

MINUTES OF 15th MEETING OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENT APPRAISAL OF COAL MINING PROJECTS HELD on 6th July, 2021 DURING 10.30 AM – 15.00 PM THROUGH VIDEO CONFERENCE.

Tuesday, 6th July, 2021

Confirmation of the Minutes of 14th Meeting of the EAC (Coal) held on 11th June, 2021:
The minutes of the 14th meeting of the EAC held during 11th June, 2021 was confirmed by the Chairman.

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

Consideration of Proposals: The 15th meeting of the Expert Appraisal Committee (EAC) for coal mining projects was held on 6th July, 2021 through video conferencing with support NIC team due to Covid-19 lockdown. The EAC considered proposals as per agenda adopted for the meeting. List of participant attended the meeting is annexed. The details of deliberations held & decisions taken in the meeting are as under.

Agenda No. 15.1

Expansion of Kanchan Opencast coal mine from 0.65 / 0.75 MTPA (Normative/Peak) to 2.0/2.70 MTPA (Normative/Peak) in an area of 749.31 ha by M/s South Eastern Coalfields Limited located in village Ghulghuli, Gahiratola, Lehangi, Karnapura, Chhuihai, Dhanwahi, Parsel at Tehsil Nowrozabad & Karkeli, District Umaria (Madhya Pradesh) – For Environment Clearance – reg.

[Online Proposal No. IA/MP/CMIN/212327/2018; J-11015/574/2007-IA(M)]

15.1.1 The proposal is for Environment Clearance for Expansion of Kanchan Opencast coal mine from 0.65 / 0.75 MTPA (Normative/Peak) to 2.0/2.70 MTPA (Normative/Peak) in an area of 749.31 ha by M/s South Eastern Coalfields Limited located in village Ghulghuli, Gahiratola, Lehangi, Karnapura, Chhuihai, Dhanwahi, Parsel at Tehsil Nowrozabad & Karkeli, District Umaria (Madhya Pradesh).

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

- (i) The project area is covered under Survey of India Topo Sheet No 64A/15 and is bounded

by the geographical coordinates ranging from 23° 20' 12" to 23 ° 20' 50" N and longitudes 80° 50' 50" to 80° 52' 41" E.

- (ii) Coal linkage of the project is proposed for use for various Thermal Power Stations
- (iii) No Joint venture cartel has been formed.
- (iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance.
- (v) Employment generation: Employment to 258 persons will be provided from the project.
- (vi) The project is reported to be beneficial in terms of fulfilling the demand nation's electricity and other coal based industries, apart from earning revenue for the government. Opportunity of employment for the project affected villagers and allied industries.
- (vii) Earlier, the environment clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter No. J-11015/574/2007-IA.II(M) dated 29.03.2010 for 0.65 MTPA (Normative)/0.75MTPA (Peak) in mine lease area of 203.93 ha.
- (viii) Terms of Reference for the project was granted by Ministry on 17.08.2018
- (ix) Total mining lease area is 749.31 ha. Mining Plan (Including Progressive Mine Closure Plan) has been approved by the SECL Board on 17.12.2014
- (x) The land usage pattern of the project is as follows:

Pre-mining land use details

(Area in Ha)

S. No.	Land Use	Within ML Area	Outside ML Area	Total
1	Agricultural Land	581.033	38.016	619.048
2	Forest Land	37.231	Nil	37.231
3	Wasteland	60.283	17.892	78.175
4	Grazing Land	4.980	0.063	5.043
5	Surface Water Bodies	9.813	Nil	9.813
6	Settlements	Nil	Nil	Nil
7	Others (Specify)	Nil	Nil	Nil
	Total Project Area	693.34	55.97	749.31

Post Mining

S. No.	Land use	Land use (ha)				
		Plantation	Water Body	Public Use	Undisturbed	Total
1	External OB	61.21	0	0	0	61.21

	Dump					
2	Top Soil Dump	0	0	0	0	0
3	Excavation	441.00	49.0	0	0	490.00
4	Roads	0.60	0	5.40	0	6.00
5	Built-up Area	0	0	32.93	0	32.93
6	Green Belt	100.00	0	0	0	100.00
7	Undisturbed Area	0	0	0	59.17	59.17
	Total Area	602.81	49.0	38.33	59.17	749.31

- (xi) Total geological reserve reported in the mine lease area is 32.6025 MT with 25.84MT mineable reserve. Out of total mineable reserve of 25.84MT, 25.84 MT are available for extraction. Percent of extraction is 79.257%.
- (xii) 6 seams with thickness ranging from 0.04 m to 6.16 m are workable. Grade of coal is G-6, stripping ratio is 9.60cum/tonne, while gradient is 1 in12.
- (xiii) Method of mining operations envisages by open cast method.
- (xiv) Life of mine is 15 years.
- (xv) The project has 2 external OB dumps in an area of 61.21 ha with 60 m height and 18.77Mm³ of OB. 2 internal OB in an area of 441.00ha with approximately 229.23Mm³ of OB is envisaged in the project.
- (xvi) Total quarry area is 490.00ha out of which backfilling will be done in 441.00ha while final mine void will be created in an area of 49.0 ha with a depth of 121m. Backfilled quarry area of 441.00 ha shall be reclaimed with plantation. Final mine void will be converted to water body.
- (xvii) Transportation of coal has been proposed by dumpers in mine pit head, from surface to siding by dumpers and at sidings by rail.
- (xviii) Reclamation Plan in an area of 602.81ha, comprising of 61.21 ha of external dump, 441.00 ha of internal dump and 100.00 ha of green belt etc. The safety zone will be of 159.17 ha.
- (xix) 37.231 ha of forest land has been reported to be involved in the project. In-principle approval under the Forest (Conservation) Act, 1980 for diversion of 37.231 ha of forest land for non-forestry purposes has been obtained vide MoEF&CC letter No.6-MPC 054/2018-BHO/073 dated 24/01/2019 for 31.15 ha and vide MoEF&CC letter No. 6-MPC 053/2018-BHO/070 dated 24/01/2019 for 6.081 ha. Formal approval issued by MoEF&CC vide letter no. 6-MPC053/2018-BHO/258 Dated 25/03/2021 for 6.081 ha forest land.
- (xx) No National Park, Wildlife Sanctuaries and Eco-Sensitive Zones fall within 10 km boundary of the project.
- (xxi) The ground water level has been reported to be varying between 3.98m to 8.40m during pre- monsoon and between 2.29m to 8.25m during post-monsoon. Total water requirement for the project is 1779 KLD.

- (xxii) Ground water clearance obtained on 09.04.2003 and application for obtaining the approval of the Central Ground Water Authority for NoC has been submitted on 22nd December, 2017.
- (xxiii) Public hearing for the project of 2.7 MTPA capacity in an area of 749.31 ha was conducted on 08.10.2020 at Govt. I.T.I Bhavan Kohka, Nowrozabad under the Chairmanship of Additional District Collector, Umaria. Major issues raised in the public hearing include employment, land compensation ,R&R ,air ,water pollution ,blasting ,road, CSR work etc. Appropriate action to address the issues raised in the Public Hearing have already been taken/proposed to be taken.
- (xxiv) Consent to Operate for the existing capacity was obtained from the State PCB on 17.07.2020 and is valid till 31.03.2021
- (xxv) Ghorchat nallah is flowing on North side of the mine boundary and Lehangi nallah is flowing on the eastern boundary of the mine. The Chuhia nallah will be diverted in consultation with the Water Resource Department of the State Government.
- (xxvi) Regular monitoring of ambient air quality is being carried out on fortnightly basis. The documented report is submitted to State PCB 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.
- (xxvii) No court cases, violation cases are pending against the project of the PP.
- (xxviii) The project does not involve violation of the EIA Notification, 2006 and amendment issued there under. The coal production from the mine was started from the year 2005-06 onwards. No excess production of coal from the sanctioned capacity has been realized since the commencement of mining operations, except in 2008-09. The coal production, realized from the project, from 2005-06 onwards, is as under

S. No.	Financial year	Sanctioned capacity as per EC (MTPA)	Actual Production (MTPA)	Excess Production Beyond EC
1	2005-06	0.32	0.016	0
2	2006-07	0.32	0.128	0
3	2007-08	0.32	0.320	0
4	2008-09	0.32	0.363	0.043
5	2009-10	0.75	0.610	0
6	2010-11	0.75	0.749	0
7	2011-12	0.75	0.750	0
8	2012-13	0.75	0.750	0
9	2013-14	0.75	0.750	0
10	2014-15	0.75	0.750	0

11	2015-16	0.75	0.750	0
12	2016-17	0.75	0.475	0
13	2017-18	0.75	0.750	0
14	2018-19	0.75	0.578	0
15	2019-20	0.75	0.135	0
16	2020-21	0.75	0.592	0

(xxix) The project involves 1210 project affected families. R&R of the PAPs will be done as per CIL R&R policies.

(xxx) Total cost of the project is Rs.371.04 lakhs. Cost of production is Rs 1169.56/- per tonne., 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, R&R cost is Rs 70.16.crores. Environment Management Cost is Rs.101.70crore

15.1.3 The EAC during deliberations noted the followings:

- i. The proposal is for Environment Clearance for Expansion of Kanchan Opencast coal mine from 0.65 / 0.75 MTPA (Normative/Peak) to 2.0/2.70 MTPA (Normative/Peak) in an area of 749.31 ha by M/s South Eastern Coalfields Limited located in village Ghulghuli, Gahiratola, Lehangi, Karnapura, Chhuihai, Dhanwahi, Parsel at Tehsil Nowrozabad & Karkeli, District Umaria (Madhya Pradesh).
- ii. Earlier, the environment clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter No. J-11015/574/2007-IA.II(M) dated 29.03.2010 for 0.65 MTPA (Normative)/0.75MTPA (Peak) in mine lease area of 203.93 ha.
- iii. Terms of Reference for the project was granted by Ministry on 17.08.2018
- iv. The baseline data has been generated for three months i.e. from 1st April 2019 to 30th June 2019 covering one season (i.e. Pre Monsoon season). Ground Level Concentration (GLC) values for PM10, PM2.5, SOx and NOx as carried out in the prediction made by AERMOD software for peak production to assess the impact of mining
- v. A comprehensive study of the impact on the wildlife including a programme for conservation of wildlife particularly the rare and endangered species (fauna, flora and species of medicinal importance) for Kanchan OC Expansion Project (from 0.65 MTY to 2.0 MTY) was carried out by Tropical Forest research Institute (TFRI), Jabalpur. An indicative budget for Rs. 847.62 Lakhs is proposed by TFRI for various activities for wildlife conservation plan for Kanchan Expansion Project to be undertaken based on the proposed mitigative measures for 5 years. The Wildlife Conservation Plan prepared by

Tropical Forest research Institute (TFRI), Jabalpur.

