitted	10.10.2022
2	Proposal was considered by the Project Screening Committee (PSC), Odisha	12.12.2022
3	MoM of Prescreening Committee Meeting Received	15.12.2022
4	Compliance to shortcoming mentioned in the MoM of PSC submitted on	27.02.2023
5	Request letter to PCCF (Nodal) for consideration for extension of timeline due to delay in arrangement of CA land	19.04.2023
6	Letter for Allocation of 35 ha (87 Acre) Govt. Land from Collectorate Jharsuguda Received on	21.07.2023
Further, Vedanta Ltd has taken action to arrange a balance 440 Acre land for CA, either through allocation of Non- Forest Government land in other districts or/and also through purchase of private land, at the earliest.		

xx. No National Park, wildlife sanctuaries and Eco-sensitive zones falls within 10 km boundary of the project. Debrigarh Wildlife Sanctuary of Hirakud Wildlife Division located at 19.6 km distance and Badrama Wildlife Sanctuary of Bamra Wildlife Division is located at 36.7 km distance from the mine lease boundary. Certificate regarding the confirmation of the same has been obtained from the Divisional Forest Officer, Jharsuguda Forest Division vide letter no. 4832/4F (Misc) dated 24.08.2023.

xxi. After surveying the core and the buffer areas, a detailed Biological Study has been carried out and Report has been submitted in compliance of the ToR issued by the MoEF&CC, New Delhi vide letter No. J-11015/34/2022-IA-II(M), dated 25.10.2022 and additionally, the flora & fauna list submitted by the Range Officer, Belpahar/Brajrajnagar Range. The Biological Study Report and flora & fauna list is duly authenticated by the Divisional Forest Officer, Jharsuguda dated 01.08.2023 and accordingly *Pavo cristatus* (Peacock), *Melursus ursinus* (Sloth Bear), *Manis crassicaudata* (Indian Pangolin), *Elephas maximus indicus* (Indian Elephant), *Python molurus* (Indian Python) were fall within 10 km study area.

As per authentication of Biological Study Report *Canis aureus* (Asiatic jackal), *Rusar unicolor* (Sambar), *Felis chaus* (Jungle Cat), *Hyaena hyaena* (Hyaena), *Hystrix indica* (Porcupine), *Chamaeleo zeylanicus* (Indian Chameleon), *Naja naja kothia* (Indian Cobra), *Naja tripudians*

(Common cobra), *Accipiter badius dussumieri* (Shikra), *Haliastur Indus* (Brahminy kite) were fall within 10 km study area.

These species come under Schedule I according to (IWPA) Indian Wildlife Protection Act, 1972, as amended on 20th Dec. 2022. List of flora & fauna and Biological Study Report is duly authenticated by the Divisional Forest Officer, Jharsuguda Vide letter No. 4326/4F (Misc.), Jharsuguda dated 01.08.2023.

Conservation Plan for protection of the Schedule I species has been prepared and approval is under process with forest department.

- xxii. The ground water level has been reported to be varying between 5.80 to 7.71 m bgl during pre-monsoon and between 2.65 to 6.10 m bgl during post-monsoon. Total water requirement for the project is 1100 KLD.
- xxiii. Total water requirement is estimated as 1100 KLD, same will be sourced from Lilari Nallah (during initial period of operation, later on the water requirement will be sources from Mine dewatering and seepage water), Borewells & Rain Water Harvesting. Application for ground water withdrawal & dewatering [quantity 3195 KLD (borewell: 525 KLD, dewatering/ water seepage: 2670 KLD)] has been submitted to CGWA vide application No – 21-4/5138 /OR/MIN/ 2023 dated 08.07.2023.

IV. DETAILS OF PUBLIC HEARING & RELATED ISSUES

- xxiv. Advertisement for the public notice has been published on 28.06.2023 in The Times of India (English Daily) & The Dharitri (Odia daily). Public hearing for the Project of was held on 01.08.2023 under the chairmanship of Shri. Prabeer Kumar Nayak (OAS) Additional District Magistrate (General), Jharsuguda and Shri. Hiranya Kumar Nayak, Regional Officer, State Pollution Control Board, Odisha, Jharsuguda. Major issues raised in the public hearing include Employment, Health Facilities, Infrastructure Development, Drinking Water Facilities, Afforestation etc.
- xxv. During Public Hearing 37 people expressed their views, 38 No. of written representations were received, 5 No. of representations forwarded by Regional Officer, SPCB, Jharsuguda and 2 No. of representations directly received by the board. The Public Hearing proceeding was submitted to MoEF&CC by Member Secretary, SPCB -Odisha vide letter no. 12874/IND-II-PH-1159, dated 14.08.2023. Time bound Public Hearing Action has been prepared as per MoEF&CC OM dated 30.09.2020 & 20.10.2020 to address the issues raised during the Public Hearing. Rs. 800 Lakh Budget earmarked to address the Public Hearing.
- xxvi. Public hearing for the Project of was held on 01.08.2023 under the chairmanship of Shri. Prabeer Kumar Nayak (OAS) Additional District Magistrate (General), Jharsuguda and Shri. Hiranya Kumar Nayak, Regional Officer, State Pollution Control Board, Odisha, Jharsuguda.
- xxvii. Consent to Operate will be obtained from concerned authorities after grant of EC.
- xxviii. Lilari Nallah cuts across the block flowing from North-West to South-East. Lilari Nallah shall be diverted along the ML periphery and will be connected to the original course of IB River in the south-west part of the coal block, beside this easterly flowing seasonal Hinjankharu Jhor which joins Lilari Nallah at the center of the block will also be reorganized.
DPR for diversion of Nallah has been prepared and application for approval of DPR has been submitted to Water resources Department, GoO vide letter no. VL/Kuraloi/Nalla Diversion/74 dated

13.06.2023. Engg In Chief, Water Resources Dept, GoO has requested Chief Engineer & Basin Manager, Mahanadi Basin, Burla for Field Visit and assessment of irrigated land that will be affected due to diversion of Nallah for Kuraloi- A Nort Coal Mine vide letter no. WG-Misc-24/23 dated 19.07.2023. Superintendent Engg. Irrigation Depart, Burla and Officials from Mega Lift, Major and Minor Lift Irrigation department visited the site on 08.08.2023. Minutes of Meeting received dated 08.08.2023.

- xxix. Baseline Monitoring has been carried for Summer Season (March to May, 2022). The concentrations of PM₁₀ and PM_{2.5} for all the 10 AAQM stations were found between 46.3 to 105.4 $\mu\text{g}/\text{m}^3$ and 28.1 to 56.3 $\mu\text{g}/\text{m}^3$ respectively. As far as the gaseous pollutants SO₂ and NO₂ are concerned, the prescribed CPCB limit of 80 $\mu\text{g}/\text{m}^3$ has never surpassed at any station. The concentrations of SO₂ and NO₂ were found in range of 5.1 to 14.3 $\mu\text{g}/\text{m}^3$ and 7.5 to 27.9 $\mu\text{g}/\text{m}^3$ respectively. Maximum concentration of PM₁₀ & PM_{2.5} as well as SO₂ & NO₂ were found at Brijrajnagar and Kirarama due to Industrial and transportation activities whereas minimum concentration was found at Village Grindola as there is no major source of pollution. The concentrations of AAQ at all monitoring locations were found well within the prescribed standards of NAAQS except at Kirarama Village monitoring location. Regular monitoring of ambient air quality will be carried out on fortnightly basis. The documented report will be submitted to IRO, CPCB, OSPCB & also to MoEF&CC along with half yearly EC compliance report.
- xxx. No Court cases, violation cases are pending against the project of the Vedanta Limited, as on date.
- xxxii. The project does not involve violation of the EIA Notification, 2006 and amendment issued thereunder. The coal production will be started after obtaining Environment Clearance and other requisite consents from the concerned authorities.

V. BENEFITS OF THE PROJECT

- xxxii. The project involves 3900 project displaced families to be displaced. R&R of the PAFs will be done as per the provisions of Odisha Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation & Resettlement Rules, 2016, LARR 2013 and ORRP 2006.
- xxxiii. Total cost of the project is Rs. 2000 Crore. Cost of environment Rs. 23.61 Crore (Capital Cost) Protection Measures Rs. 2.75 Crore (Recurring Cost). CSR cost will be calculated as per the Company's Act in consultation with District Administration & representatives of PRIs., in addition to the budget of Rs. 8 Crores (capital cost) & Rs.47 Lakhs as recurring cost is earmarked for implementation of Physical Targets to address the public hearing issues. Budget proposed for Resettlement of the Colony is estimated Rs. 10576 Lakh.
- xxxiv. Consent to operate will be obtained from SPCB, Odisha after obtaining Environmental Clearances.
- xxxv. It is a Greenfield mining project and production is yet to commence.

