

**MINUTES OF THE 14<sup>th</sup> EAC (THERMAL & COAL MINING PROJECTS) MEETING HELD  
ON 27<sup>th</sup> – 28<sup>th</sup> MARCH, 2014 IN NEW DELHI**

The 14<sup>th</sup> EAC (Thermal & Coal mining projects) Meeting was held on 27<sup>th</sup> – 28<sup>th</sup> March, 2014 in New Delhi to consider the proposals in coal mining sector. The list of participants of EAC and the proponents are given at Annexure-1 and 2 respectively.

**B. Confirmation of Minutes:** The Committee confirmed the minutes of the 12<sup>th</sup> EAC meeting held on 27<sup>th</sup> -28<sup>th</sup> February, 2014.

**C. The following proposals were considered:**

**14.1 West Bokaro Opencast Expansion Coal Mine Project (7 MTPA to 9 MTPA in an ML area of 1740 ha) and Expansion of Washery-II from 2.9 MTPA to 4 MTPA of M/s Tata Steel Ltd., Dist. Ramgarh, Jharkhand - EC based on TOR granted on 30.11.2011.**

14.1.1 The Project Proponent informed its inability to attend the meeting..

**14.2 Machhakata Opencast Coal Mine Project (30 MTPA in an ML area of 3023 ha) and a Pit-Head Coal Washery (30 MTPA) of M/s Mahaguj Collieries Ltd., Talcher Coalfields, Tehsil Chhendipada, district Angul, Orissa – TOR**

14.2.1. Machhakata Opencast Coal Mine Project (30 MTPA in an ML area of 3023 ha) and a Pit-Head Coal Washery (30 MTPA) of M/s Mahaguj Collieries Ltd., Talcher Coalfields, Tehsil Chhendipada, district Angul, Orissa. The proponent made the presentation and informed that:

- i. Mahaguj Collieries Limited (MGCL), a Joint venture of Maharashtra State Power Generation Company Limited (MSPGCL) 60% and Gujarat State Electricity Corporation Limited (GSECL) 40% stakeholder signed a MOU on 30th December, 2007 to extract coal from the Machhakata Coal Block.
- ii. MGCL proposes to develop the coal block with pit-head coal washery, 30 MTPA capacity each.
- iii. Machhakata Coal Block was allocated to the Maharashtra State Power Generation Company Limited (MSPGCL) and the Gujarat State Electricity Corporation Limited (GSECL) by the Ministry of Coal, vide letter no. 13016/13/2005-CA dated 6th February, 2006 for captive mining for their linked power plants at Parli, Bhusawal, Chandrapur and Koradi in Maharashtra and Ukai, Wanakbori and Sinor in Gujarat States.
- iv. MoEF granted TOR on 09.06.2009 for opencast coal mine and pit-head coal washery of 30 MTPA each.
- v. As per MoEF Office Memorandum J-11013/41/2006–IA.II (I) dated 22nd March 2010, EIA/EMP reports after public consultation need to be submitted not later than 4 years from the date of grant of TORs which in this case has expired on 8th June 2013.
- vi. Application for extension of validity of TOR for one year was submitted to MoEF in May 2013. EAC (EC) considered the proposal on 4th Oct 2013 and recommended extension of validity upto June 2014. MoEF has not accepted the recommendation.
- vii. EIA report based on baseline environmental quality data for pre-monsoon 2009 was submitted to Odisha State Pollution Control Board on 5th Jan 2011 for conducting the Public Hearing. As 2009 baseline data was valid for 3 years, fresh baseline data was generated covering post-monsoon (Oct - Dec) season 2012 and an addendum report for the project was submitted on 4th February 2013, to OPCB for conducting Public Hearing.

- viii. Public Hearing for the project scheduled to be held on 8th December 2011, could not be conducted due to Law and Order situation. Member Secretary, State Pollution Control Board, Odisha vide letter no. 84-IND-II-PH-514 dated 3rd January 2012, requested Collector & District Magistrate, Angul for fixing another date for conducting Public Hearing. Public Hearing again on 21st May 2013, could not be conducted due to grant of stay by the Hon'ble Odisha High Court in its Order dated 17<sup>th</sup> May, 2013, in response to a Writ Petition.
- ix. The land usage of the project will be as follows:

**DETAILS OF PROJECT LAND REQUIREMENT (ha)**

Particulars	Forest	Non-Forest	Total
Mine Excavation	15.22	2088.12	2103.34
Land required for Safety Zone	0.71	49.86	50.57
External Dump Area excluding Dump area falling in blasting danger zone)	14.95	511.51	526.46
Infrastructure including Work Shop, Project Office, Coal Handling Plant, Approach Road, Railway Corridor etc.	42.73	182.93	225.66
Coal Washery (30-MTPA Capacity)	-	87.00	87.00
Rationalization of Boundaries	-	29.97	29.97
<b>Total Project Area (ha)</b>	<b>73.61</b>	<b>2949.39</b>	<b>3023.00</b>

**Pre mining land use (in Ha.):**

Breakup of 3023 Ha of ML area has been presented in table below:

(Area in Ha.)

Sl No	Name of Village	Forest Land	Non Forest land	Total
1	Similipal	15.98	1169.42	1185
2	Ghuntulipasi	1.69	150.31	152
3	Basantapur	0.78	207.22	208
4	Deunriajharan	7.01	173.99	181
5	Machhakuta Jungle	29.19	164.81	194
6	Bagadia	0.00	139.00	139
7	Machhakuta	12.51	252.89	265
8	Podapada	1.37	79.63	81
9	Sapoinali	5.07	612.13	617
		<b>73.61</b>	<b>2949.39</b>	<b>3023</b>

**Post Mining land use (in Ha.):**

Breakup of land within mining lease has been presented in table below:

(Area in Ha.)

S.No	Particulars	Forest	Non-Forest	Total
1	Mine Excavation	15.22	2088.12	2103.34
2	Land required for blasting danger zone (upto block boundary in the north, east and west and 300 m in the south)	0.71	49.86	50.57
3	External dump (excluding dump area falling in the blasting danger zone).	14.95	511.51	526.46

4	Infrastructure including workshop, project office, CHP, approach road, railway corridor, etc.	42.73	269.93	312.66
5	Rationalization of the boundaries	-	29.97	29.97
	<b>Total Mine Lease Area</b>	<b>73.61</b>	<b>2949.39</b>	<b>3023.00</b>

#### Core Area Land Use (in Ha)

Breakup of land in core area after Mine closure is presented below:

SI no	Particulars (Mining land use)	Post mining land use	Total
1	Mine Excavation	Physically and biologically reclaimed land	1464.69
		Void	638.65
		Total	2103.34
2	Land required for blasting danger zone	Plantation	44.42
		Infrastructure and Road	6.15
		Total	50.57
3	External dump	Physically and biologically reclaimed land	526.46
		Total	526.46
4	Infrastructure including workshop, project office, CHP, approach road, railway corridor, etc.	Green Belt	46.90
		Infrastructure	265.76
		Total	312.66
5	Rationalization of the boundaries	Plantation	29.97
		Total	29.97
	<b>Total Mine Lease Area</b>		<b>3023.00</b>