- vi. Total mining lease area is 749.31 ha. Mining Plan (Including Progressive Mine Closure Plan) has been approved by the SECL Board on 17.12.2014
- vii. Public consultation for the project of 2.7 MTPA capacity in an area of 749.31ha was conducted on 08.10.2020 at Govt. I.T.I Bhavan Kohka, Nowrozabad under the Chairmanship of Additional District Collector, Umaria Sri Ashok Ohri as representative of Collector, Umaria with Regional Officer Sri Sanjeev Mehra of M.P. Pollution Control Board, Regional Office, Shahdol. Major issues raised in the public hearing include employment, land compensation, R&R air & water pollution, blasting, road, CSR work etc. Appropriate action to address the issues raised in the Public Hearing have already been taken/proposed to be taken.
- viii. Ghorchat nallah is flowing on North side of the mine boundary and Lehangi nallah is flowing on the eastern boundary of the mine. The Chuhia nallah will be diverted in consultation with the Water Resource Department of the State Government. To arrest the surface runoff and to protect any spill over from adjacent streams into mine workings, it is proposed to strengthen the embankment along the southern boundary (i.e., realigned channel) and the banks of the eastern boundary (i.e., Lahangi Nala) as per DGMS norms.
- ix. EAC while deliberations sought additional information PP regarding diversion of streams and blast design. PP vide its letter dated 8th July, 2021 with Ref. No.SECL/BSP/ENV/KANCHAN/2021/590 has submitted the details.

Dimensions of the existing streamlets and the proposed diverting Nala along with peak discharge computations.

Stream/ Tributary	Stream order	Directi on of flow	R.L differ ence (m)	Dimensions of the Stream				Mean flow velocit y, V (m/sec)	Q (m ³ /sec)	Total peak dischar ge (m ³ /sec)
				Len ^g t h (m)	Mean Widt h (m)	Mea n Dep th/ Heig ht	Cross- Section Area (m ²)			

							(m)				
Tributary 1	T 1-1	Third	South to North	8.1	1070	2.00	1.50	3	3.7695	11.31	127.34
	T 1-2	Second	South to North	6.4	910	2.00	1.50	3	3.6333	10.90	
	T 1-3	Third	South to North	2	257	3.50	2.50	8.75	5.3817	47.09	
Tributary 2		Second	South to North	12	2378	2.00	1.50	3	3.0776	9.23	
Chuihai Nala		Third	South to North	7.6	1671	3.50	3.00	10.5	4.6488	48.81	
Proposed nala diversion		Single channel	West to East (till culmination into Lahang i Nala)	3.5	4735	6.00	5.00	30	4.7501	142.50	142.50

Strategy for controlled blasting to prevent the blast induced vibration in nearby villages (as per DGMS guidelines)

- (1) Pre-splitting shall be done to arrest the blast induced ground vibration near the mine boundary
- (2) Controlled blasting technique will be used near the village within 500 m and beyond 100 m from hutment/ habitat area by taking following measures
 - Only NONEL (Non Electric Detonator) will be used with SME/LD for Blasting
 - Overcharging of blast holes with explosives shall be avoided to restrict the charge/delay.
 - Blasting shall be restricted to maximum two to three rows near village to reduce the charge/round.

- Muffling of blast holes shall be done with wire netting overlain by 3-4 sandbags of 30-40 kg for each round of blasting.
 - Only moist sand shall be used for stemming purpose.
 - Free face shall be maintained for every blast. Blasted material shall be cleared out before commencement of subsequent blasting.
 - All loose material shall be removed from the blast site to prevent the fly rock.
 - Monitoring Station, for measuring the vibration, should be fixed near the Dhanbahi & Lahngi Village. Seismograph reading will be taken for every blast at the mine.
 - Special attention shall be given to type of initiation and sequence of delay to reduce charge/delay.
- (3) In addition to above, scientific study of controlled blasting will be conducted through scientific agency for blasting within 500 m and beyond 100 m of habitat area.
- (4) Implementation of recommendation of controlled blasting study.
- (5) Monitoring of blasts in habitat area as per the recommendation of controlled blasting study.
- (6) In house team would be developed in consultant guidance from CMPDI
- (7) Recommended blast pattern are given below, however the charge/delay and charge/round may varies depending upon the distance of blast from structure, change in geo-mining condition and changed of blast geometry. Final charge/delay and charge/round may be fixed after scientific study of controlled blasting study as mentioned in point no.3.

15.1.4 From the above noted points, the EAC after deliberations concluded that PP has submitted the approved Mine plan only for 2.0 MTPA and yearly calendar plan of mining and OB generation is also for 2.0 MTPA without considering peak value. PP was required to submit the water augmentation plan for local users, being massive diversion of streams to length of about 4.7 km to be undertaken affecting catchment area, the same is not provided in the reply. The proposal further discussed on the observations made by Ministry's IRO in Certified Compliance Report wherein clarity on usage of forest land prior to grant of forest clearance is noted with non-establishing piezometer and the occupational health studies by expert agency and fugitive dust monitoring were noted to be non-complied. Apart from this, permission of Central Ground Water Authority (CGWA) has not been obtained even after EC granted for existing production i.e 0.75 MTPA (peak) on 29.03.2010. Only application has been filed in 2017 and PP continue to using mine water for its utilisation on the basis of permission granted in 2003. Accordingly, considering the above points, the proposal requires compliance to following observations:

- (i) *PP shall submit approved Mine Plan including Mine Closure plan for 2.7 MTPA instead of 2.0 MTPA as per letter dated 22nd December, 2014 (Mining plan is only approved for 2.0 MTPA)*

- (ii) *PP shall provide monetary provisions for Wildlife Conservation Plan for 2.7 MTPA instead of 2.0 MTPA.*
- (iii) *As suggested by EAC, water conservation and augmentation methods including creation of water ponds, rainwater harvesting structure, check dams, etc, may be identified for providing the water for irrigation for nearby villages. A time bound Plan to be prepared in this regard in consultation of local panchayat and district administration. Accordingly, PP shall submit revised EMP and related expenditure without including R&R compensation and compensation in lieu of job to land.*
- (iv) *In lieu of proposed diversion land, PP shall propose an alternate land of about 6 ha for grazing purpose for domestic animals for communities.*
- (v) *Clarity on usage of forest land prior to grant of Forest clearance as noted by Ministry's IRO.*
- (vi) *Permission for diversion of water stream from State Water resources department*
- (vii) *Plan for three tier plantation in safety zone with timeline along the transportation route i.e from Vindhya CHP to Nowrazabad railway siding (15 km) and around the Mine lease boundary and further study the habitation along with road within 100 mtrs from each side.*
- (viii) *Permission from CGWA for extraction ground water based on earlier EC.*
- (ix) *PP shall conduct detailed hydrogeological investigations considering the proposed diversion of three water stream joining Gorchet river since in EIA report it has been mentioned that no detailed study for aquifer parameter evaluation have been carried out in the present mine block.*
- (x) *PP shall clarify any action taken or justification in view of production exceeding beyond permission in the year of 2008-09.*
- (xi) *Action taken report with line to non-compliance to observation made by Regional Office in their certified compliance report.*
- (xii) *Plan for transportation of coal through closed belt, if feasible.*

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

Agenda No. 15.2

Expansion of Nigahi Opencast Coal Mining Project from 21 MTPA to 25 MTPA in leasehold area of 3582.723 Ha (increase in leasehold area from 3018.40 Ha to 3582.723 Ha of M/s Northern Coalfields Limited located at Village Nigahi, Tehsil Waidhan, District Singrauli (Madhya Pradesh) – For Terms of References – reg.

[Online Proposal No. IA/MP/CMIN/213117/2021; J-11015/79/2013-IA.II(M)]

15.2.1 The proposal is for Terms of Reference for Expansion of Nigahi Opencast Coal Mining Project from 21 MTPA to 25 MTPA in leasehold area of 3582.723 Ha (increase in leasehold area

from 3018.40 Ha to 3582.723 Ha of M/s Northern Coalfields Limited located at Village Nigahi, Tehsil Waidhan, District Singrauli (Madhya Pradesh).