VI. CONTROL OF POLLUTION (A) AIR & (B) WATER

- xxxvi. Baseline Monitoring has been carried for Summer Season (March to May, 2022). The concentrations of PM₁₀ and PM_{2.5} for all the 10 AAQM stations were found between 46.3 to 105.4 $\mu\text{g}/\text{m}^3$ and 28.1 to 56.3 $\mu\text{g}/\text{m}^3$ respectively. As far as the gaseous pollutants SO₂ and NO₂ are concerned, the prescribed CPCB limit of 80 $\mu\text{g}/\text{m}^3$ has never surpassed at any station. The concentrations of SO₂ and NO₂ were found in range of 5.1 to 14.3 $\mu\text{g}/\text{m}^3$ and 7.5 to 27.9 $\mu\text{g}/\text{m}^3$

respectively. Maximum concentration of PM₁₀ & PM_{2.5} as well as SO₂ & NO₂ were found at Brijrajnagar and Kirarama due to Industrial and transportation activities whereas minimum concentration was found at Village Grindola as there is no major source of pollution. The concentrations of AAQ at all monitoring locations were found well within the prescribed standards of NAAQS except at Kirarama Village monitoring location. The value of total GLC is estimated to be 82.12 µg/m³ for PM₁₀, 44.17 µg/m³ for PM_{2.5}, 11.99 µg/m³ for SO₂ & 18.86 µg/m³ for NO₂.

xxxvii.

Surface Water Quality: Surface Water Monitoring has been carried out for 8 sampling stations. The pH of the water bodies ranges from 7.05 to 7.54 indicating slightly alkaline in nature. The water bodies are rich in Calcium, silica, potassium, magnesium and bicarbonates. The odour was found agreeable at all the locations. Total Hardness (34.6 to 89.1 mg/l), Total Dissolved solids (54 to 126 mg/l), Alkalinity (19.0 to 71.25 mg/l) and Conductivity (82.5 to 232.5 µS/cm), Fluoride (0.11 to 0.57 mg/l) were found to be within standards in water samples. The COD (8.0 to 28 mg/l) and BOD (1.7 to 7.4 mg/l). The nutrients were also found in sufficient quantity viz. Sulphate (1.86 to 14.7 mg/l), Nitrate (1.41 to 18.48 mg/l), Calcium (9.9 to 25.7 mg/l), Magnesium (1.2 to 7.24 mg/l), Iron (0.09 to 0.33 mg/l) indicated clean water bodies. Dissolved oxygen (6.6 to 7.4 mg/l) indicated that the water bodies are safe for aquatic biodiversity.

49.2.2 The committee during deliberations noted the following:

- (i) ToR Letter was issued by MoEF&CC, New Delhi on 25.10.2022.
- (ii) Mining Plan and Mine Closure Plan has been approved by Ministry of Coal vide letter no. Kuraloi (A) North Coal Mine ORJH/APP0080/2021 dated 05.08.2022.
- (iii) Coal movement within pit will be done by dumpers. Initial transportation of coal by road for 02 years subsequently after commissioning of railway siding the coal will be transported by rail. Railway siding lying inside the Mining Lease area.
- (iv) 213.37 ha of forest land has been involved within the ML area.
- (v) There is no National Park, wildlife sanctuaries and Eco-sensitive zones falls within 10 km boundary of the project. Certificate regarding the confirmation of the same has been obtained from the Divisional Forest Officer, Jharsuguda Forest Division vide letter no. 4832/4F (Misc) dated 24.08.2023.
- (vi) Total water requirement is estimated as 1100 KLD. Application for ground water withdrawal & dewatering has been submitted to CGWA vide application No – 21-4/5138 /OR/MIN/ 2023 dated 08.07.2023.
- (vii) Public hearing was conducted on 01.08.2023 under chairmanship of Additional District Magistrate (General). Major issues raised in the public hearing include Employment, Health Facilities, Infrastructure Development, Drinking Water Facilities, Afforestation etc.
- (viii) Lilari Nallah cuts across the block flowing from North-West to South-East. Lilari Nallah shall be diverted along the ML periphery and will be connected to the original course of IB River in the south-west part of the coal block, beside this easterly flowing seasonal Hinjankharu Jhor which joins Lilari Nallah at the center of the block will also be reorganized.
- (ix) Baseline Monitoring has been carried in Summer Season i.e. from March to May, 2022.
- (x) PP has submitted the capital cost for Environment Protection measures of Rs. 23.61 crore and recurring cost for EMP is Rs. 2.75 crore/annum. The budget proposed for implementation of the

pollution control & impact mitigation measures as suggested for this Coal Mining Project is given as under:

S. No.	Activities	Capital Cost (Rs. In Lakh)	Recurring Cost (Rs. In Lakh)
Mitigative Measures			
1.	Mobile Water Tanker for water sprinkling on Haul Road (70 KL & 28 KL)	100	3.0
2.	Fixed Water Sprinkler on Permanent Haul Road (1.5 km)	90	1.5
3.	Fixed Water Sprinkler at Coal Stock Yard (1.5 km)	60	0.5
4.	1000 m black topped /cemented road will be prepared & maintained on regular basis	500	1.0
5.	Toe walls of adequate size (1.2 m width & 1.5 height x 4000m) for stability of the dumps	240	1.0
6.	Pollution Control Device	50	13
Greenbelt/Plantation Details			
7.	Greenbelt on 17.62 ha Area (Saplings: 44050, Cost: Rs. 88.10 Lakh)	88.10	10
	Plantation in excavated void covering an area of 168.69 ha (Saplings: 421725, Cost: Rs. 844 Lakh, considering 13 years)	-	64.92
	Plantation along Road & Infrastructure of Area 28.7 ha (Saplings: 71750, Cost: Rs. 108 Lakh, considering 18 years)	-	6.0
	Plantation along Backfilled Area of 329.81 ha (Saplings: 824525, Cost: Rs. 16.49 Crore considering 18 years)	-	91.61
	Plantation along Settling Pond & Garland Drains Area of 8.78 ha (Saplings: 21950, Rs. 43.90 Lakh, considering 18 years)	-	2.43
	8.	Construction of Garland Drain [width 3.0 (top) x 2.0 m (bottom)]	8.0
9.	Construction of 03 nos of Settling tank (L x W x D = 40m x 30 m x 3m)	40	5
10.	Construction of 2 nos of Check Dam	15	3
11.	Nallah Protection Bunds along the length of the nallah diverted towards west & south Mining Lease periphery	1000	20
12.	Rain water harvesting structure	20	4
Sub-total		2211.10	230.76
Monitoring			
1.	Installation of 03 CAAQMS within core zone	70	10
2.	Fugitive dust emission monitoring (05 locations * monthly)	10	2

3.	Surface Water Quality Analysis (3 locations)	6	0.4
4.	Installation of 3 nos of piezometer along the periphery	6	1.5
5.	Ground water quality analysis (03 times in a year)	-	1.5
6.	Procurement of the Blast Vibration Measuring Instrument & Noise level meter	5	0.5
7.	Controlled blasting for minimizing ground vibration, fly rock, air pressure/ noise, etc. by Using Nonel and Exel	3	14
8.	Ambient Noise Monitoring (06 locations * quarterly frequency)	3	0.6
9.	Workshop Waste Water Quality Analysis (monthly) as well as maintenance of oilwater separators	4	0.7
10.	Peak Particle Velocity Monitoring for nearest habitation	10	1.5
11.	Work Place Noise Monitoring	6	0.4
12.	Providing Ear muffs/plus to workers working in high noise area	2.0	1.0
Sub Total B		125	34.10
C	Miscellaneous		
1.	Digital mapping of entire mine area once in three years (Rs. 3 Lacs once in 3 years)	-	3
2.	Occupational Health Check-up of Mines Employees	15	5
3.	Others, if any	10	3
Sub Total C		25	11
Total		2361.1	275.86
		23.61	2.75
D.	Estimated budget for Wildlife Conservation Plan	4000	
E.	Estimated budget for addressing the Public Hearing Issues	800	47
Grand Total		6369.1	322.86
		63.69 Crore	3.22 Crore

(xi) Further, PP has submitted the capital cost for public hearing of Rs. 800 Lakh and recurring cost is Rs. 47 Lakh/annum as per the OM Dated 30.09.2020 & 20.10.2020 as follows:

S.No.	Sector wise Activities	Budget for PH Concerns (in Rs. Lakhs)				
		1st	2 nd	3 rd	Capital	Recurring
A. Health & Family Welfare Activities						
1	To boost Health and family welfare activities, Health camps will be conducted time to time within Mine periphery villages. Ambulance facilities will be	50.0	50.0	50.0	150.0	10.0

	provided for the peripheral villages for giving support to the local PHC, to provide free treatment to local by distributing free medicine with prescription of authorized Doctor.					
	Total (A)	50.0	50.0	50.0	150.0	10.0
B. Vocational Skills & Employment						
1.	Skill development training program shall be conducted for the unemployed youth of affected villages. Training will be imparted to qualified youth for obtaining various competency certificates like Blaster, Mining Mate and Foreman that will create job opportunity for them. Preference will be given to local youth who are skilled and experienced as per requirement during mines operation. Local employment will be generated by various sustainability projects that would be undertaken during mining operations.	30.0	30.0	30.0	90.0	10.0
	Total (B)	30.0	30.0	30.0	90.0	10.0
C. Livelihood						
1	Training & technical support will be provided in Apiculture, Mushroom Farming, stitching, Pisciculture, Poultry & Goat Farms etc. after proper survey and in consultation with villagers/SHG group.	15.0	15.0	15.0	45.0	5.0
2	Support shall be provided for developing facilities like Pisciculture, Meeting rooms, Poultry & Goat Farms etc. through Government Schemes and Financial Institute.	20.0	20.0	20.0	60.0	2.0
	Total (C)	35.0	35.0	35.0	105.0	7.0
D. Education and Sports Promotion						
1.	Educational facilities / infrastructure shall be provided to the existing	20.0	20.0	20.0	60.0	2.0

	schools in consultation with District Authority and School Committee.					
2.	Scholarships for merit & economically backward students shall be provided for higher education, after conducting survey in peripheral Villages.	5.0	5.0	5.0	15.0	5.0
3.	Training shall be imparted to the local sports youth for participating state level competition	20.0	20.0	20.0	60.0	2.0
Total (D)		45.0	45.0	45.0	135.0	9.0
E. Community Welfare & Infrastructure Development Projects						
1.	Drinking water facility, Street Light, and provision of approach road shall be provided in periphery Villages in a phased manner.	60.0	60.0	60.0	180.0	5.0
2.	Support for construction of drainage system in periphery Villages	10.0	15.0	15.0	40.0	2.0
3.	Fund for Kalyan Mandap	10.0	10.0	10.0	30.0	1.0
4.	Possibility of constructing Check dams/ other facilities in the area shall be explored in consultation with Water Resource Department.	10.0	15.0	15.0	40.0	2.0
5.	Support will be given for Sustaining the traditional culture of the Villages.	10.0	10.0	10.0	30.0	1.0
Total (E)		100	110.0	110.0	320.0	11.0
Grand total (A + B + C + D + E)		260	270	270	800	47

(xi) PP has submitted the capital cost of Rs. 216.83 crore as part of expenditure for Mining Plan Closure are as follows:

Head	Activities	Unit	Quantity	Rate RS/Unit	Amount Rs Cr.
	Water Quality Management	LS			1.00
	Air Quality Management	LS			1.00
	Barbed wire Fencing around dump	M	0	0	0
	Barbed wire Fencing around pit	M	4550	1600	0.73
	Filling of Void-Rehandling of Crown dump	MM3	12	35	22.33

Progressive Plan	Top Soil Management	MM3	6.38	35	22.33
	Technical and Biological Reclamation of mined out of land and OB Dump	Ha	638	250000	15.95
	Plantation over virgin area including green belt	Ha	18.09	150000	0.27
	Manpower Cost and Supervision				2.00
	Total wall around the dump	M	6500	5500	3.58
	Garland drain	M	11000	1200	1.32
	Garland drain around the dump	M	7000	1200	0.84
	Any other Activity	LS			0.50
Dismantling of infrastructure & Disposal/rehabilitation of mining machinery	Dismantling of workshop	LS			0.50
	Rehabilitation of the dismantled facilities	LS			1.00
	Dismantling of pump and pipes/other facilities	LS			0.25
	Rearranging water pipeline to dump top park/Agriculture land	LS			0.30
	Rearranging water pipeline to dump top park/Agriculture land	LS			0.30
Safety and Security	Barbed wire fencing around the pit	M	6000	1600	0.96
	Concrete wall fencing around the water body				2.50
	Boundary wall around the water body				1.50
	Stabilization (viz benching, pitching etc.) of side walls of the water body				0.80
	Garland drain				1.80
Technical and Biological Reclamation of mined out of land and OB Dump	Filling of void	Ha	24	35	84.00
	Top soil management	MM3	1.8	35	6.30
	OB Rehandling or backfilling	MM3	0	0	0
	Terracing, blanketing with soil and vegetation of External OB Dump	Ha	450	250000	11.25
	Expenditure on development	Ls			0.50

	of Agriculture Land				
	Landscaping and Plantation	Ls			2.00
Post Closure Management and supervision	Power Cost	Ls			0.75
	Post mining water quality management	Ls			0.60
	Post mining air quality management	LS			0.50
	Waste Management	Ls			1.00
	Manpower Cost and supervision	Ls			2.50
	Entrepreneurship development (vocational/skill development training for sustainable income of affected people)				2.00
	Golden Handshake/Retrenchment benefits to 100 employees of OC				0.50
	Onetime financial grant to societies/institutions/organizations which is dependent upon the project				1.50
	Continuation of other services like running of school etc.				2.00
	Total				216.83

49.2.3 The committee after deliberation noted that the instant proposal is Greenfield project in the mine lease area of 965.58 ha. Since the project falls in the region of severally polluted area; therefore committee desired a time bound mitigation measures should be implemented. It was observed that pond exists in the ML boundary and the same was emphasized to be protected from the Mine activities. It was desired that due to likely impact on water resources as a result of diversion of stream, the existing ponds within and outside the Mine lease area should be protected and rejuvenated with consistent efforts. The Committee noted that PP has submitted the application of Stage-I Forest Clearance for the diversion of forest land of 213.37 ha. The committee emphasized the forest area should not be used for dumping purpose.

In view of the ample coal reserves available underneath, PP proposed to divert Lilari stream passing through in ML area. About 7.25 km of Lilari stream has been proposed to be diverted within 2.5 years. In this regard, the Committee desired the works of diversion should be completed in one-go

without extended timeline so as to minimize the impact in catchment area. The same time committee desired that diverted channel should be designed adequately with adequate slope, height and filler material of embankment. To avoid any likely impact on groundwater, the Committee also emphasized to create artificial pond near to the settlement area.

With regard to transportation of coal, PP already committed to install and complete the in-pit conveyor system with silo loading by April 2025 to avoid road transportation and till the period of completion, the road transportation is desired by PP.

The Committee discussed the issues raised in the Public consultation, which are mainly related to the health, education, and skill-development and about the avoiding road transportation route through habitation. The Committee also took a note of representation of “Mahatma Gandhi Smriti Sadan” dated 26.08.2023 wherein broad issues including road transportation by group of mines was highlighted. In this case, PP has committed to transport the coal through dedicated railway siding and railway line without the road transportation.

The Committee noted that PP has proposed the wildlife conservation plan for amount of Rs. 4000 lakh and same has been submitted in the EIA-EMP report. Also as proposed, PP to implement the EMP capital cost of Rs. 23.61 crore and recurring cost of Rs. 2.75 crore/annum w.r.t Environment mitigation plan. For implementation of the budget for public hearing, PP proposed capital cost of Rs. 800 Lakh and recurring cost of Rs. 47 Lakh/annum. Apart from these, Rs. 216.83 crore, as part of Mining Closure activities, has been earmarked for progressive mine closure activities, which is being implemented concurrently with activities given in mine plan.

Based on the above, EAC **recommended** the proposal for grant of Environmental Clearance for Kuraloi-A North Coal Block Opencast Coal mine with Production Capacity of 8.0MTPA in the project area of 965.58 Ha of M/s Vedanta Limited located at Villages Pipilimal, Dhauramunda, Kuraloi, Belpahar, Banjari, Bartap, Tehsil Lakhanpur, District Jharsuguda (Odisha), under EIA Notification, 2006 and its amendments therein with following additional specific conditions to be followed:

- (i) PP shall submit Stage-I Forest Clearance for the forest land/area (213.37 ha) involved in the mine lease area prior to grant of Environment Clearance.
- (ii) PP shall obtain CTE/CTO from State Pollution Control Board for 8.0 MTPA production capacities for open cast operation.
- (iii) PP shall divert the Lilari Nallah in a manner that its construction for diversion shall be done in one go without affecting habitation and in this regard, works shall be designed to complete the diversion avoiding Monsoon season (i.e effective working months of non-monsoon season). Embankment height shall be maintained on both side of stream with sufficient free board height from its HFL.
- (iv) PP shall maintain sufficient safety width of embankment all along the diverted stream/nallah (Mahalania) and conduct dense plantation with fruit bearing native species by itself.
- (v) The diversion of Lilari Nallah shall be monitored by IRO and complete report with the drone video and satellite imagery shall be submitted to IRO, MoEF&CC.
- (vi) PP shall install dedicated in-pit conveyor belt with silo loading system till railway siding for transportation of 100% extracted coal through rail by April 2025. Accordingly, SPCB should grant the consent to operate.