- x. The latitude and longitude of the project are 21003'15'' N to 21006'20'' N and 84047'10'' E to 84°50'27'' E respectively.
- xi. The Coal Washery latitude and longitude of the project are 21°02'50'' E to 21°03'22''N and 84°49'03'' E to 84°50'10'' E respectively.
- xii. The total geological reserve is 1400.65 Mt. The mineable reserve 1244.35 Mt, The percentage of extraction would be 88.84 %
- xiii. There will be 24 Seams with thickness of Seams to be worked on will be 0.1 m to 13.92 m with the stripping Ratio (Av)- 1:2.44..
- xiv. The average Gradient would be 3° to 5°.
- xv. The coal grades is E to G, Average-F
- xvi. Total water requirement has been reduced to approximately 11530cum3/day.(6800cum3 for Mine and 4730cum3/day for Washery). Range of ground water 37.9m –47.4m (Pre-Monsoon) & 23.8m –37.0m (Post-Monsoon) at nearest Banarpal Block.
- xvii. The ultimate external dump volume is 14% of the total waste volume accommodated. 258.09 Mcum quantity will be re-handled back into quarry.
- xviii. There will be total one external dump covering an area of 526.46 Ha having a height of 90 m, with a total quantity of 408.70 Mm<sup>3</sup>. There will be two internal dumps having an area of 1464.69 Ha with an height of near to original surface level with a total quantity of 2631.17 Mm<sup>3</sup>
- xix. The final mine void would be in 638.65 ha with depth of 320 m. and the Backfilled quarry area of 1464.65 Ha shall be reclaimed with plantation. A void of 638.65 ha at a depth of 30 m which is proposed to be converted into a water body.
- xx. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- xxi. The **life of mine** is 48yrs (including 2 years of Construction period).
- xxii. Method of Mining: Open Cast Mining with Shovel Dumper Combination

- xxiii. **Transportation:** IDCO has formed SPV by the name Brahmani Railways Ltd, for development of common rail corridor in Angul-Talcher Area. Process of land acquisition has started. The raw coal from Opencast mine is evacuated by Rear Dumper to CHP complex. Raw Coal will be transported to the washery by belt conveyors. Clean Coal from Washery will be conveyed to Railway siding by belt Conveyor and Coal will be loaded into railway wagons via loading hopper and fast loading system and supplied to the end user.
- xxiv. **R&R :** There are 3531 PAF's. R&R site (621 acres) has been identified and approved by the Rehabilitation & Periphery Development Advisory Committee. R&R plan approved by Collector and tendering is under process for construction of R&R Township. Rs 161 lakhs deposited with IDCO for alienation of Govt. land for R&R site.
- xxv. **Cost:** Total capital cost of the project is Rs. 4500 Crores (including Coal Washery) CSR cost and R & R cost would be Rs. 585 Crores Approx. Environmental Management Cost Will be finalized after preparation of EIA/EMP.
- xxvi. **Water body:** Hydrogeology study report & Nala diversion report submitted to OPCB on 12.10.2010. Permission for Nala diversion is under consideration of the Department of Water Resources, Govt. of Odisha.
- xxvii. **Approvals:** Approved by the Ministry of Coal vide Letter No. 13016/13/2005-CA-1 dated 24th August, 2009. Board's Approval obtained on 26.12.2011. Approved on 27th June, 2013. IPICOL & IDCO have recommended the proposal. Approval of the State Steel & Mines Department is awaited
- xxviii. **Wildlife issues:** Wildlife Conservation Plan has been approved by the PCCF (WL) on 15-01-2014 with total financial outlay of Rs. 465.18 lacs.
- xxix. There are no national Parks, biosphere reserves found in the 10 km buffer zone.
- xxx. **Forestry issues:** The total forest land is 73.61 ha. Forest Diversion Proposal submitted to DFO on 09/07/2010. Compensatory Afforestation land Identified, demarcated and scheme approved by DFO June, 2011. Holding of Gram Sabha is pending.
- xxxi. Total **afforestation** plan shall be implemented covering an area of 2112.44 ha at the end of mining. Reclaimed external dump would be 526.46 ha, internal dump would be 1464.69 ha Green Belt over an area of 121.29 ha and. Density of tree plantation 2500 trees/ha of plants.
- xxxii. There will not be any void as Machhakata – Mahanadi Opencast project (phase I) will further advance in dip direction for exploitation of coal in Mahanadi coal block. Post closure land details will be finalised at the time of preparation of Mine closure plan of Machhakata – Mahanadi Coal Block (phase II).
- xxxiii. **Court Cases:** Hon'ble Odisha High Court on 4<sup>th</sup> March 2014, modified its Order dated 17<sup>th</sup> May, 2013 and directed that Public Hearing may be held but **proceeding for acquisition of land will remain stayed**. However, any meeting for considering the proposed rehabilitation measures, in the event of acquisition being upheld, may go on. Such meetings may be held close to the locality. The case has been adjourned to 13<sup>th</sup> April, 2014.
- xxxiv. **SALIENT FEATURES OF COAL WASHERY**

Total Rated Capacity	30-MTPA (ROM Coal)
Washery Capacity	Three parallel modular circuits of 10 MTPA capacity. Each circuit will have 4 nos. Of 425 TPH washing units.
Land Requirement	87-ha (Non-Forest Land)
Capital Cost	Rs.265 Crores
Process	Wet process comprising crushing, screening, washing and materials handling
Clean Coal	21.6-MTPA (Ash Content : About 32%)
Coal Rejects and Fines	8.4-MTPA (Ash Content : About 60%)
Shifts per day	Three
Power Requirement & Source	17 MVA from Rengali sub-station,GRIDCO
Water Requirement	4260-m3/day

Wastewater Generation	Washery will be designed with closed water circuit and zero effluent discharge. Process water will be clarified in the thickener and Belt Press & circulated back in process.
Mode of Transport	Coal transportation from CHP to washery by closed belt conveyor and washed coal to end users by rail
Railway Siding	20-km railway track to be laid up to Jarpada station (Angul - Sambalpur)
Manpower Requirement (operation Phase)	200

14.2.2 The Committee after detailed deliberations has **recommended** for granting the ToR with following specific ToRs in addition to the generic ToRs for coal mine and pit head coal washery:

- i. Detailed hydrological study should be carried out. Hydrology of the mining area must be maintained while diverting the nullaha.
- ii. Review of diversion of forest land for building infrastructure purpose.
- iii. Submit details of land acquisition vis-à-vis the Land Acquisition Act of Orissa
- iv. Proponent should explore the possibilities of minimising dumper usage and going for in-pit crushing and conveyor system.
- v. The pond system should be maintained.
- vi. Seasonal data Air and Water quality be generated.
- vii. Proponent should take necessary clearance from the Wild Life Board.
- viii. Storm water from washing area should be diverted to tailing pond.
- ix. The discharged effluent from washery and storm water should not be discharged to nallahs but shall be recycled
- x. The possibility of using tailing waste in power plant may be explored.
- xi. Details of total quarry area be provided. Study be made to have external O.B. dump on the coal bearing area and to rehandle into the mine void as the mine progresses.
- xii. A copy of Odisha High Court Order dated 4<sup>th</sup> March 2014, modifying its earlier Order dated 17<sup>th</sup> May, 2013 be submitted wherein it directed that public hearing may be held but **processing of acquisition of land will remain stayed.**
- xiii. The pit head FBC Plant should be established within 2<sup>1/2</sup> years of obtaining EC and an application for same be made immediately for obtaining prior EC.
- xiv. The backfilling of void at the post mining stage should be taken up with MCL and furnished.
- xv. The Committee desired that detailed inventorisation of flora and fauna should be undertaken as part of the EIA-EMP through a recognised institution of relevant discipline and a Conservation Plan prepared for in-situ and ex-situ conservation of the rare and medicinal plant species found in the area and for conservation of the rare and endangered fauna which are found or visit the mine area.
- xvi. Details of the CWLW on the Conservation Plan and specific clarification on whether the study area is used as elephant habitat or a migratory corridor be provided during discussion of EC.