15.2.2 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) The project area is covered under Survey of India Topo Sheet No 63-L /12 and is bounded by Latitude 24°05'58.62" North to 24°11'20.38" North and Longitude 82°35'32.33" East to 82°39'51.47" East.
- (ii) Coal linkage of the project is proposed for transportation of coal to NTPC, Vindhyanagar through MGR system and it will also serve as Basket Linkage mine to meet the overall demand of power grade coal on NCL.
- (iii) Joint venture cartel has NOT been formed.
- (iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance. However, The Singrauli area is under Severely Polluted Area (SPA) specified by CPCB.
- (v) Employment generation, 2228 nos. (Existing manpower as on 31.12.2020) to 3043 nos. (As per EPR 25 MTPA) persons will be provided from the project.
- (vi) The project is reported to be beneficial in terms of (i) Environmental: Post mining enhancement of green cover; (ii) Economic: Increase in employment potential and contribution to the exchequer of the adjoining area; (iii) Social: Improvement in social infrastructure of the adjoining area.
- (vii) Earlier, the environment clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter No J-11015/79/2013-IA.II (M) dated 03.02.2020 for 21.00 MTPA in mine lease area of 3018.40 Ha.
- (viii) Total mining lease area as per block allotment is 3582.723 Ha. Expansion Project Report incorporating Mining Plan (Including Progressive Mine Closure Plan) has been approved by the CIL Board in 414th meeting on 11.11.2020.
- (ix) The land usage pattern of the project is as follows:

Pre-mining land use details

(Area in Ha)

S. No.	LAND USE	Within ML Area (Ha)	Outside ML area (Ha)	Total
1.	Agricultural land (Tenancy Land)	188.000 (In expansion area)	Nil	188.000 (In expansion area)
2.	Forest Land	244.536 Ha (In expansion area)	Nil	244.536 Ha (In expansion area)
3.	Wasteland	0	Nil	0
4.	Grazing land	0	Nil	0

5.	Surface water bodies	0	Nil	0
6.	Settlements	265.000	Nil	265.000
7.	Others (Specify) • Industrial • Government land (In expansion area)	2753.400 131.787	Nil	2753.400 131.787
Total		3582.723	Nil	3582.723

Post- Mining:

S.No.	Land use during Mining	Land Use (ha)				
		Plantation	Water Body	PublicUse	Undisturbed	TOTAL
1	External OB dump	418.0000	0	0	0	418.0000
2	Top soil dump	Top soil will be completely used in reclamation of dumps.				
3	Excavation	1755.9333	390.2367	0	0	2146.1700
4	Roads (Including Railways)	0	0	74.0000	0	74.0000
4	Built up area	138.4920	0	265.0000	0	403.4920
5	Green Belt	409.4100	0	0	0	409.4100
6	Undisturbed Area (Safety Zone & Others)	0	0	0	131.6510	131.6510
Total		2721.8353	390.2367	339.00	131.6510	3582.723

- (x) Total geological reserve reported in the mine lease area 496.88 MT (Balance Reserve as on 01.04.2020) with 473.24 MT (Balance Reserve as on 01.04.2020) mineable reserve. Out of total geological reserve of 496.88 MT, 473.24 MT are available for extraction. Percent of extraction is 95.24 %.
- (xi) Three number of (namely Purewa Top, Purewa Bottom, Turra; Purewa Top and Purewa Bottom Seams merge to form a thick composite seam, named Purewa Merged Seam, in Western section of Nigahi OCP) seams with thickness ranging from 0.93 m to 28.30 m are workable. Grade of coal is G-9 (Average Grade), stripping ratio 4.68 m³/t, while gradient is 2 to 3 degree.
- (xii) Method of mining operations envisages by ‘combined mining system deploying dragline and shovel dumper combination and Surface Miner’ method

- (xiii) Life of mine is 21 years from 01.04.2020.
- (xiv) The project has 2 number of external OB dumps in an area of 418.00 ha with 150 m height and 231.00 Mm³ of OB, 4 number of internal OB dumps in an area of 1755.9333 ha with 1530.05 Mm³ of OB is envisaged in the project.
- (xv) Total quarry area is 2146.17 ha out of which backfilling will be done in 1755.9333 ha while final mine void will be created in an area of 390.2367 ha with a depth of 40 m. Backfilled quarry area of 1755.9333 ha shall be reclaimed with plantation. Final mine void will be converted into a water body.
- (xvi) Transportation of coal has been proposed by dumpers in mine pit head, from surface to SILO by Closed Conveyor Belt System and from SILO by MGR through automatic RLS (Rapid Loading System).
- (xvii) Reclamation Plan in an area of 2721.8353 ha, comprising of 418.00 ha of external dump, 1755.9333 ha of internal dump and 409.41 ha of green belt, 138.4920 ha land of built-up area will be planted, included in the safety zone/rationalization area.
- (xviii) 1525.199 ha of forest land has been reported to be involved in the project. Approval under the Forest (Conservation) Act, 1980 for diversion of 1280.663 ha of forest land for non-forestry purposes has been obtained in two stages, i.e., for 874.146 Ha {Original forest clearance was granted vide F.No. 8-62/86-FC dated 18.06.1987 and Forest Clearance (Stage-II) for renewal of lease, was granted vide F. No. 8-62/ 1986-FC (Pt.) dt. 16.10.2020} and 406.517 Ha {Forest Clearance (Stage-II) was granted vide F.No. 8-26/2015-FC, dated 12.04.2018.}.
- (xix) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones fall within 10 km boundary of the project
- (xx) The ground water level has been reported to be varying between 1.25 m to 24.75 m during pre-monsoon and between 0.70 m to 24.62 m during post-monsoon (from May'2017 to February' 2021- as per CMPDI report). Total water requirement for the project is 8,980 KLD.
- (xxi) Application for obtaining the approval of the Central Ground Water Authority for ground water clearance for Nigahi OCP, has been submitted on 26.09.2019.
- (xxii) Public hearing for the project of 15.00 MTPA capacity in an area of 3036.40 ha was conducted on 18.12.2005 at Community Hall, Waidhan, Singrauli, MP, under the Chairmanship of District Collector- Sidhi. Major issues raised in the public hearing include R&R, community development work, forestation of fruit bearing trees, etc., Appropriate action to address the issues raised in the Public Hearing have already been taken.
- (xxiii) Consent to Operate for the existing capacity was obtained from the State PCB on 11.06.2021 and is valid till 31.01.2022.
- (xxiv) No River/nalla is flowing near boundary of lease.
- (xxv) Regular monitoring of ambient air quality is being carried out on fortnightly basis. The documented report is submitted to MPPCB, CPCB 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.

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

(xxvii) The project does not involve violation of the EIA Notification, 2006 and amendment issued thereunder. The coal production from the mine was started from the year 1990-91 onwards.

(xxviii) The project involves 4000 project affected families. R&R of the PAPs will be done as per R&R policy 2012 of Coal India Limited.

(xxix) Total cost of the project is Rs. 3927.05 Crore. Cost of production is Rs. 1127.01 /- per tonne, CSR cost is as per CIL CSR policy of June-2014, the fund for the CSR should be allocated based on 2% of the average net profit of the company for the three immediate preceding financial years or Rs. 2/- per tonne of coal production of previous year, R&R cost is Rs 263.21 crores. Environment Management Cost is Rs. 411.96 crores.

(xxx) Consent to Operate for the existing capacity was obtained from the State PCB on 11.06.2021 and is valid till 31.01.2022.

(xxxi) Past Production details comparison with existing EC

Year	EC Sanctioned Capacity (MTPA)	Actual Production (MTPA)	Excess production beyond the EC sanctioned capacity
1985-1986	4.20	0.00	NIL
1986-1987	4.20	0.00	NIL
1987-1988	4.20	0.00	NIL
1988-1989	4.20	0.00	NIL
1989-1990	4.20	0.00	NIL
1990-1991	4.20	1.05	NIL
1991-1992	4.20	1.90	NIL
1992-1993	4.20	2.21	NIL
1993-1994	4.20	2.87	NIL
1994-1995	4.20	3.60	NIL
1995-1996	4.20	4.20	NIL
1996-1997	10.00	4.20	NIL
1997-1998	10.00	4.00	NIL
1998-1999	10.00	4.13	NIL

1999-2000	10.00	4.50	NIL
2000-2001	10.00	5.40	NIL
2001-2002	10.00	6.06	NIL
2002-2003	10.00	7.59	NIL
2003-2004	10.00	9.50	NIL
2004-2005	10.00	10.40	0.40
2005-2006	10.00	11.05	1.05
2006-2007	10.00	11.10	1.10
2007-2008	15.00	11.30	NIL
2008-2009	15.00	11.66	NIL
2009-2010	15.00	12.36	NIL
2010-2011	15.00	12.02	NIL
2011-2012	15.00	10.88	NIL
2012-2013	15.00	13.52	NIL
2013-2014	15.00	13.65	NIL
2014-2015	15.00	13.66	NIL
2015-2016	18.75	15.01	NIL
2016-2017	18.75	15.52	NIL
2017-2018	18.75	17.13	NIL
2018-2019	18.75	18.48	NIL
2019-2020	21.00	19.59	NIL
2020-2021	21.00	20.66	NIL

15.2.3 The EAC during deliberations noted the following:

- i. The proposal is for Terms of Reference for Expansion of Nigahi Opencast Coal Mining Project from 21 MTPA to 25 MTPA in leasehold area of 3582.723 Ha (increase in leasehold area from 3018.40 Ha to 3582.723 Ha of M/s Northern Coalfields Limited located at Village Nigahi, Tehsil Waidhan, District Singrauli (Madhya Pradesh).
- ii. 1525.199 ha of forest land has been reported to be involved in the project. Approval under the Forest (Conservation) Act, 1980 for diversion of 1280.663 ha of forest land for non-forestry purposes has been obtained in two stages, i.e., for 874.146 Ha {Original forest clearance was granted vide F.No. 8-62/86-FC dated 18.06.1987 and Forest

Clearance (Stage-II) for renewal of lease, was granted vide F. No. 8-62/ 1986-FC (Pt.) dt. 16.10.2020} and 406.517 Ha {Forest Clearance (Stage-II) was granted vide F.No. 8-26/2015-FC, dated 12.04.2018.}.