- (vii) *Transportation of coal shall be done in covered trucks till April 2025. PP shall deploy the truck size of upto 40 tonnes (payload) for transportation of coal by road.*
- (viii) *Dedicated concrete Road with 12-mt width, away from the villages and sensitive location like school and hospitals shall be constructed to transport the coal prior to the start of the mining operation. Further 10 mts width of tree plantation shall be conducted to mitigate the vehicular and dust emission on both side of road.*
- (ix) *The mining plan shall be revised/amended as per the MoC guidelines at later stage after incorporating the diversion of Nallah in one go with year-wise coal production.*
- (x) *PP shall implement the activities-wise proposed budget of Rs. 800 Lakh and recurring cost of Rs. 47 Lakh/annum (as Public Hearing Budget), Capital cost of Rs. 23.61 crore and recurring cost of Rs. 2.75 crore/annum (as EMP cost) in time bound manner mentioned above para 49.2.2 of minutes. The details of annual expenditure incurred shall be part of report to be submitted to IRO, MoEF&CC. PP needs to include the audited figures against the expenditure and activities to be monitored by through dedicated monitoring mechanism. The maintenance of all activities shall be covered through recurring cost of Public Hearing, and continued as a part of CSR budget.*
- (xi) *Capital cost of Rs. 216.83 crore as part of Mining Closure activities shall be implemented concurrently with stipulation given in mine plan. All the agricultural land shall be restored as part of Mining Closure activities & it is required to be implemented concurrently with stipulation given in mine plan.*
- (xii) *Pond exists at the ML boundary shall be protected from the Mine activities and plan be drawn for rejuvenation. Efforts shall be made to maintain the ecology of ponds (within and outside the mine lease in vicinity) with regular desilting and cleaning as a part of capital investment out public hearing and be contined from CSR budget.*
- (xiii) *As proposed 5 water harvesting pond shall be created separately to recharging the ground water and usage of project affected families.*
- (xiv) *Further, a pond (at mine lease boundary) shall be protected with fencing by an opening for villagers for fish culture if required and for livestock. Along boundaries a 5 m thick plantation shall be developed.*
- (xv) *PP shall monitor regularly water levels in open dug wells located in village and by establishing Piezometer to ascertain the impact of mining over ground water table and to plan mitigative measures to recharge the area.*
- (xvi) *Main haul road in the mine shall be provided with permanent water sprinklers, and other roads shall be regularly wetted with water tankers fitted with sprinklers. Also PP shall install Mist Cannon Dust Suppression Systems (distance 80-100 mtrs.) at Coal Stock Yard to suppress the dust particles.*
- (xvii) *Garland drains (2mX3m) or of adequate size shall be provided at the toe of the benches to arrest discharge and runoff with silt and sediments surging into areas adjoining the periphery of Overburden dump, which will be regularly cleaned before the onset of monsoon every year.*
- (xviii) *Check dams shall be constructed at required locations within drains to arrest eroded materials and settling ponds shall be constructed to treat mine discharge water inside the mine block.*
- (xix) *Proper profiling of working benches of pits and dumps shall be done to channelize water in garland drains & sumps.*

- (xx) Waste generated from the domestic use shall be treated in STP and the treated water will be utilized in plantation & greenbelt development. Wastewater from the HEMM washing/ workshop will be treated in ETP. After treatment, water will be reused in washing of HEMM, dust suppression and greenbelt development.
- (xxi) Dumping of OB shall maintain distance of about 200 mts from any of villages and additional Greenbelt development/plantation (atleast 8 to 10 ft trees) shall be carried out at the periphery of the mine lease area as well as in the adjacent area of village.
- (xxii) PP shall limit the activities of mining in its mine lease area only. No OB Dumping and infrastructure activity should be proposed and dumped on forest land. Accordingly revised Mine Plan should be submitted (if required) and submitted to Ministry.
- (xxiii) PP shall make use of advanced computer simulation techniques for design and execution of blasting operation in the mine. PP shall make use of Electronic Delay Detonators for optimal blasting in coal and OB rock to minimize the environmental impacts of blasting such as ground vibration, fly rocks and excessive dust generation.
- (xxiv) PP shall deploy atleast 20% of overall fleet of dumpers/trucks as electrical or CNG/LNG based dumpers/trucks for transportation of coal/OB etc.
- (xxv) PP shall reduce the carbon footprint after sequestration of CO₂. IRO will review the progress of CO₂ sequestration. The process of sequestration of CO₂ will include the planting trees, by “Developing carbon capture and storage (CCS) technologies” and implementation of renewable energy. Further, PP shall carry out enough plantation to ensure carbon sequestration lost due to deforestation and other fossil fuel based activities.
- (xxvi) PP shall create a “Public Grievance Redressal and Monitoring System” for resolving any issues related to the pollution of mines and complaint has to resolve as soon as possible not beyond 30 days. In this regard, adequate awareness to be spread among the public to address their grievance to company with simple and easy manner and for which company needs to devise the mechanism. The same shall be reported to IRO within 3 months. A logbook to be maintained by PP on “Public Grievance Redressal and Monitoring System.
- (xxvii) PP shall ensure distribution of water from the artificial reservoir within and outside Mine lease area in consultation with gram panchayat. The water treatment plant to meet the requirement with the start of production.
- (xxviii) PP shall deposit the approved amount as proposed for wildlife conservation plan to the State Govt. Forest & Environment Dept. and further consult with State Biodiversity Authority for its CSR activity.
- (xxix) PP shall conduct third party audit of compliance of EC condition at an interval six months and its report shall be submitted to IRO, MoEF&CC.
- (xxx) The status of mine closure activities must be included in every six months compliance report submitted to the state pollution control board and IRO.
- (xxxi) PP to install solar lights along the road used for transportation of minerals 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 to provide bio toilets to the villages located within the study areas within 1 year from the grant of this EC.
- (xxviii) Persons of nearby villages shall be given training on livelihood and skill development to make them employable with its proper records.
- (xxiv) PP shall pay to farmers of agricultural land if there is any loss due to pollution found by concerned District Commissioner as per extent rules or norms.
- (xxv) 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.
- (xxvi) 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.
- (xxvii) PP shall conduct feasibility studies for assessment of voids for backfilling of ash and mixing of ash with overburden, taking up backfilling ash and OB mixing activities during operations as well as post closure of mines in line with the Fly Ash Utilization Notification, 2021.

Agenda No. 49.3

Expansion of Gangaramchak & Gangaramchak - Bhadulia Opencast Coal Mine from production capacity of 1.2 MTPA to 3.0 MTPA with total project area of 186.42 ha by M/s The West Bengal Power Development Corporation Limited located at village Bastabpur, Tehsil Khoyrasole, District Birbhum(West Bengal) - For Reconsideration of Environmental Clearance – reg. [Online Proposal No. IA/WB/CMIN/433704/2023;File No. J-11015/375/2006-IA-II (M)]

49.3.1 The proposal is for Environmental Clearance for Gangaramchak & Gangaramchak - Bhadulia Opencast Coal Mine from production capacity of 1.2 MTPA to 3.0 MTPA with total project area of 186.42 ha by M/s The West Bengal Power Development Corporation Limited located at village Bastabpur, Tehsil Khoyrasole, District Birbhum(West Bengal).

49.3.2 The Committee observed the following during the EAC meeting:

- i. The proposal was considered in the 47th EAC meeting held on 21-22nd July 2023 wherein committee deferred the proposal for submission of observation. The PP vide letter dated 22.08.2023 submitted the information as desired from committee are as follows:

S.No.	Observation of EAC	Reply by Project proponent
-------	--------------------	----------------------------

1	PP needs to submit the pointwise non-compliance of the previous EC conditions of the EC letter dated 17.05.2007 & 27.12.2022 and EC transfer dated 20.12.2018 with action plan in a time bound manner.	Compliance with action plan in a time bound manner has been enclosed.
2	PP shall submit operational status of ETP	ETP of 100 m ³ /hr capacity has been installed and commissioned on 05.12.2022. The sample analysis report of intake water and Treated water has been submitted to IRO. Performance Report of ETP from the manufacturer's engineer has been enclosed.
3	PP shall submit the time bound action plan upon the plantation of trees and submit the status of plantation on the inactive dump located outside the ML area.	The inactive dump outside of the mining lease area is located within block boundary kept for underground mining. A new Geological Report has been prepared with a concept to undertake excavation of that area by opencast mining. After obtaining approval of Revised Mine Plan, Mine Closure Plan and EC, this matter will be addressed. However, as per advice of EAC, WBPDCCL has started plantation over these inactive dumps and will be completed by 30.09.2023.
4	PP needs to submit the permission for the withdrawal of ground water from CGWA.	As per CGWA notification, CGWA does not issue NOC for ground water withdrawal in the State of West Bengal. Under this notification permit for withdrawal of ground water had been obtained from State Water Investigation Directorate (SWID). Mail received from CGWA in this regards has been enclosed in annexure.
5	PP shall provide the copy of NOC regarding baseline for records and undertaking to certify and validate the data	NOC obtained. Please refer Annexure 5
6	PP shall provide the status of activities w.r.t approved Mine Closure Plan and further action plan for its closure.	As per mine closer plan 2019, plantation was scheduled to be completed over 8.5 ha in 2023-24. In this respect WBPDCCL have taken all the initiative and completed plantation in 28.78 ha within the mining lease area till date.
7	PP shall submit justifications for not implementing in-pit conveyor belt and silo loading system and take amendment in EC condition (if	As the remaining mine life is very short, huge expenditure for implementing in-pit conveyor belt and silo loading system is not going to be economically viable. As advised, amendment of EC