**14.3 Shahpur East (0.70 MTPA in 693 ha ML area) and Shahpur West (0.405 MTPA in 587.50 ha ML area) Underground Coal Mining Projects of M/s National Mineral Development Corp. Ltd. Tehsils Sohagpur in dist. Shahdol and Tehsil Pali in dist. Umaria, Madhya Pradesh - EC based on TOR granted on 29.10.2010 – Correction in the Minutes.**

**14.3.1** The proposal was considered in 12<sup>th</sup>-13<sup>th</sup> **December, 2013** for granting environmental clearance. The project proponent, vide letter no. NMDC/Shahpur/EC/2014/ dated 22.01.2014, and during their presentation in the meeting requested for following corrections in the Minutes of the Meeting:

- i. Para 7.17.2 (v)
 

**Post –Mining:**

  - (a) Sl. No. 6, : Facilities including roads, office, workshop, store, CHP, mouth of inclines, VTC, Canteen, Deisel, Bunk and area between the buildings but excluding Magazines and plantation shall be 4.73 ha shall be in place of 8.47 ha (West Coal block),
  - (b) The Sub-total shall be 12.87 ha in place of 16.61 ha.
  - (c) Sl. No. 11, Undisturbed area 574.63 ha shall be in place of 570.89 ha.
  - (d) Core Area Table: Sl. No. 6, Facilities including roads, office, workshop, store, CHP, mouth of inclines, VTC, Canteen, Diesel Bunk and area between the buildings but excluding Magazines and plantation shall be 4.73 ha instead of 8.47 ha. Sub-total 12.87 ha instead of 16,61 ha
  
- ii. Para 7.17.2 (x) The para may be replaced as “The coal grades are C to F grades. The stripping ratio is 0.02 to 5.70 ( in place of NA). The average Gradient is 1<sup>0</sup> to 2<sup>0</sup> South easterly. There will be eight seams in Shahpur east and eight seam in Shahpur west with thickness ranging from 0.02-5.70 m( in place of.02 to 57.00 m)”.
  
- iii. Para 7.17.2 (xviii) : The para may be replaced as : “**Cost:** Total capital cost of the project is Rs. 540.62 crore ( in place of Rs.1862/-) Shahpur east Coal Block; Rs. 411.19 Crore (in place of Rs.2288/-) Shahpur West Coal Block. CSR Cost 0.4 % of the capital cost per annum. R&R cost will be worked out based on latest LARR Act 2013. Environmental Management Cost Rs. 264 lakhs (East Block Rs. 130 lakhs + West Block Rs. 134 lakhs)”.
  
- iv. Para 7.17.2 (xx) : The para may be replaced as: **Approvals:** Application has been submitted to central Ground water Board for its approval. The application is under process. Board’s approval obtained on 10.10.2011. Mining plan has been approved Shahpur West block - 27.12.2012 (in place of 07.02.2012); Shahpur East block - 07.02.2012 (in place of 27.12.2012). Mine closure plan: Mine closure Plan is an integral part of Mine Plan which has been duly approved by Ministry of Coal for Shahdol East Coal Block on 7.12.2012 and Shahdol West Coal Block on 27.12.2012.

14.3.2 The Committee approved the corrections as above.

**14.4 Fatehpur East Coal Block (10 MTPA (peak) in a total project area of 1913.208 ha which includes an ML area of 1728.208 ha) of M/s Fatehpur East Coal Private Ltd., located in Mand Raigarh Coalfields, Tehsil Dharamjaigarh, dist. Raigarh, Chhattisgarh - EC based on TOR granted on 09.02.2012.**

14.4.1 The proposal is for Fatehpur East Coal Block (10 MTPA (peak) in a total project area of 1913.208 ha which includes an ML area of 1728.208 ha) of M/s Fatehpur East Coal Private Ltd., located in Mand Raigarh Coalfields, Tehsil Dharamjaigarh, dist. Raigarh, Chhattisgarh.

14.4.2 The EAC has noted that Ministry of Coal (MOC), vide letter no 13016/33/2008-CA-I dated 1<sup>st</sup> January, 2014, issued show-cause notice to the proponent to explain “...as to why the delay in the development of coal block should not be held as violation of the terms and conditions of the allocation of Fatehpur East Coal Block and why the block should not be de-allocated...”. The proponent informed the Committee that, the Inter Ministerial Group (IMG) in its 24<sup>th</sup> Meeting held on 21<sup>st</sup> February, 2014 recommended that “...in terms of para 2(i)(b) of the notice, no action is recommended at present...”

However, in continuation of further development of the block shall be without any prejudice to the investigation consequent upon FIR against two of the five allocates”.

14.4.3 The proponent made the presentation and informed that:

- i. M/s Fatehpur East Coal Private Ltd is a Joint Venture between RKM Powergen Private Limited; Visa Powr Limited; Athena Infra-projects Private Limited; J L D Yavatmal Energy Limited and Vandana Vidhyut Limited.
- ii. It is an opencast mining project of M/s Fatehpur East Coal Private Ltd, to which Ministry accorded TOR vide letter no. J-11015/315/2010-IA.II (M) dated 09.02.2012.
- iii. The latitude and longitude of the project are 22°26'42.19" - 22°29'17.25" and 83°05'40.72" - 83°08'58.93" respectively.
- iv. The land usage of the project will be as follows:

**Pre- mining: land use (in Ha.)**

S.N.	Landuse	TOTAL
1.	Agricultural land	439.585
2.	Forest land	1093.485
3.	Wasteland	133.796
4.	Grazing land	113.911
5.	Surface water bodies	21.988
6.	Settlements	7.459
7.	Others (Khalihan, dakhah-rahit, samshan, pathar, road, etc)	102.984
	TOTAL	1913.208

**Post – Mining: land use (in Ha.)**

Sl. No.	Land Use during mining	Land Use (Ha)				
		Plantation	Water Body	Public Use	Undisturbed	TOTAL
1.	External OB Dump	155	-	-	-	155
2.	Top Soil Dump	-	-	-	-	-
3.	Excavation	1274	208	-	-	1482
4.	Roads(Haul Road)	30	-	-	-	30
5.	Built up area	72	-	-	-	72
6.	Green Belt	79	-	-	-	79
7.	Undisturbed Area	95	-	-	-	95
	TOTAL	1705	208	-	-	1913

**Core Area: Land Use (in Ha)**

S.N.	Land use	Within ML Area (ha)
1.	Agricultural land	416.561
2.	Forest land	1093.485
3.	Wasteland	111.887
4.	Grazing land	72.577
5.	Surface water bodies	18.899
6.	Settlements	7.459
7.	Others (Khalihan, dakhah-rahit,	7.340