- iii. Forest land of area 244.536 Ha is involved in the proposed expansion project. Forest Clearance is yet to be obtained.
- iv. Earlier, the environment clearance to the project was obtained under EIA Notification, 2006 vide Ministry's letter no. J-11015/235/2006-IA.II(M) dated 8th May, 2007 for production capacity of 15 MTPA in lease area of 3036.40 ha. Further, PP obtained Environmental Clearance for a rated capacity of 18.75 MTPA of Coal Production vide letter No. J11015/79/2013-IA.II (M) dated: 19.03.2015. Subsequently PP was granted for expansion of 21 MTPA vide no. No J-11015/79/2013-IA.II (M) dated 03.02.2020 in mine lease area of 3018.40 Ha

*15.2.4 The EAC, after detailed deliberation observed that PP and its consultants (M/s CMPDI) are unable to answer the queries raised by EAC members w.r.t. various features of mining and technical details of the projects. The Committee expressed displeasure on poor presentation and inadequate content in presentation, which made them difficult to understand the project. M/s CMPDI was advised to come prepared with full details. In addition, EAC deliberated the proposal in details due to its location in Critically Polluted Areas of Singrauli. However, finally it was desired to conduct site visit by forming a EAC sub-committee. Further, EAC **recommends** the proposal for grant of Terms of Reference to Expansion of Nigahi Opencast Coal Mining Project from 21 MTPA to 25 MTPA in leasehold area of 3582.723 Ha (increase in leasehold area from 3018.40 Ha to 3582.723 Ha of M/s Northern Coalfields Limited located at Village Nigahi, Tehsil Waidhan, District Singrauli (Madhya Pradesh), with specific conditions as below and as defined in the Standard ToR under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto.*

- (i) Public Consultation, including public hearing, shall be conducted through concerned SPCB in the concerned districts as per the provisions/procedure contained in the EIA Notification, 2006 for information of the stakeholders about the present coal mining operations inviting comments and their redressal.*
- (ii) PP shall submit certified compliance report from Ministry's Integrated Regional Office of all earlier ECs i.e EC dated 8th May, 2007, 19th March, 2015 and 3rd February, 2020.*
- (iii) PP shall conduct Cumulative Impact Assessment Study, carrying capacity and ecosystem services study from independent consultant (not from M/s CMPDI) of the area shall be carried over by project proponent considering the project being Singrauli and presence of other coal mining activity and industries.*
- (iv) Stage-I Forest Clearance for diversion for non-forestry activity shall be submitted*

- (v) *PP shall explore the possibilities of utilization of OB material for different purposes (in construction of roads, manufacture of artificial sand, aggregates, use for farmers etc.) and accordingly Plan shall be included in EIA/EMP Report.*
- (vi) *Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned by the collection of air quality data. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.*
- (vii) *Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.*
- (viii) *PP shall provide the details of mining technology/methodology proposed to be adopted for coal mining operations and its associated environmental benefits of using from Climate Change perspective.*
- (ix) *Detailed Social Impact Assessment shall be prepared in villages for Rehabilitation and Re-settlement.*
- (x) *Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA).*
- (xi) *Heavy metals including other parameters in surface water quality shall be analyzed and provided in EIA Report.*
- (xii) *PP shall be submitting R &R in respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programs prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government.*
- (xiii) *Inpit conveyor belt with silo loading should be proposed and installed for transportation of coal till railway siding. No transportation of coal by trucks/dumpers shall be proposed in EIA/EMP.*
- (xiv) *Heavy metals including other parameters in surface water quality shall be analyzed and provided in EIA Report.*
- (xv) *PP shall propose progressive greenbelt yearwise and fund allotted for the same.*
- (xvi) *PP should clearly bring out that what is the specific diesel consumption ~ (Liters/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.*
- (xvii) *PP should submit the detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory*
- (xviii) *PP shall provide provision of integrated mine plan and mine reclamation cum land form / land scape plan for both underground and open cast coal mining projects. The plan must show the predicted post mining reclaimed and reformed surface by regarding and reshaping to reduce its height as close to the original surface level and proper sloping benching and terracing of external dup should be clearly brought out in the post mine closure plan. This would also include water management strategies such as surface water catchment and drainage paths etc. of post mining land surface.*

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

Agenda No. 15.3

Dhirauli Coal Mining Project of Open cast cum Underground of 6.5 MTPA (5 MTPA Open Cast & 1.5 MTPA Underground) in Mine Lease Area of 2672 ha by M/s Stratatech Mineral Resources Private Limited (SMRPL) located at villages Dhirauli, Phatpani, Sirswah, Amdand, Jhalari, Amraikhoh, Bansibridha, and Belwar, Teshil Sarai, District Singrauli, (Madhya Pradesh) – For Terms of References – reg.

[Online Proposal No. IA/MP/CMIN/214743/2021; IA-J-11015/49/2021-IA-II(M)]

15.3.1 The proposal is for Terms of Reference of Dhirauli Coal Mining Project of Open cast cum Underground of 6.5 MTPA (5 MTPA Open Cast & 1.5 MTPA Underground) in Mine Lease Area of 2672 ha by M/s Stratatech Mineral Resources Private Limited (SMRPL) located at villages Dhirauli, Phatpani, Sirswah, Amdand, Jhalari, Amraikhoh, Bansibridha, and Belwar, Teshil Sarai, District Singrauli, (Madhya Pradesh).

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

- (i) The Dhirauli coal block boundary coordinates in WGS84 datum as per CMDPA is as follows: List of Cardinal Points P1: Latitude 23056'07" Longitude 82019'04" ; P2: Latitude 23056'07" Longitude 82024'21" ; P3 : Latitude 23003'04" Longitude 82024'21" P4: Latitude 23003'04" Longitude 82019'04" .
- (ii) Coal linkage of the project: Alloted under the commercial coal mining auction process. There shall be no restriction to carryon mining operations for own consumption, sale or for any other purpose
- (iii) No Joint venture cartel has been formed.
- (iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance
- (v) The total requirement of land is estimated as 2672 Ha, which includes 1436.19 ha of forest land and 1235.81 of non-forest land. Dhirauli Coal Block has a gross geological reserve of 620.013 MT and net geological reserve of 558.011 MT (OCP-260.263 MTPA; UG-297.748 MTPA).
- (vi) The mining plan envisages for mining of 313.79 MTPA (OCP-195.74 MTPA, UG-118.05 MTPA) of mineable coal reserves within the area where the reserves are proved at an average stripping ratio of 10.55.
- (vii) The method of mining will be opencast mining of coal. The life of mine is about 40 years for opencast & 87 years for underground mining based on Mining Plan.
- (viii) The land usage pattern of the project is as follows:

Ownership	Type of Land	Area(Ha)
Tenancy Land	Agricultural	530.841
	Township	
	Grazing	
	Barren	
	Water bodies	6.000
	Road	12.000
	Community	
Sub Total		548.841
Govt Non Forest Land	Agricultural	684.431
	Township	
	Grazing	
	Barren (Road)	
	Other	
Sub Total		684.431
Forest Land	Protected Forest land	1337.144
	Rev Forest (CJB)	101.585
Free hold		
Sub Total		1438.729
Grand Total		2672.00

Mining Activity	Proposed Land Use Area (Ha)	Land Use (End of Life) Area	Post Mining Land Use (Ha)						
			Agri culture Land	Plantation	Water Body	Public Use	Forest land (Returned)	Undisturbed	Total
Excavation Area	2,096.59	2,096.59	-	1,843.03		-	1,843.03	-	1,843.03
Backfilled Area (in Excavation Area)	1,796.23	1,796.23	-	1,843.03	-	-	1,843.03	-	1,843.03
Excavated Void (in Excavation)	300.36	300.36	-	-	253.56	-	-	-	253.56

Area)									
Top Soil Dump *	35.34 (Upto 5 th Year)	35.34 (Upto 5 th Year)	-	-	-	-	-	-	0.00
External Dump	387.55	387.55	-	387.55	-	-	387.55	-	387.55
Safety Zone	19.73	19.73	-	19.73	-	-	19.73		19.73
Haul Road between quarries	-	-	-	-	-	-	-	-	0.00
Road diversion	4.13	4.13	-	-	-	4.13	-	-	4.13
Settling pond	2.20	2.20	-	-	2.20	-	-	-	2.20
Road & Infrastructure area	20.80	20.80	-	20.80	-	-	20.80	-	20.80
CHP & Washery	8.10	8.10	-	8.10	-	-	8.10	-	8.10
Coal Evacuation Route & Approach Road	1.15	1.15	-	1.15	-	-	1.15	-	1.15
Garland drains	5.34	5.34	-	5.34	-	-	5.34	-	5.34
Embankment	7.50	7.50	-	7.50	-	-	7.50	-	7.50
Green Belt	46.80	46.80	-	46.80			46.80		46.80
Water Reservoir	-	-	-	-	-	-	-	-	0.00
Rationalization area	72.11	72.11	-	72.11	-	-	72.11	-	72.11
Total (exclude back filled void & topsoil area)	2,672.00	2,672.00	-	2,412.11	255.76	4.13	2,412.11	-	2,672.00

- (ix) Total geological reserve reported in the mine lease area is 558.331 MT. Out of total mineable reserve of 313.79 Mte, is available for extraction. Percentage of extraction is 53.43%.
- (x) Considering the geo-mining characteristics of the block and for conservation of resource, it is proposed to extract the coal reserves within the block using combination of open cast mining (upto seam VII) and underground mining (below Seam VII to Seam II) method.

- (xi) Grade of coal is power grade (G8), stripping ratio 10.55 mm³/t, while gradient is 2° to 4°. The project has external OB dumps in an area of 387.55 ha with 90 m height and 259.01 Mm³ of OB. Internal OB in an area of 1796.23 ha with 1704.53 Mm³ of OB is envisaged in the project.
- (xii) Total quarry area is 2096.59 ha out of which backfilling will be done in 1843.03 ha while final mine void will be created in an area of 253.56 ha with a depth of 30 m. Backfilled quarry area of 1843.03 ha shall be reclaimed with plantation. Final mine void will be converted into water body.
- (xiii) Transportation of coal has been proposed by truck/conveyor in mine pit head, from surface to siding by truck and at sidings by truck/railway as per requirement of the consumers for sale of coal.
- (xiv) Reclamation Plan in an area of 2320.27 ha, comprising of 387.55 ha of external dump, 1843.03 ha of internal dump & void and 46.80 ha of green belt and 42.89 ha of infrastructure area. In addition to this, an area of 91.84 ha, included in the safety zone/rationalization area, has also been proposed for green belt development.
- (xv) The forest land of 1335.35 ha and Revenue Forest land 100.84 ha is involved and for which Forest clearance has been applied vide proposal no. FP/MP/MIN/142344/2021 dated 8th June 2021 and pending at DFO.
- (xvi) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10 km boundary of the project.
- (xvii) The demand of water for the project has been estimated as per industrial norms. An amount of 1540 KLD of industrial water, which includes 50 KLD of potable water will be required for the proposed coal mine. It is envisaged that to meet the requirement of water for construction, drinking and sanitation as well as mine operation, at the initial stage of 2-3 years, will be met from ground water. After that mine quarry will collect sufficient water which will meet the industrial demand. However, the potable water demand at mine, mine facilities will be met through ground water by bore wells
- (xviii) About 970 people will get (direct/indirect) employment during the entire life of the project.
- (xix) No, waste water will be generated as a result of mining activities. The machinery will be maintained and washed in workshop so no generation of waste water is envisaged from the ML area. Mine seepage water will be used for dust suppression, plantation and other industrial purpose, and water extracted for drinking water requirement will be met from borewell.
- (xx) The total capital cost for the proposed coal mining project is about Rs. 2800 Crores.