	required)	condition in this regard will be taken up as per Approved Mine Plan.
8	PP shall submit the signed copy of corporate environment policy and details/structure of Environment Management Cell (with qualified Environment Engineer or Environment Science	Corporate Environmental Policy has been furnished Annexure- 7. Structure of Environment Management Cell at corporate level consisting of one Environmental Engineer and two Senior Managers. Environmental Cell at Gangaramchak and Gangaramchak Bhadulia Coal Mine consisting of one Environmental Engineer, One Civil Engineer and one Surveyor.
9	PP shall submit with certification of the latest Hydrogeological study in compliance of ToR for this expansion project	Hydrogeological Study in compliance of TOR for the expansion project is being carried out by CIMFR, Dhanbad. Work Order in this respect had been issued to CIMFR, Dhanbad dated 18.08.2023 Acceptance of the institution has been given in the Annexure.
10	PP to submit the clarification w.r.t. schedule 1 species and accordingly submit the Wildlife conservation plan for certified species to DFO with requisite budget as per WPA-2022.	In compliance of this condition work order has been issued to Terratribal Environmental Conservancy Pvt Ltd, Kolkata for preparation of Wild Life Conservation Plan for certified species with requisite budget as per WPA- 2022 in consultation of Forest Department, Birbhum. Draft Wildlife Conservation Plan has been submitted to DFO, Birbhum. As per clause i.(a) of the File No. FC-11/43/2021-FC of MoEF&CC dated 07.06.2023, WBPDCCL has submitted a letter to Chief Wildlife Warden, Saltlake, Kolkata and DFO, Suri Birbhum for depositing 2% of the project cost as lump sum amount and the deficit amount, if any will be paid in actual immediately after obtaining approval of Wild Life Conservation Plan. Approval of wildlife conservation plan is expected within 25.11.2023.

ii. PP has submitted the total Capital cost towards Environment Protection for expansion is Rs. 278 lakhs and total recurring cost for the entire life of the mine (3 years) is Rs. 77 lakh/year. The detail related to the Cost of Environmental Control Measures mentioned below:

S. No.	Particulars	Details of Proposed Capital Cost	Details of Proposed Annual Recurring Cost
1.	Air Pollution Control	Rs 65 lakhs	Rs 22 lakhs
2.	Water Pollution Control	Rs 45 lakhs	Rs 14 lakhs

3.	Noise Pollution Control	Rs 6 lakhs	Rs 2 lakhs
4.	Environment Monitoring and Management	Rs 25 lakhs	Rs 12 lakhs
5.	Occupational Health	Rs 15 lakhs	Rs 12 lakhs
6.	Green Belt Development and Maintenance	Rs 122 lakhs	Rs 15 lakhs
	Total	Rs 278 lakhs	Rs 77 lakhs

- iii. PP has submitted the cost for mine closure activities Rs. 1680 lakhs for Gangaramchak Bhadulia Coal Mine Project.
- iv. PP has submitted the time bound action plan with budget against issues raised in Public Hearing on 6th February, 2023 as below:

Sl. No	Subject	Issues Raised	Action Plan	Expenses in 1 st Year	Expenses in 2 nd & 3 rd Year	Total Expenses
1.	Announcement for public hearing	<ul style="list-style-type: none"> Announcement for public hearing is not done properly Transportation of coal depends on Hajratpur and Kendakor but they are not aware about these public hearing. Announcement for 3 MTPA is not done Didn't informed in Labour union 	<ul style="list-style-type: none"> Announcement for Public Hearing held on 6th February, 2023 at Khoirasol Block Development office was done intensely by loud speaker from a mobile van in core and buffer zone of the project during 10 am to 5 pm on 31st January and 1st February, 2023. Before that the notification of Public Hearing was published in three local news papers on 05.01.2023. As a result, large number of people from all section of 	--	--	--

			<p>the society attended the Public Hearing.</p> <ul style="list-style-type: none"> Documents were circulated to the concerned offices by Pollution Control Board. 			
2.	Electricity	<ul style="list-style-type: none"> Electricity Electric poles are break down due to dumpers Apart from 3 lights there are no other developmental work 	<ul style="list-style-type: none"> There is no provision of supplying electricity to individual house in the nearby villages of the project. However, erection of poles and fixing of lighting had been done by the project proponent wherever it was required. In future for any such electric pole repairing, fixing of lights etc, the project proponent will arrange fund to Block Development Officer (BDO), Khoirasole for executing the work. Yearly budgetary provision would be Rs. 5 lakhs. 	Rs 5 lakhs shall be spend annually towards replacement of electric poles & electric bulbs	Rs 10 lakhs shall be spend annually towards replacement of electric poles & electric bulbs	Rs 15 lakhs
3.	Drinking water	<ul style="list-style-type: none"> Supply of Drinking water is irregular 	<ul style="list-style-type: none"> At present 4 water tankers had been deployed for supplying drinking water to the 	Annually Rs 8 lakhs shall be spend towards rent and fuel of 2	Annually Rs 16 lakhs shall be spend towards	Rs 24 lakhs

		<ul style="list-style-type: none"> • There is no tube well for drinking water • Supply of Drinking water is irregular • Shortage of water tank • Safe Drinking water 	<p>villages falling in core and buffer zone (six villages).</p> <ul style="list-style-type: none"> • Provision of additional 2 water tankers would be made through Block Development Officer (BDO), Khoirasole for supplying water to other villages also. • Yearly budgetary provision would be Rs. 8 lakhs. 	additional water tankers	rent and fuel of 2 additional water tankers	
4	Road condition	<ul style="list-style-type: none"> • Road condition is very poor • Chanditala to Bhadulia road preparation • The road to Sagarbhanga has been cut 	<ul style="list-style-type: none"> • Construction of Road has been undertaken to connect Sagarbhanga Village from Bhadulia and Gangpur Village. • Another one section of road repairing work will be undertaken within 3 months from Chanditala to Bhadulia Village. • Total budgetary provision would be Rs. 80 lakhs. 	<ul style="list-style-type: none"> • Completion of road from Bhadulia to Sagarbhanga village, a distance of 3.5km with a budget of Rs 60 lakhs • Repairing of road from Bhadulia to Chanditala village, with a 	<ul style="list-style-type: none"> • Completion of repairing of Bhadulia to Chanditala village, with a budget of Rs 20 lakhs 	Rs 90 lakhs
5.	Job Opportunities	<ul style="list-style-type: none"> • Job Opportunities • Loading of coal is done by 	<ul style="list-style-type: none"> • Already 200 local people had been engaged in the 	---	---	--

		<p>machineries but they want this manually</p> <ul style="list-style-type: none"> • Peoples are being misunderstood about coal transportation • Drivers of this project are not local. • As a local person they should do this work. • Local labour should get job. • Only 57-58 local people are associated to this project. • Around 200-300 people from outside are working in this project. But around 3700 local people are in out of state for their work. • He was working under old company (EMTA) but new company (WBPDCCL) recruit few people • If the mine produces 3 MTPA, the life of the entire mine will be reduced so many people 	<p>mines in different jobs since inception of the project.</p> <ul style="list-style-type: none"> • From October, 2020, 210 local people have been engaged as security guard at Hajratpur Railway Siding and transport road. • Moreover, the coal transportation from mines to Hajratpur Railway siding has been given to the local people what has benefitted villagers indirectly. • Competent persons have been deployed for operation of HEMM as per Coal Mines Regulation. • Provision of engagement of additional 80 persons from the core zone has been made. • Loading of Coal to the wagons have been carried out mechanically by using pay-loaders which is not possible manually for handling huge quantity every day. 			
--	--	---	--	--	--	--

		<p>will lose their jobs.</p> <ul style="list-style-type: none"> • Mines falls under three villages, those who have gave the land didn't get any job. 				
6.	No benefits & No development	<ul style="list-style-type: none"> • No benefits are provided by mine authority • There is no development in Gangpur village • Maximum land acquired from Sagarbhanga but any development of Sagarbhanga has not been done • Development must be done before 3 MTPA coal mining. 	<ul style="list-style-type: none"> • Benefits like supply of books, promotion of sports, financial support to the poor people etc. are being undertaken on regular basis at Bastavpur Village. • Two no. of ponds had been de-silted in Sagarbhanga and Sahapur villages. Other benefits to the villages will be covered under CSR through the Block Development Officer (BDO), Khoirasole. • Yearly budgetary provision would be Rs. 10 lakhs. 	<ul style="list-style-type: none"> • Supply of study materials & sports equipments to two schools of the locality every year with a budget of Rs 4 lakhs • Delisting of two ponds annually in the nearby villages with a budget of Rs 5 lakhs 	<ul style="list-style-type: none"> • Supply of study materials & sports equipments to two schools of the locality every year with a budget of Rs 8 lakhs • Delisting of two ponds annually in the nearby villages with a budget of Rs 10 lakhs 	Rs 27 lakhs
7.	No facility for schools	<ul style="list-style-type: none"> • No facility for schools • There is a school beside the road, students are suffering for dust and sound 				
8.	Pollution from Dust	<ul style="list-style-type: none"> • Dust from Mine lease area spread upto 275 mtr 	<ul style="list-style-type: none"> • For the dust control in road, adequate measures had been taken for preventing 	Purchase and Deployment of one more	Annually Rs 12 lakhs shall be spend	Rs 51 lakhs