	samshan, pathar, road, etc)	
	<b>TOTAL</b>	1728.208

- v. The total geological reserve is 350 MT. The mineable reserve 266 MT, extractable reserve is 266 MT. The per cent of extraction would be 75 %.
- vi. The coal grades are Grade E.
- vii. There will be eight Seams with thickness range between 0.3 to 12.2 m. Maximum thickness of Seam 12.2 m.
- viii. The average Gradient would be 4° to 6° (1 in 14 to 1 in 9) towards S 50° - 55°W.
- ix. The total estimated water requirement is 1257 m<sup>3</sup> /d. The highest water table contour is 350 m MSL and lowest is in the order of 240 m MSL.
- x. There is one external OB dump with Quantity of 85Mbcm in an area of 155 ha with height of 90 meter above the surface level and Two (On-Pit and In-Pit; whereby entire On-Pit dump would be re-handled to In-Pit) internal dump with Quantity of 2142Mbcm. (part of it 283 Mbcm of material is re-handled from On-Pit to In-Pit.) in an area of 1274 ha.
- xi. The final mine void would be in 208 Ha with depth of 30 m. and the Total quarry area is 1482Ha. Backfilled quarry area of 1274 Ha shall be reclaimed with plantation. A void of 208 ha with depth of 30 m which is proposed to be converted into a water body
- xii. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- xiii. The **life of mine** is 27 Years.
- xiv. Method of Mining will be Mechanized Open Cast.
- xv. **Transportation:** The transportation of coal shall be : in pit which is about 2.7-9.4 Km. (including surface to siding); Surface to siding about 500m and Siding to loading: less than 1 Km.
- xvi. **R & R** activities is involved as there are 614 PAFs..
- xvii. **Cost:** Total capital cost of the project is Rs. 3000 Crore. CSR Cost Rs 129. R&R Cost: Rs. 96.36 Crore. Environmental Management Cost is Rs. 5 Crore.
- xviii. **Water body:** In terms of physical boundary; the eastern block boundary is 60 m away from and along the Mand River. Pawasi Nala, a tributary of Mand River, enters the block at the northern boundary, flowing south-easterly and confluences with Mand River near the eastern boundary of the block.
- xix. **Approvals:** Mining Plan was approved by MoC vide Letter No. 13016/33/2008-CA-I, dated 27.04.2012. Mine Closure Plan has been approved by MoC vide Letter No. 13016/33/2008-CA-I, dated 27.04.2012. Ground water clearance obtained on 09.09.2013.
- xx. **Wildlife issues:** Wild Life Management Plan has been prepared and approved by State Govt, and forwarded to MoEF on 12.02.2014.
- xxi. **Forestry issues:** Total forest area involved (in ha) for mining: 1093.485 Ha (DGPS Survey has been done to confirm forest land present in the coal Block). FECPL will leave 95 ha RF/PF undisturbed from 1093.485 Ha. The Forest Diversion Proposal was submitted in the State Forest Department with Compensatory Afforestation in Degraded Forest Land. But the circular of Ministry of Environment & Forests vide its letter F. No. 11-423/2011-FC dated 13th Feb 2012 has revised the guidelines regarding compensatory afforestation in forest diversion proposals. As per this circular, all States having forest area less than 50% of their geographical area are prohibited from undertaking compensatory afforestation in degraded forest twice in extent to the forest area being diverted. They are now compulsorily required to provide non-forest land for compensatory afforestation in lieu of all forest land proposed for diversion under the Forest (Conservation) Act, 1980. So FECPL has modified the Compensatory Afforestation scheme and has identified twice the revenue forest land and obtained the suitability certificate. Forest Diversion Proposal for Stage 1 is under process at the DFO level.
- xxii. Total **afforestation** plan shall be implemented covering an area of 1705 ha at the end of mining. Green Belt over an area of 79 ha and Reclaimed external OB dump would be 155 ha. Density of

tree plantation 2500 trees/ha of plants.

xxiii. There are no **court cases/violation** pending with the project proponent.

xxiv. **Public Hearing:** Public Hearing was held on 10.01.2014 at the Shaskiya Purv Madhymic Shala, Ududa, Tahsil Dharamjaigarh, Distt. Raigarh, Chhattisgarh

14.4.3 The issues raised during the Public Hearing were regarding rehabilitation, R & R policy, Wild Life Conservation Plan, over burden, preventive measures to control road accidents, protection measures to control air water and noise pollution in the area, employment pending case against coal block etc. The proponent had given assurances to address the issues raised during the Public Hearing.

14.4.4 The Committee received a representation from one of the NGOs with regard to impact of proposed diversion of the Pawasi Nala; Forest Clearance, Man- elephant conflict; Social impact; Coal is not required by allottees etc. Clarifications/information be submitted by the proponent on these issues.

14.4.5 The Committee, after detailed deliberations, **sought following information** for further consideration of the project:

- i. Proponent shall affirm, in an affidavit, that there are no issues pending with IMG of Ministry of Coal vis-à-vis any investigation in the matter.
- ii. Details with regard to impact of proposed diversion of the Pawasi Nala; Forest Clearance, Man- elephant conflict; Social impact; Coal is not required by allottees etc. be submitted.
- iii. Details be provided on embankment of Mand river which shall be of 100 meter green belt and 60 meter stone revetment along the river and shall be above 3 meter above high flood level. . Mine activity shall be 160 m away from boundary of the river.
- iv. Review of the proposed alignment for diversion of Pawasi Nala may be carried out. Approval of Irrigation Department of the State Govt on Diversion plan and detailed design of diversion of nalla be submitted.
- v. Action Plan for implementation of railway line from coal block to proposed Dharamjaygarh station on East Corridor.
- vi. A detailed note on road transportation of coal be submitted which shall also indicate that how much time and an action plan for. Explore the possibility of increasing the distance of CHP from Mand River and also examine the feasibility of relocation of coal handling yard which is by the side of the river.
- vii. Explore the possibility of adopting In Pit Crushing and Conveying system for coal to reduce the distance of use of dump trucks and crusher unit at CHP.
- viii. Equal amount of grazing land (consumed within project area) should be provided to the PAPs.
- ix. Transportation services be extended between Ududa & Narkalao villages as a part of CSR activities in lieu of the existing roads. .
- x. Explore the feasibility to further reduce the void and minimizing the external OB dump. The cross-sections of OB Dumps and O.B. handling plan be provided.
- xi. Action Plan in respect of the Capital CSR funds of Rs. 12 Crores during the stage of mine commissioning be submitted. Recurring annual CSR after commissioning would not be less than Rs 5 per metric tonne of coal produced. .
- xii. There are discrepancies in water quality data. This may be verified with regard to BOD and dissolved oxygen of surface water.
- xiii. The proponent shall create an Environmental Cell comprising of an Ecologist, an Environmentalist & a Social Scientist so as to monitor and implement the environmental and social issues who should report to the Head of the Project.
- xiv. Proponent should preserve of the places with religious sentiment. Fatehpur East Coal Block
- xv. Details of issues raised in PH and Action Plan alongwith budget be submitted in a tabular

- form.. If there are any issues with regard to wild life, the Wild life conservation Plan be prepared and comments of Dr. V B Mathur of Wild Life Institute of Dehradun be submitted.
- xvi. Copy of R & R plan be submitted.
  - xvii. Proponent should also submit plan of temporary housing facility for contractual workers. As the mine is planned to be worked on contractual basis. Proponents informed that total manpower will be 1280 and housing planned is for 315 persons only.
  - xviii. The pp informed that that the status of stage- 1 Forest Clearance is under process at the D.F.O. level.

**14.5 Rajgammar Dipside (South of Phulakdih Nala) Underground Coalmine project (065 MTPA in an ML area of 625 ha) of M/s Monnet Ispat & Energy Ltd. located at district, Korba, Chhattisgarh.- TOR**

14.5.1 The EAC has noted that Ministry of Coal (MOC), vide letter no. 13016/05/2014 CA-I dated 21<sup>st</sup> February, 2014, issued **show-cause notice** to the proponent to explain as to why the delay in the development of coal block should not be held as violation of the terms and conditions of the allocation of Coal Block and why the block should not be de-allocated. The proponent informed the Committee that the Inter Ministerial Group (IMG) had recommended that block is liable for deallocation.