15.3.3 The EAC during deliberations noted the following:

- i. The proposal is for Terms of Reference of Dhirauli Coal Mining Project of Open cast cum Underground of 6.5 MTPA (5 MTPA Open Cast & 1.5 MTPA Underground) in

Mine Lease Area of 2672 ha by M/s Stratatech Mineral Resources Private Limited (SMRPL) located at villages Dhirauli, Phatpani, Sirswah, Amdand, Jhalari, Amraikhoh, Bansibridha, and Belwar, Teshil Sarai, District Singrauli (Madhya Pradesh).

- ii. The forest land of 1335.35 ha and Revenue Forest land 100.84 ha is involved and for which Forest clearance has been applied vide proposal no. FP/MP/MIN/142344/2021 dated 8th June 2021 and pending at DFO
- iii. As per the vesting order no: NA-104/07/2020-NA dated 3rd March 2021, Government of India, Ministry of Coal has allocated the Dhirauli coal mine to Stratatech Mineral Resources Private Limited (SMRPL).
- iv. Mining plan was approved by Ministry of Coal vide letter no. File No.MPS-34011/4/2021-MPS dated 04th May 2021
- v. The diversion of road is proposed along the Southern, Eastern and Northern boundary of block. Hurdul Water stream diversion is proposed in North East corner of block.

*15.3.4 The EAC, after detailed deliberation observed that instant project lies in Singrauli district which is Critically Polluted Areas and also large area of 1436.10 ha forest land is proposed for diversion wherein Hurdul stream is the source stream for this area. The Committee also noted that there are other various rivulet of this stream in the area, which has been proposed for diversion by other mines in downstream. It was desired that Ministry may ask its FC Division to optimize forest diversion considering the biodiversity of the area while granting Forest Clearance particularly the forest area where Hurdul stream is originated. Also, as submitted by PP that adjoining mine of Suliyari OCP allotted to M/s APMDC Ltd wherein EC has been granted considering the diversion of Hurdul stream, EAC desired that full scheme of hydrology may be required to be seen and accordingly proposes to conduct site visit of sub-committee of EAC members. Further EAC desired PP to explore different mining technology so that these water streams should not be disturbed and remain pollution free being joining/ feeding to Gopad river and further to Son or Mahan river. In view of above and submission of Project Proponent, EAC **recommends** the proposal for grant of Terms of Reference to Dhirauli Coal Mining Project of Open cast cum Underground of 6.5 MTPA (5 MTPA Open Cast & 1.5 MTPA Underground) in Mine Lease Area of 2672 ha by M/s Stratatech Mineral Resources Private Limited (SMRPL) located at villages Dhirauli, Phatpani, Sirswah, Amdand, Jhalari, Amraikhoh, Bansibridha, and Belwar, Teshil Sarai, District Singrauli (Madhya Pradesh), with specific conditions as below and as defined in the Standard ToR under the provisions of the Environment Impact Assessment Notification, 2006 and subsequent amendments/circulars thereto.*

- (i) Public Consultation, including public hearing, shall be conducted through concerned SPCB in the concerned districts as per the provisions/procedure contained in the EIA*

Notification, 2006 for information of the stakeholders about the present coal mining operations inviting comments and their redressal.

- (ii) As suggested by EAC, No diversion of Hurdul source stream shall be allowed and the same shall be proposed in EIA Study with appropriate mining methods to recover the coal in river catchment so that biodiversity in the area by source stream could be maintained.*
- (iii) Stage-I Forest Clearance for diversion for non-forestry activity shall be submitted.*
- (iv) In addition to existing data already collected (if any), the Cumulative Impact Assessment Study, carrying capacity and ecosystem services study of the area shall be carried over by project proponent considering the project being in Singrauli, having ~1400 ha of forest land and presence of other coal mining activity and industries. PP shall collect one season baseline data of all environmental parameters and shall compare with the data of earlier data collected for cumulative assessment of area. Air pollution impact predication shall be conducted by considering the maximum values.*
- (v) PP shall explore the possibilities of utilization of OB material for different purposes (in construction of roads, manufacture of artificial sand, aggregates, use for farmers etc.) and accordingly Plan shall be included in EIA/EMP Report.*
- (vi) Inpit conveyor belt with silo loading should be proposed and installed for transportation of coal till railway siding. No transportation of coal by trucks/dumpers shall be proposed in EIA/EMP.*
- (vii) Wind rose pattern in the area should be reviewed and accordingly location of AAQMS shall be planned by the collection of air quality data. Monitoring location for collecting baseline data should cover overall the 10 km buffer zone i.e. dispersed in 10 km buffer area.*
- (viii) Project proponent to prepare Environmental Cost Benefit Analysis for the project in EIA/EMP Report.*
- (ix) PP shall provide the details of mining technology/methodology proposed to be adopted for coal mining operations and its associated environmental benefits of using from Climate Change perspective.*
- (x) Detailed Social Impact Assessment shall be prepared in villages for Rehabilitation and Re-settlement. R &R Activity shall be proposed with timeline and allotted fund.*
- (xi) Permission for ground water withdrawal shall be obtained from Central Ground Water Authority (CGWA) only for mining activity.*
- (xii) Heavy metals including other parameters in surface water quality shall be analyzed and provided in EIA Report. Further, detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory*
- (xiii) PP shall be submitting R &R in respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programs prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government.*

- (xiv) *Inpit conveyor belt with silo loading should be proposed and installed for transportation of coal till railway siding. No transportation of coal by trucks/dumpers shall be proposed in EIA/EMP.*
- (xv) *No mining activity shall be proposed on grazing land till the alternate land is provided of same area to the community.*
- (xvi) *PP should clearly bring out that what is the specific diesel consumption ~ (Liters/Tonne of total excavation & mineral) and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.*
- (xvii) *PP shall provide provision of integrated mine plan and mine reclamation cum land form / land scape plan for both underground and open cast coal mining projects. The plan must show the predicted post mining reclaimed and reformed surface by regarding and reshaping to reduce its height as close to the original surface level and proper sloping benching and terracing of external dump should be clearly brought out in the post mine closure plan. This would also include water management strategies such as surface water catchment and drainage paths etc. of post mining land surface.*
- (xviii) *PP shall propose to use LNG/CNG based mining machineries and trucks for mining operation and transportation of coal.*
- (xix) *PP shall submit letter from Principal Chief Conservator of Forest, State Government that the area does not falls under any Eco-sensitive zone and areas and further is no corridor of Elephants & Tigers.*

Agenda No. 15.4

Gondulpara Opencast Coal Mine of 4 MTPA capacity in Mine Lease Area of 513.18 ha by M/s Adani Enterprises Ltd located at North Karanpura coal fields in Villages Balodar, Gali, Gundalpura, Hahe & Phulang Tehsil Barkagaon, District Hazaribagh (Jharkhand) – For Terms of References – reg.

[Online Proposal No. IA/JH/CMIN/213241/2021; J-11015/280/2009-IA-II(M)]

15.4.1 The proposal is for Terms of Reference of Gondulpara Opencast Coal Mine of 4 MTPA capacity in Mine Lease Area of 513.18 ha by M/s Adani Enterprises Ltd located at North Karanpura coal fields in Villages Balodar, Gali, Gundalpura, Hahe & Phulang Tehsil Barkagaon, District Hazaribagh (Jharkhand).

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

- (i) The Gondulpara mine lease area bounded by 23°50'20" - 23°51'20"N and Longitude 85°18'20" - 85°20'15"E and an external dump area of 103 ha. The project area is covered under Survey of India Topo Sheet No. 73E/1 and 73 E/5 (on R.F.1:50000).

- (ii) Coal linkage of the project: Alloted under the commercial coal mining auction process. There shall be no restriction to carry on mining operations for own consumption, sale or for any other purpose
- (iii) No Joint venture cartel has been formed.
- (iv) Project does not fall in the Critically Polluted Area (CPA), where the MoEF&CC's vide its OM dated 13th January, 2010 has imposed moratorium on grant of environment clearance
- (v) The Gondulpara coal block in the state of Jharkhand has been allotted to M/s. Adani Enterprise Limited (AEL) vide vesting order No - NA-104/10/2020-NA, dated 08.03.2021 under the commercial coal mining auction process.
- (vi) The method of mining will be opencast mining of coal.
- (vii) The life of mine is about 32 years based on Mining Plan.
- (viii) The land usage pattern of the project is as follows:

Pre-mining land use details-

Ownership	Type of Land	Area (Ha)
Tenancy Land	Agricultural	221.08
	Township	
	Grazing	
	Barren	
	Water bodies	
	Road	1.50
	Community	
Sub Total		222.58
Govt Non Forest Land	Agricultural	70.95
	Township	
	Grazing	
	Barren (Road)	
	Other	
Sub Total		70.95
Forest Land	Protected Forest land	209.68
	Rev Forest (CJBj)	9.97
Free hold		
Sub Total		219.65
Grand Total		513.18