		<ul style="list-style-type: none"> • Dust from mining affects in crops and food stall • Pollution in 10 villages along with Nagrakonda. • Health effects in Cattles and human • Mitigation for dust control. • Dust Problem 	<p>generation and suppression of dust by deploying 2 no of water sprinklers.</p> <ul style="list-style-type: none"> • Additional one water tanker fitted with fogging machine will be deployed in the road. • Additional budgetary provision would be Rs. 24 lakhs. 	<p>water tanker with a budget of Rs 15 lakhs along with 2 existing tankers for water sprinkling to minimize dust pollution</p>	<p>towards fuel and maintenance of 3 water tankers</p>	<p>N.B: this budget will be spend under EMP</p>
9.	Forest & livelihoods	<ul style="list-style-type: none"> • Coal production by cutting down sal forest • Livelihoods of tribals have been destroyed due to deforestation 	<ul style="list-style-type: none"> • Diversion of 101.77 ha of Forest land had been done in favour of West Bengal Power Development Corporation Limited for establishment of Gangaramchak & Gangaramchak Bhaduria Coal Mine in Birbhum Forest Division, West Bengal. • There were no dwellers in the diverted Forest land. • Trees are being felled as required in phased manner under the guidance of Range Office, Dubrajpur. 	---	---	---
10.	Water Pollution	<ul style="list-style-type: none"> • Increase in amount of CO2 in 	<ul style="list-style-type: none"> • Mine water is solely used for the purpose 	Annual maintenanc	Annual maintenanc	Rs 9 lakhs

		<p>200-250 ponds</p> <ul style="list-style-type: none"> • Polluted water from blasting is falling into canals and then into many ponds • As a result, various water-borne diseases are appearing and fish are dying 	<p>of water spraying in the mines and plantation.</p> <ul style="list-style-type: none"> • However, one ETP with the capacity of 100 cum/ hr has been installed for discharging treated water out of mine boundary if required. 	<p>Capacity of 100 cum ETP will be Rs 3 lakhs</p>	<p>Capacity of 100 cum ETP will be Rs 6 lakhs</p>	<p>N.B: this budget will be spend under EMP</p>
11	WBPDCCL Land	<ul style="list-style-type: none"> • WBPDCCL get the land on 15.10.2020 but farmers didn't get their actual amount 	<ul style="list-style-type: none"> • There is no such allegation from the land owners of the project. Proper care has been taken during procurement of land by a special land team. 	---	---	---
12	Coal supply	<ul style="list-style-type: none"> • If local people picked up the coal that is wasted during delivery they get punished for that. 	<ul style="list-style-type: none"> • Mines is a prohibited area under the law, nobody can enter the mine without the permission of the mines manager. 	---	---	---
13	Vibration	<ul style="list-style-type: none"> • Their houses are being destroyed due to the vibration of the dumper. 	<ul style="list-style-type: none"> • Controlled blasting as recommended by CIMFR has been adopted and vibration during blasting is being monitored regularly for each and every blast by Vibration monitoring equipment. • The result of vibration does confirm much below the permissible standard as given in DGMS 	---	---	---

			Circular (Cir. Tech. 7/1997).			
14	Mining Rules	<ul style="list-style-type: none"> • Coal mining rules didnot followed for 1 MTPA 	<ul style="list-style-type: none"> •The mine is being operated by competent persons as specified in Coal Mines Regulation. All the operations are being carried out adhering to the conditions given in Mines Act, Regulation, Rules, Laws, Bylaws, Circulars etc. 	---	---	---
15	CSR	<ul style="list-style-type: none"> •There is no supply of coal or wood for the funeral •There are no developmental work is done in CSR fund •Football ground is incomplete •The Ponds are not cut properly. • CSR budget did not used properly. • Development must be done before 3 MTPA coal mining. 	<ul style="list-style-type: none"> • Construction of football ground, desiltation of ponds etc. in different villages will be undertaken under CSR through the Block Development Officer (BDO), Khoirasole. • Yearly budgetary provision would be Rs. 10 lakhs (Please refer point no 6) 	Constructio n of football field in Bhadulia village with a budget of Rs 5 lakhs	Maintenan ce of the football field with a annual budget of Rs 1 lakh /annum	Rs 7 lakhs

49.3.3 *The EAC after deliberations noted that the instant proposal is for increase in production capacity from 1.2 to 3.0 MTPA within the ML area of 186.42 ha. The PP has completed the process of public hearing after obtaining ToR vide letter dated 29.11.2022 and further amended ToR on 01.06.2023. The committee observed that in view of the area of the project is less than 500 ha, the instant project is considered as Category-B since it falls in vicinity of interstate boundary i.e less than 5 kms, the project is treated as category A.*

The committee observed that the PP has submitted the compliance of EAC's observation. Therefore the committee asked the PP to complete the committed activities within the timeframe specifically completion of 15.2 km of road from Mines to Railway Siding shall be completed by November 2023 along with the plantation on both sides, ETP shall be timely monitored for uninterrupted functioning, CAAQMS to be commissioned by October 2023. The CAAQMS's data shall be shared with servers of SPDB and CPCB.

It was observed that the ML boundary very close to the Hindo river barrage reservoir, therefore the committee asked the project proponent maintain the sufficient distance of atleast 150m with construction of Garland drain & Toe Wall all around the OB dump. PP should not allow the mine water to flow into the nearby river. The quality of river water shall be monitored on six-monthly basis within the ML area after establishing in-situ laboratory.

Further Committee noted that the PP has submitted the Capital cost for EMP is Rs. 278 lakhs and total recurring cost for the entire life of the mine (3 years) Rs. 77 lakh/year. The Committed desired that it should be completed in time bound manner and detail expenditure report to be submitted to IRO, MoEF&CC. PP shall also implement the time bound action plan with budget provision against issues raised in Public Hearing in time bound manner as mentioned above para 49.3.2 and detail status to be submitted to IRO, MoEF&CC.

As proposed, the capital cost of Rs. 1680 lakhs as part of Mining Closure activities shall be implemented concurrently with stipulation given in mine plan.

Based on the above discussions and deliberations, finally EAC recommended the proposal for expansion of Gangaramchak & Gangaramchak - Bhadulia Opencast Coal Mine from production capacity of 1.2 MTPA to 3.0 MTPA with total project area of 186.42 ha by M/s The West Bengal Power Development Corporation Limited under EIA Notification, 2006 and subsequent amendments/circulars thereto subject to the compliance of the following terms & conditions / specific conditions for environmental safeguards:

- i. PP shall obtain CTE/CTO from State Pollution Control Board for 3.0 MTPA production capacities for open cast operation.*
- ii. PP shall install mechanized equipment as much as possible within the mine in order to reduce the dust emission.*
- iii. Dedicated concrete Road with length of 15.2 km and 12 mt width from mines to Railway siding by October 2023 with fixed sprinkling system at every 500m, away from the villages and sensitive location like school and hospitals shall be constructed to transport the coal prior to the start of the mining operation. Further 10 mts width of tree plantation shall be conducted to mitigate the vehicular and dust emission on both side of road.*
- iv. ETP shall be operationalized and its output result should be monitored regularly and its performance report be submitted IRO.*
- v. As proposed, after commissioning of CAAQMS by October 2023 the online data shall be shared with SPCB and CPCB.*

- vi. *PP shall maintain the sufficient distance of at least 150m from ML boundary to Hindo river dam. PP shall construct Garland drain & Toe Wall all around the OB dump site and sufficient height of Toe wall should be provided around the dump towards Hindo river.*
- vii. *Mine water should not allowed to flow into the near Hindo river dam and the quality of river water shall be monitored on six-monthly basis.*
- viii. *PP should not dump the Over burden outside the ML area, all mining related activity shall be implemented concurrently with the stipulation given in mine plan.*
- ix. *PP should not dump overburden towards the Hindo river dam. PP shall complete thick plantation towards the Hindo river dam.*
- x. *PP shall place atleast 6 nos. of fog canon at proper place in order to arrest the dust emission and working report shall be submitted to IRO.*
- xi. *PP shall submit the Hydrological study report for the near Hindo river Dam to IRO within 12 month.*
- xii. *PP shall deploy the truck size of upto 40 tonnes (payload) for transportation of coal by road. Transportation of coal shall be done in covered trucks only till the completion of mechanization in the ML area.*
- xiii. *PP shall submit the Copy of NOC for withdrawal of groundwater from the concerned authority within six month to IRO, MOEF&CC.*
- xiv. *PP shall implement the activities-wise proposed budget of Rs. 278 lakhs and total recurring cost for the entire life of the mine (3 years) is Rs. 77 lakh/year (as EMP cost) in time bound manner mentioned above para 49.3.2 of minutes. The details of annual expenditure incurred shall be part of report to be submitted to IRO, MoEF&CC. PP needs to include the audited figures against the expenditure and activities to be monitored by through dedicated monitoring mechanism. The maintenance of all activities shall be covered through recurring cost of Public Hearing, and continued as a part of CSR budget.*
- xv. *PP shall implement the time bound action plan with budget against issues raised in Public Hearing in time bound manner as mentioned above para 49.3.2 of minutes. The details of annual expenditure incurred shall be part of report to be submitted to IRO, MoEF&CC. PP needs to include the audited figures against the expenditure and activities to be monitored by through dedicated monitoring mechanism. The maintenance of all activities shall be covered through recurring cost of Public Hearing, and continued as a part of CSR budget.*
- xvi. *Capital cost of Rs. 1680 lakhs as part of Mining Closure activities shall be implemented concurrently with stipulation given in mine plan for Gangaramchak Bhadulia Coal Mine Project. Mine closure is required to be implemented concurrently with stipulation given in mine plan.*
- xvii. *2 water harvesting pond shall be created separately to recharging the ground water and usage of project affected families.*
- xviii. *PP shall monitor regularly water levels in open dug wells located in village and by establishing Piezometer to ascertain the impact of mining over ground water table and to plan mitigative measures to recharge the area.*
- xix. *Main haul road in the mine shall be provided with permanent water sprinklers, and other roads shall be regularly wetted with water tankers fitted with sprinklers. Also PP shall install Mist*

Cannon Dust Suppression Systems (distance 80-100 mtrs.) at Coal Stock Yard to suppress the dust particles.