14.5.2 In view of the recommendations of the IMG, the Committee **deferred the project** for further consideration.

**14.6 Moira Madhujore North & South Underground Coalmine Project (2 MTPA nominal and 2.34 MTPA peak over an ML area of 999 ha) of M/s Moira Madhujore Coal Ltd., located in Raniganj Coalfields, West Bengal – Further consideration – TOR.**

14.6.1 The EAC has noted that Ministry of Coal (MOC), vide letter no. 13016/05/2014 CA-I dated 21<sup>st</sup> February, 2014, issued **show-cause notice** to the proponent to explain as to why the delay in the development of coal block should not be held as violation of the terms and conditions of the allocation of Coal Block and why the block should not be de-allocated. The proponent informed the Committee that the Inter Ministerial Group (IMG) had recommended that block is liable for deallocation.

14.6.2 In view of the recommendations of the IMG, the Committee **deferred the project** for further consideration.

**14.7 Permission for backfilling of mine void by Fly ash in Talabira-I Opencast Coalmine Project of M/s Hindalco Industries Ltd., located in village Khinda, Tehsil Rengali, District Sambalpur, Orissa.**

14.7.1 The proponent has requested for permission **for backfilling of Fly ash in the mine void of Talabira-I Opencast Coalmine Project of M/s Hindalco Industries Ltd** located in village Khinda, Tehsil Rengali, District Sambalpur, Orissa.

14.7.2 The Committee was of the view that a pilot project is underway for evaluating the effect of dumping of fly ash in mine voids of MCL mines in Odisha. The results are awaited. A view may be taken after the results are generated, made available and discussed in the EAC. Meanwhile, the proponent may also carry out the analysis of groundwater of earlier ash pond and other areas at periodic intervals and generate data so as to apprise the EAC on long-term impact of flyash on ground water, vegetation and health impacts on local population.

## 14.8 Basundhara Coal Washery (10 MTPA in an ML area 27.66 ha) of M/s Mahanadi Coalfields Ltd., located in Dist. Sundergarh, Orissa – TOR

14.8.1 The proposal is for Basundhara Coal Washery (10 MTPA in an ML area 27.66 ha) of M/s Mahanadi Coalfields Ltd., located in Dist. Sundergarh, Orissa. The proponent made the presentation and informed that:

- i. Basundhara Washery (10 mty) has been proposed for beneficiation of raw coal (non-coking coal) of ash content of  $43.8 \pm 4\%$  of Kulda OCP (10MTY). It is located in the mine leasehold of Kulda OCP (10 Mty) in Basundhara Area of Ib valley Coalfield in Sundergarh District, Orissa. Kulda OCP (10 MTPA) has been granted EC vide letter J/11015/10/95-1A.II(M) dated 24.12.02.
- ii. The latitude and longitude of the project are 22°01'02"N to 22°03'03"N to 83°43'28"E to 83°45'35"E
- iii. **Land requirement:** Total land identified for proposed Basundhara Washery is 27.66 ha.( 13 ha for Washery premises; 8.73 ha for temporary rejects storage site; 5.93 ha for Clean Coal Conveyor Corridor )
- iv. **Forest Land:** 21.73 ha of forest land has already been diverted vide clearance letter No. J/11015/10/95-1A.II (M) dtd. 24.12.02 of MoEF, New Delhi for Infrastructure of Kulda OCP which is a running mine. 5.93 ha of land is to be acquired for washed coal conveyor corridor to Silo. This includes 4.33 ha of tenancy, 1.2 ha forest and 0.4 ha of govt. non-forest land. Forest land diversion application is in progress for 1.2 Ha.
- v. No R & R is involved
- vi. **Washing Technology:** Washing Technology will be based on offer of lowest bidder. However, washing technology preferably shall be based on Jig/Heavy Media Separation (bath/drum/cyclone or combination thereof). Bidders are free to offer any other improved/ proven technology being used elsewhere in the world. Washing circuit has to be necessarily a closed circuit with zero water discharge.
- vii. **Water requirement:** Total water demand is @ 2222 m<sup>3</sup>/day which will be met from mine sump Basundhara (E) OCP. This includes 1519 for washery process, 3 m<sup>3</sup>/day for drinking and 700 m<sup>3</sup>/day for firefighting and dust suppression. The makeup water will compensate for the loss of moisture with product and meet the water demand for dust suppression and horticulture. After clarifying in radial thickeners, clarified water will be re-circulated in the plant as a process water. The emergency flow from thickeners will be routed through slime ponds (approx. 5 nos.) and overflow water will be re-circulated in the process. No outside discharge of water/effluent
- viii. **Transportation:** Raw Coal: to be transported from Kulda OCP –II washery by two nos. of covered conveyor belts each of approx. 1200 TPH capacity. Washed coal : To be transported from Basundhara washery to the Silo near railway siding by 2 x 2000 TPH. Twin conveyor belts of approx length of 1.85 KM. Rejects : to be transported from washery to rejects site by conveyor of length of about 2.2 KM. Water : Source of water to washery side (by MCL) from Basundhara (E) quarry (3.5 km) of Basundhara area.
- ix. **Life of washery:** Based on coal availability- 30 Years. For computation of economics-18 Years.
- x. **Cost:** Total capital cost of the project is Rs. 165.27 Cores;
- xi. **Wildlife issues:** There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 10 km Buffer Zone.
- xii. There are **no court /violation** cases pending against the project proponent.

14.8.2 The Committee, has expressed its dissatisfaction and concerns that the representatives who attended the meeting, including from CMPDIL, had not even seen the site of the washery and were not in a position to apprise the Committee about the contour and details of the project site. There was no Director level representative attended the meeting. The EAC was of the considered view that this be brought to the notice of the CMD of the subsidiary. The EAC after presentation and deliberation opined that the proponent come back after acquainting themselves with the site conditions, transport details and

quality of reject and its usage as per MoEF guidelines, responsibility of the M.D.O., details of the 1.2 Ha of forest land forms part of the project, status of surface drainage and its protection etc.. The EAC noted that earlier TOR was granted on 21.3.2011 in the same name and requested for extension of validity of ToR on 5.3.2013. However, subsequently has withdrawn the application on 29.7.2013. Fresh application for ToR has been submitted now. The Committee recommended that a sub-Committee of the EAC to have a site visit.

#### **14.9 Himgir Coal Washery project (5 MTPA to 10 MTPA in an ML area 13.57 ha) of M/s ACB (India) Ltd., located at village Kanika, Tehsil Himgir, District, Sundargarh, Odisha - TOR**

14.9.1 The proposal is of Himgir Coal Washery project (5 MTPA to 10 MTPA in an ML area 13.57 ha) of **M/s ACB (India) Ltd.**, located at village Kanika, Tehsil Himgir, District, Sundargarh, Odisha. The proponent made the presentation and informed that:

- i. MOEF granted EC vide letter no. J-11015/925/2007.IA-II(M) dated 22.06.2009 for the 5 MTPA coal washery capacity( raw coal by wet process).
- ii. This is a standalone washery and no interlinked projects are envisaged.
- iii. The latitude and longitude of the project are 21<sup>0</sup> 53' 29.2" N to 21<sup>0</sup> 53' 38.9" N and 83<sup>0</sup> 43' 28.9" E to 83<sup>0</sup> 43' 38.5" E:
- iv. **Land requirement/details:** Total land area required 13.57 ha. No forest land involved.
- v. **Process :** 100% recycling of water by installing state of the art equipments like thickening systems, belt press, classifying cyclones, high frequency screens etc and thus to construct an eco-friendly washery which ensures zero discharge of water outside premises.
- vi. **Water requirement:** Existing water requirement of 300 CUM Per Day m<sup>3</sup>/day. Ground water clearance is not applicable as presently no use of Ground Water for plant purpose.
- vii. **Transportation** of coal: Transportation of coal from surface to siding by truck and siding to loading by pay loaders.
- x. **Cost:** Total capital cost of the project is Rs. 40.90 Cores; CSR cost Rs. 10 lakhs; Environment Management Cost is Rs. 42 lakhs .
- xi. **Wildlife issues:** There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 10 km Buffer Zone.
- xii. **Forestry issues:** No forest area involved in coal washery.
- xiii. There are **no court /violation** cases pending against the project proponent.