Mining	Proposed	Land	Post Mining Land Use (Ha)
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Activity	Land Use Area (Ha)	Use (End of Life) Area	Agriculture Land	Plantation	Water Body	Public Use	Forest land (Returned)	Undisturbed	Total
Excavation Area	326.01	326.01	-	166.89	159.12	-		-	326.01
Backfilled Area (in Excavation Area)	166.89	166.89	-	166.89	-	-	166.89	-	166.89
Excavated Void (in Excavation Area)	159.12	159.12	-	-	159.12	-	-	-	159.12
Top Soil Dump	22 (Upto 6th Year)	22 (Upto 6th Year)					-	-	0.00
External Dump	129.35	129.35	-	129.35			129.35		129.35
Safety Zone	6.50	6.50	-	6.50			6.50		6.50
Haul Road between quarries	-	-	-	-	-	-	-	-	0.00
Road diversion	0.00	0.00	-						0.00
Settling pond	2.20	2.20	-	-	2.20	-	-	-	2.20
Road & Infrastructure area	5.12	5.12	-	5.12	-	-	5.12	-	5.12
CHP & Washery	2.56	2.56	-	2.56			2.56		2.56
Coal Evacuation Route & Approach Road	5.12	5.12		5.12			5.12		5.12
Garland drains	1.53	1.53	-		1.53			-	1.53
Embankment	18.54	18.54	-		-	18.54		-	18.54
Green Belt	10.69	10.69	-	10.69			10.69		10.69

Mining Activity	Proposed Land Use Area (Ha)	Land Use (End of Life) Area	Post Mining Land Use (Ha)						Total
			Agriculture Land	Plantation	Water Body	Public Use	Forest land (Returned)	Undisturbed	
Water Reservoir/ River	5.56	5.56	-	-	5.56	-	-	-	5.56
Rationalization area			-						
Total (exclude back filled void & topsoil area)	513.18	513.18	-	326.23	168.41	18.54	326.23	-	513.18

- (ix) Total geological reserve reported in the mine lease area is 176.331 Mte. Out of total mineable reserve of 120.11 Mte, 114.10 Mte is available for extraction. Percent of extraction is 68.66%.
- (x) Coal will be mined using Combination of surface miner – FEL – Dumper method & Drill and blast mining method. The surface miner shall essentially be used in coal seams for quality improvement, drilling and blasting shall be done on wedges of steeply dipping seam and where deployment of surface miner may not possible. The OBR would be removed using conventional shovel dumper method with drilling & blasting. Drilling & blasting shall be conducted in scientific way using environment friendly technology.
- (xi) Occurrence of thick Seam-I (11.07m - 20.43m) and Seam-II (7.39m - 18.10m). Additionally, Other seams namely Seam V, IVD, IV and Seam III & its split seams have thicknesses averaging 4m to 9m. The existence of very low cover for entry to bottom-most seam (Seam-I) from its incrop in the eastern part of the block makes opencast mining an obvious choice.
- (xii) Grade of coal is power grade (G9), stripping ratio 1:69 cum/t for pit -1; 2.45 cum/t (including Future Extended Pit), while gradient is 8 ° to 25°. The project has external OB dumps in an area of 129.35 ha with 90 m height and 50.20 Mm³ of OB, internal OB in an area of 166.89 ha with 229.27 Mm³ of OB is envisaged in the project.
- (xiii) Total quarry area is 326.01 ha out of which backfilling will be done in 166.89 ha while final mine void will be created in an area of 159.12 ha with a depth of 30 m. Backfilled quarry area of 166.89 ha shall be reclaimed with plantation. Final mine void will be converted into water body.
- (xiv) Transportation of coal has been proposed by truck/conveyor in mine pit head, from surface to siding by truck and at sidings by truck/railway as per requirement of customers.

- (xv) Reclamation Plan in an area of 338.27 ha, comprising of 129.35 ha of external dump, 166.89 ha of internal dump, 10.69 ha of green belt & 31.34 ha of infrastructure area. In addition to this, an area of 6.5 ha, included in the safety zone/rationalization area, has also been proposed for green belt development.
- (xvi) The forest land of 219.65 ha is involved and for which Forest clearance has been applied vide letter no F.No. FP/JH/MIN/139492/2021 Dated 26.03.2021.
- (xvii) No National Parks, Wildlife Sanctuaries and Eco-Sensitive Zones have been reported with 10 km boundary of the project.
- (xviii) The total water required for the project is estimated as 77m³/hr (1386 KLD) Construction, drinking and sanitation as well as mine operation, at the initial stage of 2-3 years, will be met from ground water. Mine quarry water will collect sufficient water, which will meet the industrial demand. Potable water demand at mine, mine facilities will be met through ground water by bore wells.
- (xix) An overhead power line exists in the vicinity of Badam village adjoining the Gondulpara Coal Block and this overhead transmission line may be strengthened for supply of power to Gondulpara Coal Block. The existing capacity of the nearby 33 / 11 KV sub-station at Barkagaon is proposed to be augmented to meet the power requirement of Gondulpara Coal Block. To meet the maximum demand for the project, one main substation of capacity 33/3.3 kV, 2×2 MVA has been envisaged for catering to the power demand of Pumps, workshop, colony, Quarry and Haul road lighting. The project sub-station shall feed power to pumping Workshop & Colony substation through a 3.3kv overhead line and illumination shall be carried out as per requirement at 10kVA, 3.3/0.415 kV through lighting transformer. Any other alternate option for power source shall be explored.
- (xx) About 521 people will get direct employment during the entire life of the project.
- (xxi) No, waste water will be generated as a result of mining activities. The machinery will be maintained and washed in workshop so no generation of waste water is envisaged from the ML area. Mine seepage water will be used for dust suppression, plantation and other industrial purpose, and water extracted for drinking water requirement will be met from borewell.
- (xxii) The total capital cost for the proposed coal mining project is about Rs. 998 Crores. This includes the EMP cost of Rs 12.5 Crores (with recurring expenses of Rs 2.5 Crores).

15.4.3 The EAC during deliberations noted the following:

- i. The proposal is for Terms of Reference of Gondulpara Opencast Coal Mine of 4 MTPA capacity in Mine Lease Area of 513.18 ha by M/s Adani Enterprises Ltd located at North Karanpura coal fields in Villages Balodar, Gali, Gundalpura, Hahe & Phulang Tehsil Barkagaon, District Hazaribagh (Jharkhand).

- ii. The Gondulpara coal block in the state of Jharkhand has been allotted to M/s. Adani Enterprise Limited (AEL) vide vesting order No - NA-104/10/2020-NA, dated 08.03.2021 under the commercial coal mining auction process.
- iii. The forest land of 219.65 ha is involved and for which Forest clearance has been applied vide letter no F.No. FP/JH/MIN/139492/2021 Dated 26.03.2021.
- iv. During presentation, PP has proposed dumping of overburden dump across the river and out of mine lease area which was not agreed to by EAC in view of Supreme Court verdict and also environmentally unsafe to manage and monitor.
- v. As per Hon'ble Supreme Court order in the Writ Petition (Civil) No. 435 of 2012 in the matter of Goa Foundation vs UoI & Ors, at Para-29:

“a holder of mining lease does not have any right to dump any reject, tailings or waste in any area outside the leased area of the mining lease on the strength of mining lease granted under the MMDRA Act and the Rules made thereunder. Such area outside the leased area of the mining lease may belong to the State or may belong to any private person, but if the mining lease does not confer any right whatsoever on the holder of a mining lease to dump any mining waste outside the leased area, he will have no legal right whatsoever to remove his dump, overburden, tailings or rejects and keep the same in such area outside the leased area. In other words, dumping of any waste materials, tailing and rejects outside the leased area would be without a valid authorization under the lease deed”.

15.4.4 The EAC after deliberations observed that in view of order of Hon'ble Supreme Court, PP shall submit the revised proposal of ToR after excluding proposed external overburden dump outside the mine lease area (across the river). EAC suggested that Project proponent may mine with progressive backfilling of overburden material and shall accordingly improvise scheduling of mining operations.

*The proposal was **returned** on above lines.*

Additional Agenda

Environmental Clearance for expansion of Coal Mining Projects - Exemption of Public Hearing vide Ministry's OM F. No. J-11015/224/2015-IA-II dated 15th September, 2017

Ministry while review of IA-Division, reference came out about the relaxation is being given by MoEF&CC vide OM dated 15.09.2017 regarding EC expansion of coal mining project without going through the process of public hearing. Through this OM, coal sector is provided relaxation of 40% expansion without public consultation and detailed EIA process but with certain stipulation as highlighted in OM. It may also be mentioned that in this process no TOR is given. This dispensation was given in view of reduced coal production at that time and at request of Ministry of Coal and this dispensation was for particular period, which needs review. As per OM dated 15th September, 2017

(a) The proposals for grant of environmental clearances to the expansion projects of coal mines, involving increase in production capacity (beyond that for which the public hearing was last conducted) up to 40% in 2-3 phases, with the exemption from public hearing may be considered by the EAC in its due diligence.

(b) While considering the proposals, the diligence of the EAC would be based on fulfilling certain requirements as under: -

- (i) Predicted air quality parameters are within the prescribed norms.
- (ii) Coal transportation is through conveyor system up to the silo and then loading to railway wagons, involving no transportation through roads.
- (iii) Coal mining is done through deployment of surface miners, replacing three dust generating operations of the conventional mining system namely drilling, blasting and crushing in one go.
- (iv) Public hearing already conducted for the total mine lease area involved and no more area is required for the proposed expansion.
- (v) Compliance status of EC conditions monitored by the concerned Regional Office of this Ministry is found to be satisfactory.
- (vi) Other statutory requirements like Consent to Establish/Operate, Clearance from CGWA, approval of Mining Plan and the Mine Closure Plan, Mine Closure Status Report as applicable, Forest Clearance, etc are satisfactorily fulfilled

2. In view of above, it was decided to request the EAC (Coal) to review the OM dated 15.09.2017 on the following points:

- (i) Circumstances and background of Relaxation provided to Coal mines through OM dated 15.09.2017.
- (ii) No. of projects and total capacity enhanced taking benefit of the said OM.
- (iii) The relevance of that background in the current scenario for continuation of the said OM.