- xx. *Garland drains (2mX3m) or of adequate size shall be provided at the toe of the benches to arrest discharge and runoff with silt and sediments surging into areas adjoining the periphery of Overburden dump, which will be regularly cleaned before the onset of monsoon every year.*
- xxi. *Check dams shall be constructed at required locations within drains to arrest eroded materials and settling ponds shall be constructed to treat mine discharge water inside the mine block.*
- xxii. *Proper profiling of working benches of pits and dumps shall be done to channelize water in garland drains & sumps.*
- xxiii. *Waste generated from the domestic use shall be treated in STP and the treated water will be utilized in plantation & greenbelt development. Wastewater from the HEMM washing/workshop will be treated in ETP. After treatment, water will be reused in washing of HEMM, dust suppression and greenbelt development.*
- xxiv. *Dumping of OB shall maintain distance of about 200 mts from any habitation and additional Greenbelt development/plantation (atleast 8 to 10 ft trees) shall be carried out at the periphery of the mine lease area as well as in the adjacent area of village.*
- xxv. *PP shall limit the activities of mining in its mine lease area only. No OB Dumping and infrastructure activity should be proposed and dumped on forest land. Accordingly revised Mine Plan should be submitted (if required) and submitted to Ministry.*
- xxvi. *PP shall make use of advanced computer simulation techniques for design and execution of blasting operation in the mine. PP shall make use of Electronic Delay Detonators for optimal blasting in coal and OB rock to minimize the environmental impacts of blasting such as ground vibration, fly rocks and excessive dust generation.*
- xxvii. *PP shall deploy atleast 20% of overall fleet of dumpers/trucks as electrical or CNG/LNG based dumpers/trucks for transportation of coal/OB etc.*
- xxviii. *PP shall reduce the carbon footprint after sequestration of CO₂. IRO will review the progress of CO₂ sequestration. The process of sequestration of CO₂ will include the planting trees, by “Developing carbon capture and storage (CCS) technologies” and implementation of renewable energy. Further, PP shall carry out enough plantation to ensure carbon sequestration lost due to deforestation and other fossil fuel based activities.*
- xxix. *PP shall create a “Public Grievance Redressal and Monitoring System” for resolving any issues related to the pollution of mines and complaint has to resolve as soon as possible not beyond 30 days. In this regard, adequate awareness to be spread among the public to address their grievance to company with simple and easy manner and for which company needs to devise the mechanism. The same shall be reported to IRO within 3 months. A logbook to be maintained by PP on “Public Grievance Redressal and Monitoring System.*
- xxx. *PP shall ensure distribution of water from the artificial reservoir within and outside Mine lease area in consultation with gram panchayat. The water treatment plant to meet the requirement with the start of production.*
- xxxi. *PP shall conduct third party audit of compliance of EC condition at an interval six months and its report shall be submitted to IRO, MoEF&CC.*

- xxxii. *The status of mine closure activities must be included in every six months compliance report submitted to the state pollution control board and IRO.*
- xxxiii. *PP to install solar lights along the road used for transportation of minerals 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.*
- xxxiv. *PP to provide bio toilets to the villages located within the study areas within 1 year from the grant of this EC.*
- xxxv. *Persons of nearby villages shall be given training on livelihood and skill development to make them employable with its proper records.*
- xxxvi. *PP shall pay to farmers of agricultural land if there is any loss due to pollution found by concerned District Commissioner as per extent rules or norms.*
- xxxvii. *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.*
- xxxviii. *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.*
- xxxix. *PP shall conduct feasibility studies for assessment of voids for backfilling of ash and mixing of ash with overburden, taking up backfilling ash and OB mixing activities during operations as well as post closure of mines in line with the Fly Ash Utilization Notification, 2021.*

Annexure-I

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

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

(a) Statutory compliance

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

(b) Air quality monitoring and preservation

- (i) Continuous ambient air quality monitoring stations as prescribed in the statute be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely 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. Environmental friendly sustainable technology should be implemented for mitigating such parameters.

(c) Water quality monitoring and preservation

- (i) The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25th September, 2000 and as amended from time to time by the Central Pollution Control Board.
- (ii) The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No. J- 20012/1/2006-IA.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 interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land be rendered usable for agricultural/forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation of Mine Closure Plan issued by the Ministry of Coal dated 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 topsoil shall temporarily be stored at earmarked site(s) only and shall not be kept unutilized. The top soil shall be used for land reclamation and plantation purposes. Active OB dumps shall be stabilised with native grass species to prevent erosion and surface run off. The other overburden dumps shall be vegetated with native flora species. The excavated area shall be backfilled and afforested in line with the approved Mine Closure Plan. Monitoring and management of rehabilitated areas shall continue until the vegetation becomes self-sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest and Climate Change/ Regional Office.
- (vi) The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.
- (g) Green Belt**
 - (i) The project proponent shall take all precautionary measures during mining operation for conservation and protection of endangered/endemic flora/fauna, if any, spotted/reported in the study area. The Action plan in this regard, if any, shall be prepared and implemented in consultation with the State Forest and Wildlife Department.
 - (ii) Greenbelt consisting of 3-tier plantation of width not less than 7.5 m shall be developed all along the mine lease area as soon as possible. The green belt comprising a mix of native species (endemic species should be given priority) shall be developed all along the major approach/ coal transportation roads.
- (h) Public hearing and Human health issues**
 - (i) Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored weekly. The report on the same shall be submitted to this ministry & 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 OMNo.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 report 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,

NOx(ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.

- (v) The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- (vi) The project proponent shall follow the mitigation measures provided in this Ministry's OMNo.Z-11013/5712014-IA.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.

Annexure-II

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

All the projects recommended for grant of environmental clearance by the EAC shall also 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-20012/1/2006-1A.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 purposive. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- ix. Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.
- x. Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- xi. The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc., with impact of mining activities on it, and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan/ EIA-EMP submitted to this Ministry and the same should be done with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved mining plan and as per the permission of DGMS.
- xii. The project proponent shall take all precautionary measures to ensure reverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A reverian /riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.

IV. Noise and Vibration monitoring and prevention

- i. Adequate measures shall be taken for control of noise levels below 85 dB(A) in the work environment. Workers engaged in underground mining operations, operation of HEMM, etc. shall be provided with personal protective equipments (PPE) like ear plugs/muffs in

conformity with the prescribed norms/guidelines in this regard. Progress in usage of such accessories to be monitored. Adequate awareness programme for users to be conducted.

- ii. The noise level survey shall be carried out as per the prescribed guidelines to assess noise exposure of the workmen at vulnerable points in the mine premises, and report in this regard shall be submitted to the Ministry/RO on six-monthly basis.

V. Mining Plan

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

VI. Land reclamation

- i. Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change (MOEFCC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
- ii. Post-mining land be rendered usable for agricultural/forestry purposes and shall be handed over to the respective State Government, as specified in the Guidelines for Preparation of Mine Closure Plan, issued by the Ministry of Coal dated 27th August, 2009 and subsequent amendments.
- iii. Regular monitoring of subsidence movement on the surface over and around the working areas and its impact on natural drainage pattern, water bodies, vegetation, structure, roads and surroundings shall be continued till movement ceases completely. In case of observation of any high rate of subsidence beyond the limit prescribed, appropriate effective mitigation measures shall be taken to avoid loss of life and materials. Cracks should be effectively plugged in with ballast and clay soil/suitable material.
- iv. Fly ash shall be used for external dump of overburden, backfilling or stowing of mine as per provisions contained in clause (i) and (ii) of subparagraph (8) of fly ash notification issued vide SO 2804 (E) dated 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 green belt comprising of a mix of native species shall be developed all along the major approach roads/ coal transportation roads.