14.9.2 The Committee, after detailed deliberations, has **sought following information** for further consideration of the project

- i. Compliance status to earlier EC conditions duly authenticated by the RO MOEF be submitted.
- ii. The FBC boiler power plant has not been installed as per one of the conditions of the EC which construes as violation.
- iii. The full capacity i.e. 5 MTPA has not yet been reached. The Proponent has so far reached only 0.2 MTPA of the full capacity.
- iv. Details of mode of transportation of coal from and to the clients be provided
- v. Details of hydrological conditions and water balance be submitted. Also, a study be carried out to evaluate the impact on the downstream ecology. The permission of the State Government for abstraction of ground water be submitted.
- vi. Details of CSR activities carried out so far be submitted alongwith budgetary figures.
- vii. The Committee recommended that a sub-Committee of the EAC to have a site visit.

#### 14.10 Basundhara Global Coal Washery project (5 MTPA an ML area 10.11 ha) of M/s Global Coal & Mining Pvt. Ltd., Dist. Sundargarh, Orissa – TOR.

14.10.1 The proposal is of Basundhara Global Coal Washery project (5 MTPA an ML area 10.11 ha) of M/s Global Coal & Mining Pvt. Ltd., Dist. Sundargarh, Orissa. The proponent made the presentation and informed that:

- i. It is a green field project. The capacity of the proposed project shall be 5.0 Million TPA on throughput basis.
- ii. The raw coal shall be sourced from the nearby coal mines of M/s Mahanadi Coalfield Limited.
- iii. The washed coal shall have the ash content <34%.
- iv. The site is selected based on various techno-commercial considerations.
- v. The area is devoid of any forest land and ecologically sensitive areas
- vi. The latitude and longitude of the project are 22<sup>o</sup> 01' 9.22" N to 83<sup>o</sup> 48' 44.19" E
- vii. Land requirement/details : Total land area required 10.11 ha. Single Crop Agriculture Land. No forest land involved.
- viii. Process: The technology considered for the proposed project are Batac Jig & Heavy Media Bath or Drum Washer of capacity 2.5 Million TPA each.
- ix. **Water requirement:** Total water requirement of 220 m<sup>3</sup>/day, which will be sourced from rain water harvesting pond & Basundhara River.
- x. **Waste water generation:** There will be no waste water generation from the process unit except loss of due to the increase in moisture content of the coal and it will be to the tune of 170 KL per day. The entire water is circulated in the closed circuit and the effluent generated from the washing section is treated in the Effluent Treatment Plant comprising of vacuum drum filter and thickener and then the treated water is recycled back into the system. The loss in the process i.e. 170 KL per day is met from the rain water storage pond and is added into the system. The domestic effluent generated to the tune of 8 KL per day shall be sent to the soak pit through septic tank/Sewage Treatment Plant.
- xi. **Solid Waste:** 1.30 Million TPA (i. e. 4333 TPD) of washery rejects shall be generated. These rejects shall be supplied to the nearby power generations company for use in their FBC boilers.
- xii. **Transportation** of coal: Raw Coal shall be transported by road through covered trucks from the nearby coalmines of M/s Mahanadi Coalfield Limited. The washed coal shall be transported by rail. Alternatively, it shall be transported by road only till such time the proposed railway lines is commissioned. There is a proposal to lay a rail line at a distance of approx. 0.2 km east of the proposed project site which shall be connected by belt conveyor up to siding. The washed coal shall be transported by belt conveyor to the loading point for onward dispatch to the different consumers.
- xiii. **Cost:** Total capital cost of the project is Rs. 40 Cores; Environment Management Cost is Rs. 3.31 crore.
- xiv. **Wildlife issues:** There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 10 km Buffer Zone.
- xv. **Forestry issues:** No forest area involved in coal washery.
- xvi. There are **no court /violation** cases pending against the project proponent.

14.10.2 The Committee, after detailed deliberations, has **sought following information** for further consideration of the project

- i. Detailed plan of action for meeting the water requirement
- ii. Details of hydrology of the area alongwith the details of railfall in the area.
- iii. Details of linkage for coal aswell as rejects be provided along with MOU with the end users.
- iv. Details of decoaled area vis-à-vis back-filled area for mine water.

**14.11 Marki –Zari-Jamani-Adkoli Opencast Coalmine Project (1 MTPA in an ML area of 459.68 ha) of M/s Maharashtra State Mining Corp. Ltd., dist, Yavatmal, Maharashtra - EC based on TOR granted on 23.03.2012.**

14.11.1 The EAC has noted that Ministry of Coal (MOC), vide letter no. 13016/82/2006-CA-I dated 1<sup>st</sup> January, 2014, issued **show-cause notice** to the proponent to explain as to why the delay in the development of coal block should not be held as violation of the terms and conditions of the allocation of Coal Block and why the block should not be de-allocated. The proponent informed the Committee that the Inter Ministerial Group (IMG) had recommended that block is liable for deallocation.

14.11.2 In view of the recommendations of the IMG, the Committee **deferred the project** for further consideration.

**14.12 Nandan-II UG Extn. Coal Mining Project of (Production Capacity 0.405 MTPA as per EC with increase in land area from 543.50 ha to 656.14 ha) of M/s Western Coalfields Ltd., located at Dist. Chhindwara, Madhya Pradesh - TOR**

14.12.1 The proposal is of Nandan-II UG Extn. Coal Mining Project of (Production Capacity 0.405 MTPA as per EC with increase in land area from 543.50 ha to 656.14 ha) of M/s Western Coalfields Ltd., located at Dist. Chhindwara, Madhya Pradesh.

14.12.2 The proponent made the presentation and informed that:

- i. The project was granted TOR vide letter dated 30.5.2011. Due to the Tiger Corridor issue, the said TOR was withdrawn vide letter dated 27.07.2011. Thereafter, the FC Division of the MOEF, vide its O.M. F-11-164/2010-FC dated 25.03.2013 has circulated the revised decision of the Ministry on the mining in each of the twelve coal blocks located within the said migratory corridor. In this regard, the decision on Block No. 58 (Nandan – II) & Block No. 60 (Dhau North) is stated as “...Keeping in view that the mine incline of the 58- Nandan-II block is located near boundary of the corridor and the underground mining activities are not likely to have any significant impact on surface of the mines, the sub-committee is of the view that the balance reserve available in the 58- Nandan – II as well as the 60- Dhau North mine (in case it is notified as a CIL block) may be allowed to be extracted through underground mining by using the existing inclines and infrastructure of the 58- Nandan – II mine. Only minimal surface activities as required for statutory compliance under the Mines Act, 1952 and Mines Rules 1955 may be allowed. In case 60- Dhau North block is not notified as CIL block, no mining in the block may be allowed, as it will require creation of additional infrastructure which will cause avoidable disturbance in the corridor. After exhaustion of the underground reserves, no further activity in the mine site, especially conversion to open cast should be allowed. After closure of the mine, all existing infrastructure available at the mine site be dismantled and the area occupied by these structures be restored by planting suitable tree species...”
- ii. Accordingly, after re-allocation of the block to WCL by Ministry of Coal vide its letter dated 02.07.2013, the proponent has submitted the revised application for grant of TOR.
- iii. The existing mine is exhausted and production would be maintained within 0.405 MTPA by expansion of ML area from 543.50 ha to 656.14 ha. Of the total ML area of 656.14 ha, 261.23 ha is forestland. Of the additional land area of 112.64 ha to be acquired under Mining Rights, 55.03 ha is forestland, 57.61 ha is tenancy and Govt. land and 12.159 ha of non-forestland is under surface rights and has already been acquired.
- iv. Environment clearance for 543.50 ha already exists. Additional area of 112.64 ha is being proposed for acquisition.