3. *The Committee deliberated the background in length and discussed the request of MoEF&CC which was made in view of proposal recommend by Ministry of Coal for enhancement of coal production. The Committee felt that process exercised for eliminating the public consultation was done only for those projects which have already gone public hearing and came for expansion in order of 20% or in extreme case of 40%. The Committee during discussion also felt the need of TOR shall be made in this process as some time additional prescription would require in project for safety of environment in affected area. EAC finally opined that the statistics of earlier EC / Expansion granted under this OM may be assessed first. It was desired that these statistics may be placed in next meeting to arrive to conclusion in the matter.*

The meeting ended with thanks to the Chair.

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

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

(a) Statutory compliance

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

(b) Air quality monitoring and preservation

- (i) Continuous ambient air quality monitoring stations as prescribed in the statute 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/PM_{2.5}) 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 air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
- (vii) Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.

(c) Water quality monitoring and preservation

- (i) The effluent discharge (mine waste water, workshop effluent) shall be monitored in terms of the parameters notified under the Water Act, 1974 Coal Industry Standards vide GSR 742 (E) dated 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 purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- (x) The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations, considering the presence of river/rivulet/pond/lake etc, shall be prepared and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the approved Mining Plan/EIA/EMP report and with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved Mining Plan and as per the permission of DGMS or any other authority as prescribed by the law.
- (xi) The project proponent shall take all precautionary measures to ensure riverine/riparian ecosystem in and around the coal mine up to a distance of 5 km. A riverine/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government.

(d) Noise and Vibration monitoring and prevention

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

(e) Mining Plan

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

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

(f) Land reclamation

- (i) Digital Survey of entire lease hold area/core zone using Satellite Remote Sensing survey shall be carried out at least once in three years for monitoring land use pattern and report in 1:50,000 scale or as notified by Ministry of Environment, Forest and Climate Change(MOEFCC) from time to time shall be submitted to MOEFCC/Regional Office (RO).
- (ii) The final mine void depth should preferably be as per the approved Mine Closure Plan, and in case it exceeds 40 m, adequate engineering interventions shall be provided for sustenance of aquatic life therein. The remaining area shall be backfilled and covered with thick and alive top soil. Post-mining land be rendered usable for agricultural/forestry purposes and shall be diverted. Further action will be treated as specified in the guidelines for Preparation of Mine Closure Plan issued by the Ministry of Coal dated 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 & it's RO on six-monthly basis.
- (ii) The project proponent shall undertake occupational health survey for initial and periodical medical examination of the personnel engaged in the project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS circulars. Besides regular periodic health check-up, 20% of the personnel identified from workforce engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any, as amended time to time.
- (iii) Personnel (including outsourced employees) working in core zone shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- (iv) Implementation of the action plan on the issues raised during the public hearing shall be ensured. The project proponent shall undertake all the tasks/measures as per the action plan submitted with budgetary provisions during the public hearing. Land oustees shall be compensated as per the norms laid down in the R&R policy of the company/State Government/Central Government, as applicable.
- (v) The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.

(i) Corporate Environment Responsibility

- (i) The project proponent shall comply with the provisions contained in this Ministry's OM vide F.No.22-65/2017-IA.III dated 1st May 2018, as applicable, regarding Corporate Environment Responsibility.
- (ii) The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental/forest/wildlife norms/conditions. The company shall have defined system of reporting infringements/deviation/violation of the environmental/forest/wildlife norms/conditions and/or shareholders/stake holders.
- (iii) A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly to the head of the organization.

- (iv) Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
- (v) Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.
- (j) Miscellaneous**
- (i) The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- (ii) The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- (iii) The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- (iv) The project proponent shall monitor the criteria pollutants level namely; PM₁₀, SO₂, NO_x (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- (v) The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- (vi) The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 29th October, 2014, titled 'Impact of mining activities on habitations-issues related to the mining projects wherein habitations and villages are the part of mine lease areas or habitations and villages are surrounded by the mine lease area'.
- (vii) The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- (viii) The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
- (ix) The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- (x) The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- (xi) No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change.

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

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

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

I. Statutory compliance:

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

II. Air quality monitoring and preservation

- i. Adequate ambient air quality monitoring stations shall be established in the core zone as well as in the buffer zone for monitoring of pollutants, namely particulates, 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 air borne dust. Side cladding all along the conveyor gantry should be made to avoid air borne dust. Drills shall be wet operated or fitted with dust extractors.
- viii. Coal handling plant shall be operated with effective control measures w.r.t. various environmental parameters. Environmental friendly sustainable technology should be implemented for mitigating such parameters.

III. Water quality monitoring and preservation

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

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

- vii. Garland drains (of suitable size, gradient and length) around the critical areas i.e. mine shaft and low lying areas, shall be designed keeping at least 50% safety margin over and above the peak sudden rainfall and maximum discharge in the area adjoining the mine sites. The sump capacity shall also provide adequate retention period to allow proper settling of silt material of the surface runoff
- viii. The water pumped out from the mine, after siltation, shall be utilized for industrial purpose viz. watering the mine area, roads, green belt development etc. The drains shall be regularly desilted particularly after monsoon and maintained properly.
- ix. Industrial waste water from coal handling plant and mine water shall be properly collected and treated so as to conform to the standards prescribed under the Environment (Protection) Act, 1986 and the Rules made thereunder, and as amended from time to time. Oil and grease trap shall be installed before discharge of workshop effluent. Sewage treatment plant of adequate capacity shall be installed for treatment of domestic waste water.
- x. Adequate groundwater recharge measures shall be taken up for augmentation of ground water. The project authorities shall meet water requirement of nearby village(s) in case the village wells go dry due to dewatering of mine.
- xi. The surface drainage plan including surface water conservation plan for the area of influence affected by the said mining operations shall be prepared, considering the presence of any river/rivulet/pond/lake etc., with impact of mining activities on it, and implemented by the project proponent. The surface drainage plan and/or any diversion of natural water courses shall be as per the provisions of the approved Mining Plan/ EIA-EMP submitted to this Ministry and the same should be done with due approval of the concerned State/GoI Authority. The construction of embankment to prevent any danger against inrush of surface water into the mine should be as per the approved mining plan and as per the permission of DGMS.
- xii. The project proponent shall take all precautionary measures to ensure reverian/ riparian ecosystem in and around the coal mine upto a distance of 5 km. A 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, alongwith fly ash for external dump of overburden, backfilling or stowing of mines. Compliance report shall be submitted to Regional Office of MoEF&CC, CPCB and SPCB.
- v. A separate team for subsidence monitoring and surface mitigation measures shall be constituted and continuous monitoring & implementation of mitigation measures be carried out.
- vi. Thorough inspection of the mine lease area for any cracks developed at the surface due to mining activities below ground shall be carried out to prevent inrush of water in the mine.
- vii. Native tree species shall be selected and planted over areas affected by subsidence.
- viii. The project proponent shall make necessary alternative arrangements, if grazing land is involved in core zone, in consultation with the State government to provide alternate areas for livestock grazing, if any. In this context, the project proponent shall implement the directions of Hon'ble Supreme Court with regard to acquiring grazing land.

VII. Green Belt

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

VIII. Public hearing and Human health issues

- i. Adequate illumination shall be ensured in all mine locations (as per DGMS standards) and monitored.
- ii. The Project Proponent shall undertake Occupational Health survey for initial and Periodical medical examination of the workers engaged in the Project and maintain records accordingly as per the provisions of the Mines Rules, 1955 and DGMS Circulars. Besides carrying out regular periodic health check-up of their workers, 20% of the workers engaged in active mining operations shall be subjected to health check-up for occupational diseases and hearing impairment, if any.
- iii. Personnel (including outsourcing employees) working in dusty areas shall wear protective respiratory devices and shall also be provided with adequate training and information on safety and health aspects.
- iv. Skill training as per safety norms specified by DGMS shall be provided to all workmen including the outsourcing employees to ensure high safety standards in mines.
- v. Effective arrangement shall be made to provide and maintain at suitable points conveniently situated, a sufficient supply of drinking water for all the persons employed.
- vi. Implementation of Action Plan on the issues raised during the Public Hearing shall be ensured. The Project Proponent shall undertake all the tasks as per the Action Plan submitted with budgetary provisions during the Public Hearing. Land oustees shall be compensated as per the norms laid out R&R Policy of the Company/ or the National R&R Policy/ R&R Policy of the State Government, as applicable
- vii. The project proponent shall follow the mitigation measures provided in this Ministry's OM No.Z-11013/5712014-IA.II (M) dated 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 approve by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest / wildlife norms / conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders /

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

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

X. Miscellaneous

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

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

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

III. Water quality monitoring and preservation

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

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

- vii. An Integrated Surface Water Management Plan for the washery area up to its buffer zone considering the presence of any river/rivulet/pond/lake etc. with impact of coal washing activities on it, shall be prepared, submitted to MoEFCC and implemented.
- viii. Waste Water shall be effectively treated and recycled completely either for washery operations or maintenance of green belt around the plant.
- ix. Rainwater harvesting in the washery premises shall be implemented for conservation and augmentation of ground water resources in consultation with Central Ground Water Board.
- x. No ground water shall be used for coal washing unless otherwise permitted in writing by competent authority (CGWA) or MoEFCC. The make-up water requirement of washery should not exceed 1.5 m³/tonne of raw coal.
- xi. Regular monitoring of ground water level and quality shall be carried out in and around the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operations. The monitoring of ground water levels shall be carried out four times a year i.e. pre-monsoon, monsoon, post-monsoon and winter. The ground water quality shall be monitored once a year, and the data thus collected shall be sent regularly to MOEFCC/RO.
- xii. Monitoring of water quality upstream and downstream of water bodies shall be carried out once in six months and record of monitoring data shall be maintained and submitted to the Ministry of Environment, Forest and Climate Change/Regional Office.
- xiii. The project proponent shall take all precautionary measures to ensure riverine/ riparian ecosystem in and around the coal mine up to a distance of 5 km. A riverine/riparian ecosystem conservation and management plan should be prepared and implemented in consultation with the irrigation / water resource department in the state government