VIII. Public hearing and Human health issues

- i. Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored.
- ii. The Project Proponent shall undertake Occupational Health survey for initial and Periodical medical examination of the workers engaged in the Project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS Circulars. Besides carrying out regular periodic health check-up of their workers, 20% of the workers engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any.
- iii. Personnel (including outsourcing employees) working in dusty areas shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- iv. Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.
- v. Effective arrangement shall be made to provide and maintain at suitable points conveniently situated, a sufficient supply of drinking water for all the persons employed.
- vi. Implementation of Action Plan on the issues raised during the Public Hearing shall be ensured. The Project Proponent shall undertake all the tasks as per the Action Plan submitted with budgetary provisions during the Public Hearing. Land oustees shall be compensated as per the norms laid out R&R Policy of the Company/ or the National R&R Policy/ R&R Policy of the State Government, as applicable
- vii. The project proponent shall follow the mitigation measures provided in this Ministry's OMNo.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 report 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. (incase of the presence of schedule-I species in the study area)
- (iv) The project proponent shall obtain Consent to Establish / Operate under the provisions of Air (Prevention & Control of Pollution) Act, 1981 and the Water (Prevention & Control of Pollution) Act, 1974 from the concerned State pollution Control Board/ Committee.
- (v) The project proponent shall obtain the necessary permission from the Central Ground Water Authority.
- (vi) Solid waste/hazardous waste generated in the washery needs to addressed in accordance to the Solid Waste Management Rules, 2016 / Hazardous & Other Waste Management Rules,2016.
- (vii) Coal beneficiation practices shall be carried out under strict adherence to provisions of the Factories Act, 1957 and subordinate legislations made there under.

II. Air quality monitoring and preservation

- i. Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely particulates, SO₂ and 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 appropriate planned and designed to avoid air and water pollution from such sites.

III. Water quality monitoring and preservation

- i. The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 25.9.2000 and as amended from time to time by the Central Pollution Control Board.
- ii. The monitoring data shall be uploaded on the company's website and displayed at the project site at a suitable location. The circular No. J-20012/1/2006-1A.11 (M) dated 27.05.2009 issued by Ministry of Environment, Forest and Climate Change shall also be referred in this regard for compliance.
- iii. Industrial waste water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made there under, and as amended from time to time.
- iv. The project proponent shall not alter major water channels around the site. Appropriate embankment shall be provided along the side of the river/nallah flowing near or adjacent to the washery. The embankment constructed along the river/nallah boundary shall be of

suitable dimensions and critical patches shall be strengthened by stone pitching on the riverfront side stabilised with plantation so as to withstand the peak water pressure preventing any chance of inundation.

- v. Heavy metal content in raw coal and washed coal shall be analysed once in a year and records maintained thereof.
- vi. The rejects should preferably be utilized in FBC power plant or disposed off through sale for its gainful utilization. If the coal washery rejects are to be disposed off, it should be done in a safe and sustainable manner with adequate compaction and post closure arrangement to avoid water pollution due to leachate from rejects and surface run off from reject dumping sites.
- vii. An Integrated Surface Water Management Plan for the washery area up to its buffer zone considering the presence of any river/rivulet/pond/lake etc. with impact of coal washing activities on it, shall be prepared, submitted to MoEFCC and implemented.
- viii. Waste Water shall be effectively treated and recycled completely either for washery operations or maintenance of green belt around the plant.
- ix. Rainwater harvesting in the washery premises shall be implemented for conservation and augmentation of ground water resources in consultation with Central Ground Water Board.
- x. No ground water shall be used for coal washing unless otherwise permitted in writing by competent authority (CGWA) or MoEFCC. The make-up water requirement of washery should not exceed 1.5 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. 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.
- xii. 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 mwidth 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. 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.
- ii. 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.
- iii. 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.
- iv. 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 approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to

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

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

IX. Miscellaneous

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local n
- ii. newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- iii. The copies of the environmental clearance shall be submitted by the project proponents tithe Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iv. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- v. The project proponent shall monitor the criteria pollutants level namely; PM10, 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.
- vi. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- vii. The project proponent shall submit the environmental statement for each financial year in form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- viii. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.

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

ANNEXURE-IV

Generic ToR for coal washery

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

is not feasible because of the topography of the area, the option for transport by road be examined in detail and its impacts along with the mitigation measures should be clearly brought out in EIA/EMP report.

- xii. Details of various facilities proposed to be provided in terms of parking, rest areas, canteen etc. to the personnel involved in mineral transportation, workshop and effluents/pollution load from these activities should be provided.
- xiii. Impacts of CHP, if any, on air and water quality should also be spelt out along with Action Plan.
- xiv. O.M.no.J-II0I3/25/2014-IA.I dated 11th August, 2014 to be followed with regard to CSR activities.
- xv. Details of Public Hearing, Notice(s) issued in newspapers, proceedings/minutes of Public Hearing, points raised by the general public and response/commitments made by the proponent along with the Action Plan and budgetary provisions be submitted in tabular form. If the Public Hearing is in the regional language, an authenticated English translation of the same should be provided. Status of any litigations/ court cases filed/pending, if any, against the project should be mentioned in EIA.
- xvi. Analysis of samples indicating the following be submitted:
 - Characteristics of coal prior to washing (this includes grade of coal, other characteristics of ash, S and heavy levels of metals such as Hg, As, Pb, Cr etc).
 - Characteristics and quantum of coal after washing.
 - Characteristics and quantum of coal rejects.
- xvii. Details of management/disposal/use of coal rejects should be provided. The rejects should be used in TPP located close to the washery as far as possible. If TPP is within a reasonable distance (10 km), transportation should be by conveyor belt. If it is far away, the transportation should be by rail as far as possible.
- xviii. Copies of MOU/Agreement with linkages (for stand-alone washery) for the capacity for which EC is being sought should be submitted.
- xix. Corporate Environment Responsibility:
 - a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
 - b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
 - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
 - d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
- xx. A detailed action Plan for Corporate Social Responsibility for the project affected people and people living in and around the project area should be provided.
- xxi. Permission of drawl of water shall be pre-requisite for consideration of EC.

- xxii. Wastewater /effluent should confirm to the effluent standards as prescribed under Environment (Protection) Act, 1986
- xxiii. Details of washed coal, middling and rejects along with the MoU with the end-users should be submitted.

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 embankment etc. should also be shown on the map as per the approval of Irrigation and flood control Department of the concerned state.
- (x) Similarly, if the project involves diversion of any road/railway line passing through the ML/project area, the proposed route of diversion and its realignment should be shown in the map along with the status of the approval of the competent authority.
- (xi) Break up of lease/project area as per different land uses and their stage of acquisition should be provided.

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

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

- (xii) Break-up of lease/project area as per mining plan should be provided.
- (xiii) Impact of changes in the land use due to the project if the land is predominantly agricultural land/forestland/grazing land, should be provided.
- (xiv) One-season (other than monsoon) primary baseline data on environmental quality - air (PM10, PM2.5, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil - along with one-season met data coinciding with the same season for AAQ collection period should be provided.
- (xv) Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should 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.No.	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

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

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

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

- (xxxii) Flow chart of water balance should be provided. Treatment of effluents from workshop, township, domestic wastewater, mine water discharge, etc. should be provided. Details of STP in colony and ETP in mine should be given. Recycling of water to the max. possible extent should be done.
- (xxxiii) Occupational health issues. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower in the mine should be given.
- (xxxiv) Risk Assessment and Disaster Preparedness and Management Plan should be provided.
- (xxxv) Integration of the Env. Management Plan with measures for minimizing use of natural resources - water, land, energy, etc. should be carried out.
- (xxxvi) Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
- (xxxvii) Details of R&R. Detailed project specific R&R Plan with data on the existing socio-economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan should be given.
- (xxxviii) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
- (xxxix) Corporate Environment Responsibility:
- a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
 - b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
 - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
 - d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.
- (xl) Details on Public Hearing should cover the information relating to notices issued in the newspaper, proceedings/minutes of Public Hearing, the points raised by the general public and commitments made by the proponent and the action proposed with budgets in suitable time frame. These details should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
- (xli) In built mechanism of self-monitoring of compliance of environmental regulations should be indicated.
- (xlii) Status of any litigations/ court cases filed/pending on the project should be provided.

- (xliii) Submission of sample test analysis of Characteristics of coal: This should include details on grade of coal and other characteristics such as ash content, S and heavy metals including levels of Hg, As, Pb, Cr etc.
- (xliv) Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, mine closer plan approval. NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.

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

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

ANNEXURE -VI

GENERIC TORs 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/water bodies) of the area should be provided as per the tables given below. Impacts of project, if any on the land use, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations should be analyzed. Extent of area under surface rights and under mining rights should be specified.

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

Area under Surface Rights

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

- (viii) Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally

visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.

- (ix) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.
- (x) Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.
- (xi) Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (xii) One-season (other than monsoon) primary baseline data on environmental quality - air (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 area for which FC is yet to be obtained	Status of appl. For diversion of forest land
		If more than one provide details of each FC			

ANNEXURE-VII

GENERIC TORs FOR AN OPENCAST -CUM UNDERGROUND COAL MINE PROJECT

- (i) An EIA-EMP Report would be prepared for a combined peak capacity of....MTPA for OC-cum-UG project which consists of... MTPA in 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 49th MEETING HELD ON 29th
AUGUST, 2023 THROUGH VIDEO CONFERENCING**

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