- v. The latitude and longitude of the project are 22° 12' 43" to 22°12' 51" N - 78° 25' 34" to 78° 26' 43"E.
- vi. The total geological reserve is 7.045 MT. The mineable reserve 3.947 MT, extractable reserve is 2.251 MT. The per cent of extraction would be 31.95 %.
- vii. There will be three Seams with thickness range between 3.10 m to 6.46 m. Maximum thickness of Seam 6.46 m.
- viii. The average Gradient would be 1 in 5 to 1 in 7 . Ultimate working depth is 387.36m.
- ix. The total estimated water requirement is 300 m3 /d. The highest Water table is in the range of 3.45-11.9m bgl (pre-monsoon) and 1.6-8.25m bgl (post monsoon).
- x. **Method of Mining:** Mining is underground by mechanised Board & Pillar method with caving.
- xi. Land requirement/details :

**Pre-mining:**

Proposed Nandan-U/G extension mine is located in Kanhan Area of WCL and is an extension of existing Nandan-U/G Mine in further north in Dhau North Block.

**Total land for the Present Project (EC) Obtained:**

Agri. Land– 305.93 ha;Govt. Land – 31.37 ha; Forest Land– 206.20 ha. Total – 543.50 ha

Now, as proposed additional property is being annexed for sustaining the production. The total land base for the extension mine area is 112.64 ha which is to be acquired under Mining Right only. The following table classifies land area involved under forest, Govt. and tenancy heading:

- i) Forest land - 55.03 ha
- ii) Tenancy & Govt. land - 57.61 ha

**Post-Mining:** The proposed addition of land area is for underground mining only. As such there will be no change in the surface land.

**Core Area:** Proposed Nandan-U/G extension mine is located in Kanhan Area of WCL and is an extension of existing Nandan-U/G Mine in further north in Dhau North Block.

- xii. **Transportation of coal:** Transportation of coal in pit by belt and surface to siding by dipper and siding to loading by pay loader.
- xiii. Balance **life of the mine** is 9 years.
- xiv. There is no R & R involved. There are no PAFs for these productions
- xv. **Cost:** Total capital cost of the project is Rs. 43.5245 Crore. CSR Cost Rs 5.00 /Tonne R&R Cost: Nil. Environmental Management Cost is Rs. 25 Lakhs (Revenue @ Rs. 6.00 /tonne).
- xvi. **Water body:** The proposed extension area in south side of Dhau-North Block (south of fault F2-F2 & F3-F3) is more or less flat. The drainage of the area is controlled by the Kanhan River flowing in the middle of proposed extension area from north- west to south-east. A few seasonal nalas meet the Kanhan River in the proposed area.
- xvii. **Approvals:** The project report for Extn. Of Nandan – II UG Mine (in Dhau North Block) with capital of Rs. 43.5245 crore on Partial Hiring of equipment basis was approved by WCL board in its 220th meeting held on 18.09.2009.Board approved on 18/09/2009; Communicated vide letter no. WCL/BD/SECTT/BM-220/2009/2442 Dated 18/09/2009. Ground water clearance is not applicable as Not applicable as the project area does not fall in the zone specified by CGWA for ground water regulation.
- xviii. **Wildlife issues:** There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 10 km Buffer Zone.
- xix. **Forestry issues:** Total forest area involved (in ha) for mining: 261.23 Ha
- xx. There are no **court /violation** cases pending against the project proponent.

14.12.3 The Committee after detailed deliberations has **recommended** for granting the ToR with the following specific ToRs in addition to generic ToRs for underground mining.

- i. Document(s) of proof of 100% linkage for utilisation of washed coal, middling and rejects to be submitted.
- ii. Coal shall be transported by mechanically covered trucks.
- iii. Details of clients' alongwith documentary proof to whom the washed coal, middling and rejects will be supplied.
- iv. Dispatch of coal shall be by rail.
- v. Treatment of mine water for use in the washery in place of ground water be explored and report submitted.
- vi. The Notification of MoEF vide no. GSR 02(E) dated 2<sup>nd</sup> January, 2014 with regard to raw or blended or beneficiated coal is required to be followed while operating the washery.
- vii. Capital CSR budget of about Rs. 40 to Rs. 50 lakhs be utilized during the construction phase.

The meeting ended with a vote of Thanks to the Chair.

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**PARTICIPANTS IN 14<sup>th</sup> EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 27<sup>th</sup> -28<sup>th</sup> MARCH 2014 IN NEW DELHI.**

Sl. No.	<b>LIST OF PARTICIPANTS Expert Appraisal Committee (Coal Mining)</b>	
1.	Shri A. S. Lamba	Could not attend
2.	Prof. C.R. Babu	Member and Officiating Chairman
3.	Dr. T. K .Dhar	Member
4.	Shri Jawahar Lal Mehta	Member
5.	Shri N. K. Verma	Member
6.	Shri G. S. Dang	Member
7.	Shri A. K. Bansal	Member
8.	Shri P. D. Siwal	Member
9.	Dr. G. R. Rathnavel	Member
10.	Dr. Manoranjan Hota	Director & Member Secretary
11.	Shri. P. R. Sakhare	Deputy Director

**PARTICIPANTS IN 14<sup>th</sup> EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 27<sup>th</sup> -28<sup>th</sup> MARCH 2014 ON COAL SECTOR PROJECTS.**

14.1 West Bokaro Opencast Expansion Coal Mine Project of **M/s Tata Steel Ltd.**

Absent

14.2 Machhakata Opencast Coal Mine Project of **M/s Mahaguj Collieries Ltd.**

1. Shri Man Mohan Bisht
2. Shri R. L. Mattoo
3. Shri S. P. Rekhade
4. Shri K. K. Jain
5. Shri M. K. Thapar
6. Shri Balbir Singh Sodhi
7. Shri K. R. Singh
8. Shri G. V. Rao
9. Shri M. Janardhan
10. Shri Vikram Vyas
11. Shri Uma Shankar
12. Shri G. V. Ravi

14.3 Shahpur East and Shahpur West UG Coal Mining Projects of **M/s National Mineral Development Corp. Ltd..**

1. Shri Pankaj Malik
2. Shri Rajeev Sharma
3. Shri Nasim Ansari

14.4 Fatehpur East Coal Block **M/s Fatehpur East Coal Private Ltd.**

1. Shri N. K. Prasad
2. Shri S. S. Rai
3. Shri M. M. S. Khadani
4. Shri R. Srinivasan
5. Shri S. Gopala Krishnan
6. Shri Amarnath
7. Dr. Arvind Kumar
8. Shri Vikas Agarwal
9. Shri Swapnendu Maiti
10. Shri Yadu Sharma
11. Shri G. P. Choudhary