IV. Noise and Vibration monitoring and prevention

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

V. Coal beneficiation

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

VI. Green Belt

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

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

VII. Public hearing and Human health issues

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

VIII. Corporate Environment Responsibility

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

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

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

IX. Miscellaneous

- i. The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
- ii. The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
- iii. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
- iv. The project proponent shall monitor the criteria pollutants level namely; PM₁₀, SO₂, NO_x (ambient levels) or critical sectoral parameters, indicated for the projects and display the same at a convenient location for disclosure to the public and put on the website of the company.
- v. The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
- vi. The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
- vii. The project authorities shall inform to the Regional Office of the MOEFCC regarding commencement of mining operations.
- viii. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
- ix. The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
- x. No change in coal beneficiation process and scope of work shall be made without obtaining prior approval of the Ministry of Environment, Forests and Climate Change (MoEFCC) with such conditions mentioned therein. No change in the maximum quantum of raw material feed per annum against the approved washery capacity shall be made
- xi. Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
- xii. The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

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

Generic ToR for coal washery

- i. Siting of washery is critical considering to its environmental impacts. Preference should be given to the site located at pit head; in case such a site is not available, the site should be as close to the pit head as possible and coal should be transported from mine to the washery preferably through closed conveyer belt to avoid air pollution.
- ii. The washery shall not be located in eco-sensitive zones areas.
- iii. The washery should have a closed system and zero discharge. The storm drainage should be treated in settling ponds before discharging into rivers/streams/water bodies.
- iv. A thick Green belt of about 50 m width should be developed surrounding the washery.
- v. A brief description of the plant alongwith a layout, the specific technology used and the source of coal should be provided.
- vi. The EIA-EMP Repot should cover the impacts and management plan for the project of the capacity for which EC is sought and the impacts of specific activities, including the technology used and coal used, on the environment of the area (within 10km radius), and the environmental quality of air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts for the rated capacity. Cumulative impacts for air and water should be a part of EIA in case coal mine, TPP and other washeries are located within 10km radius. The EIA should also include mitigative measures needed to minimize adverse environmental impacts.
- vii. A Study Area Map of the core zone as well as the 10km area of buffer zone showing major industries/mines and other polluting sources should be submitted. These maps shall also indicate the migratory corridors of fauna, if any and areas of endangered fauna; plants of medicinal and economic importance; any ecologically sensitive areas within the 10 km buffer zone; the shortest distance from the National Park/WL Sanctuary Tiger Reserve, etc. alongwith the comments of the Chief Wildlife Warden of the State Govt.
- viii. Data of one-season (non-monsoon) primary- base-line data on environmental quality of air (PM₁₀, PM_{2.5}, SO_x and NO_x, noise, water (surface and groundwater), soil be submitted.
- ix. The wet washery should generally utilize mine water only. In case mine water is not available, the option of storage of rain water and its use should be examined. Use of surface water and ground water should be avoided.
- x. Detailed water balance should be provided. The break-up of water requirement as per different activities in the mining operations vis-a-vis washery should be given. If the source of water is from surface water and/or ground water, the same may be justified besides obtaining approval of the Competent Authority for its drawl.
- xi. The entire sequence of mineral production, transportation, handling, transfer and storage of mineral and waste, if any, and their impacts on air quality should be shown in a flow chart with specific points where fugitive emissions can arise and specific pollution control/mitigative measures proposed to be put in place. The washed coal and rejects should be transport by train as far as possible. Road transport of washed coal and rejects should generally be avoided. In case, the TPP is within 10km radius, it should be through conveyer belt. If transport by rail is not feasible because of the topography of the area, the option for transport by road be examined in detail and its impacts along with the mitigation

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

- xii. Details of various facilities proposed to be provided in terms of parking, rest areas, canteen etc. to the personnel involved in mineral transportation, workshop and effluents/pollution load from these activities should be provided.
- xiii. Impacts of CHP, if any, on air and water quality should also be spelt out alongwith Action Plan.
- xiv. O.M.no.J-11013/25/2014-IA.I dated 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.

ANNEXURE-V

GENERIC TOR FOR AN OPENCAST COALMINE PROJECT for EC

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

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

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

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

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

- (xii) Break-up of lease/project area as per mining plan should be provided.
- (xiii) Impact of changes in the land use due to the project if the land is predominantly agricultural land/forestland/grazing land, should be provided.
- (xiv) One-season (other than monsoon) primary baseline data on environmental quality - air (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.
- (xv) Map (1: 50, 000 scale) of the study area (core and buffer zone) showing the location of various sampling stations superimposed with location of habitats, other industries/mines, polluting sources, should be provided. The number and location of the sampling stations in both core and buffer zones should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Observed values should be provided along with the specified standards.
- (xvi) Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.

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

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

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

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

* As a representative example

Table 2 : Stage Wise Cumulative Plantation

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

* As a representative example

- (xxxix) Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining 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					

- (xxxix) Flow chart of water balance should be provided. Treatment of effluents from workshop, township, domestic wastewater, mine water discharge, etc. should be provided. Details of STP in colony and ETP in mine should be given. Recycling of water to the max. possible extent should be done.
- (xxxix)Occupational health issues. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower in the mine should be given.
- (xxxix)Risk Assessment and Disaster Preparedness and Management Plan should be provided.
- (xxxix) Integration of the Env. Management Plan with measures for minimizing use of natural resources - water, land, energy, etc. should be carried out.
- (xxxix)Cost of EMP (capital and recurring) should be included in the project cost and for progressive and final mine closure plan.
- (xxxix) Details of R&R. Detailed project specific R&R Plan with data on the existing socio-economic status of the population (including tribals, SC/ST, BPL families) found in 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.
- (xxxix) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project should be given.
- (xxxix)Corporate Environment Responsibility:

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

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

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

GENERIC TORs FOR AN UNDERGROUND COALMINE PROJECT

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

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

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

Area under Surface Rights

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

- (viii) Study on the existing flora and fauna in the study area (10km) should be carried out by an institution of relevant discipline. The list of flora and fauna duly authenticated separately for the core and study area and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna should be given. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I species, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a Comprehensive Conservation Plan along with the appropriate budgetary provision should be prepared and submitted with EIA-EMP Report; and comments/observation from the CWLW of the State Govt. should also be obtained and furnished.
- (ix) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until the end of mine life should be provided on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The Progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures. Details of mine plan and mine closure plan approval of Competent Authority should be furnished for green field and expansion projects.
- (x) Details of mining methods, technology, equipment to be used, etc., rationale for selection of specified technology and equipment proposed to be used vis-à-vis the potential impacts should be provided.
- (xi) Impact of mining on hydrology, modification of natural drainage, diversion and channeling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (xii) One-season (other than monsoon) primary baseline data on environmental quality - air (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 break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the Competent Authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
- (xvii) Impact of choice of mining method, technology, selected use of machinery and impact on air quality, mineral transportation, coal handling & storage/stockyard, etc, Impact of blasting, noise and vibrations should be provided.
- (xviii) Impacts of mineral transportation within the mining area and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions should be provided. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop etc, management plan for maintenance of HEMM and other machinery/equipment should be given. Details of various facilities such as rest areas and canteen for workers and effluents/pollution load emanating from these activities should also be provided.
- (xix) Effort be made to reduce/eliminate road transport of coal inside and outside mine and for mechanized loading of coal through CHP/ Silo into wagons and trucks/tippers.
- (xx) Details of various facilities to be provided to the workers in terms of parking, rest areas and canteen, and effluents/pollution load resulting from these activities should also be given.
- (xxi) The number and efficiency of mobile/static water sprinkling system along the main mineral transportation road inside the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality should be provided.
- (xxii) Impacts of CHP, if any on air and water quality should be given. A flow chart showing water balance along with the details of zero discharge should be provided.
- (xxiii) Conceptual Final Mine Closure Plan and post mining land use and restoration of land/habitat to the pre- mining status should be provided. A Plan for the ecological restoration of the mined out area and post mining land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of re-handling (wherever applicable) and backfilling and progressive mine closure and reclamation should be furnished.
- (xxiv) Greenbelt development should be undertaken particularly around the transport route and CHP. Baseline data on the health of the population in the impact zone and measures for

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

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

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

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

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

7/19/2021

Email

Email

Munna Kumar Shah

Re: final minutes of 15th EAC meeting

From : gpkundargi@gmail.com Sun, Jul 18, 2021 07:23 PM
Subject : Re: final minutes of 15th EAC meeting
To : lk.bokolia <lk.bokolia@nic.in>
Cc : mpsingh.cea <Mpsingh.cea@nic.in>, biswaskiriti@gmail.com, pkmsipat11@gmail.com, rk giriccs <rk.giriccs@gmail.com>, sai nandinin <sai.nandinin@gmail.com>, Sanjeev Paliwal <sanjeevpaliwal.cpcb@nic.in>, santoshkumar777@yahoo.com, sgoel eac <sgoel.eac@gmail.com>, sheoshankar@iitism.ac.in, shuklanp55@gmail.com, suramya vora <suramya.vora@gmail.com>, ukahalekar@rediffmail.com, unmesh patnaik <unmesh.patnaik@tiss.edu>, Munna Kumar Shah <munna.shah@gov.in>, shukti sees <shukti.sees@gmail.com>

Dear Lalit ji
Draft Minutes are fine with me. At page number 26 Third line from top Please correct OM as dated 15th Sept 2017.
It has been mentioned as 2019. Will wait till tomorrow. If no further comments received from other members You can take minutes approved & take further needful action
Thank you
G P Kundargi

LIST OF PARTICIPANTS OF EAC (COAL) IN 15th MEETING OF HELD DURING 6th JULY, 2021 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	P
8.	Shri Prasant Kumar Mohapatra	-	Member	A
9.	Professor S S Rai, Representative of IIT/ISM Dhanbad	-	Member	P
10.	Shri M.P Singh, Representative of CEA	-	Member	P
11.	Dr. Santosh Kumar Hampannavar	-	Member	P
12.	Prof R.K. Giri Representative of IMD	-	Member	A
13.	Dr. Nazimuddin Representative of Central Pollution Control Board	-	Member	A
14.	Shri Lalit Bokolia, Director, MoEFCC	-	Member Secretary	P