14.5 Rajgammar Dipside (South of Phulakdih Nala) Underground Coalmine project of **M/s Monnet Ispat & Energy Ltd.**

1. Shri K. M. Rao.
2. Shri G. P. Choudhary
3. Shri Rajesh Rana

4. Dr. Marisha Sharma
  5. Shri J. Plath
- 14.6 Moira Madhujore North & South UG Coalmine Project of **M/s Moira Madhujore Coal Ltd.,**
1. Shri R. Agrawal
  2. Shri J. N. Moitra
  3. Shri Bikash Roy Choudhary
  4. Shri Sanjay kunpawat
- 14.7 Talabira-I Opencast Coalmine Project of **M/s Hindalco Industries Ltd.**
1. Shri Vinod K. Verma
  2. Shri P.R.S. Mani
  3. Dr. S.P. Paur
  4. Shri Abhishek Kumar
  5. Shri Om Prakash
  6. Shri Procyon Mukherjee
- 14.8 Basundhara Coal Washery of **M/s Mahanadi Coalfields Ltd.**
1. Shri A. Kumar
  2. Shri Yogendra Mishra
  3. Shri P. K. Mishra
  4. Shri J. Singh
  5. Shri A. K. Pati
- 14.9 Himgir Coal Washery project of **M/s ACB (India) Ltd.,**
1. Shri V. B. Sahay
  2. Shri S. C. Jha
  3. Shri P. Reddy. B. S.
  4. Shri S. V.
  5. Dr. A. Tej
  6. Shri Priyavart Sharma
  7. Shri D. N. Pandey
- 14.10 Basundhara Global Coal Washery project of **M/s Global Coal & Mining Pvt. Ltd.**
1. Shri V. K. Sehgel
  2. Shri K. Pater
  3. Shri D. N. Pandey
  4. Shri Bidyut patra
  5. Shri Prakash Shrivastava
- 14.11 Marki –Zari-Jamani-Adkoli OC Project of **M/s Maharashtra State Mining Corp. Ltd.**
1. Shri P. Y. Tembhare
  2. Shri J. K. Goel
  3. Shri S. B. Vyouhare
  4. Shri B. S. Prabhakaran
  5. Shri M. S. Sandhu

6. Shri N. S. Kumar
7. Ms. Meeta Khimani
8. Dr. M. L. Naik
9. Shri S. N. Chawla
10. Shri U. S. Dangi
11. Shri M. N. Jha

14.12 Nandan-II UG Extn. Coal Mining Project of **M/s Western Coalfields Ltd.**

1. Md. Nooruddin
2. Shri S. K. Jagnania
3. Shri R. M. Wanare
4. Shri K. Chakraborty

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## GENERIC TOR FOR COAL WASHERY

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- (i) A brief description of the plant, the technology used, the source of coal, the mode of transport of incoming unwashed coal and the outgoing washed coal. Specific pollution control and mitigative measures for the entire process.
- (ii) The EIA-EMP report should cover the impacts and management plan for the project of the capacity for EC is sought and the impacts of specific activities on the environment of the region, and the environmental quality ?air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts for the rated capacity. If the washery is captive to a coal mine/TPP/Plant the cumulative impacts on the environment and usage of water should be brought out along with the EMP.
- (iii) A Study area map of the core zone and 10km area of the buffer showing major industries/mines and other polluting sources, which shall also indicate the migratory corridors of fauna, if any and the areas where endangered fauna and plants of medicinal and economic importance are found in the area. If there are any ecologically sensitive areas found within the 15km buffer zone, the shortest distance from the National Park/WL Sanctuary Tiger Reserve, etc should be shown and the comments of the Chief Wildlife Warden of the State Government should be furnished.
- (iv) Collection of one-season (non-monsoon) primary base-line data on environmental quality ?air (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub> and NO<sub>x</sub>), noise, water (surface and groundwater), soil.
  - (iv) Detailed water balance should be provided. The break-up of water requirement as per different activities in the mining operations vis-à-vis washery should be given separately. Source of water for use in mine, sanction of the competent authority in the State Govt..and examine if the unit can be zero discharge including recycling and reuse of the wastewater for other uses such as green belt, etc.
- (vi) Impact of choice of the selected use of technology and impact on air quality and waste generation (emissions and effluents).
- (vii) Impacts of mineral transportation - 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 the specific points where fugitive emissions can arise and the specific pollution control/mitigative measures proposed to be put in place.
- (viii) Details of various facilities to be provided for the personnel involved in mineral transportation in terms of parking, rest areas, canteen, and effluents/pollution load from these activities. Examine whether existing roads are adequate to take care of the additional load of mineral [and rejects] transportation, their impacts. Details of workshop, if any, and treatment of workshop effluents.
- (ix) Impacts of CHP, if any on air and water quality. A flow chart of water use and whether the unit can be made a zero-discharge unit.
- (x) Details of green belt development.
- (xi) Including cost of EMP (capital and recurring) in the project cost.
- (xiv) Public Hearing details of the coal washery to include details of notices issued in the newspaper, proceedings/minutes of public hearing, the points raised by the general public and commitments made in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
- (xv) Status of any litigations/ court cases filed/pending on the project.
- (xvi) Submission of sample test analysis of:
  - I Characteristics of coal to be washed- this includes grade of coal and other characteristics ?ash, S and and heavy metals including levels of Hg, As, Pb, Cr etc.
  - II Characteristics and quantum of washed coal.

III Characteristics and quantum of coal waste rejects.

- (xvii) Management/disposal/Use of coal waste rejects
- (xviii) Copies of MOU/Agreement with linkages (for stand-alone washery) for the capacity for which EC has been sought.
- (xxxvi) Submission of sample test analysis of:  
Characteristics of coal to be washed- this includes grade of coal and other characteristics ? ash, S

(xxxvii) 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.

**GENERIC TOR FOR AN OPENCAST COALMINE PROJECT**

- (i) An EIA-EMP Report would 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 cover the impacts and management plan for the project specific activities on the environment of the region, and the environmental quality ?air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modelling for ????. MTPA of coal production based on approval of project/Mining Plan for ???MTPA. Baseline data collection can be for any season except monsoon.
- (iii) A map specifying locations of the State, District and Project location.
- (iv) A Study area map of the core zone and 10km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage of rivers/streams/nalas/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 area of the buffer zone 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 of the land use. Satellite imagery per se is not required.
- (vi) Map showing the core zone delineating the agricultural land (irrigated and unirrigated, 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 2-5 km of the buffer zone (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated as a separate map.
- (viii) A detailed Site plan of the mine showing the various 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 and if any, in topography such as existing roads, drains/natural water bodies are to be left undisturbed along with any natural drainage adjoining the lease /project 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.
- (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.
- (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.
- (xi) Break up of lease/project area as per different land uses and their stage of acquisition.

**LANDUSE DETAILS FOR OPENCAST PROJECT**

S.N.	LANDUSE	Within ML Area (ha)	Outside ML Area (ha)	TOTAL
1.	Agricultural land			
2.	Forest land			
3.	Wasteland			

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4.	Grazing land			
5.	Surface water bodies			
6.	Settlements			
7.	Others (specify)			
	<b>TOTAL</b>			

- (xii) Break-up of lease/project area as per mining operations.
- (xiii) Impact of changes in the land use due to the start of the projects if much of the land being acquired is agricultural land/forestland/grazing land.
- (xiv) Collection of one-season (non-monsoon) primary baseline data on environmental quality - air (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, NO<sub>x</sub> and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil along with one-season met data coinciding with the same season for AAQ collection period.
- (xv) Map of the study area (1: 50, 000 scale) (core and buffer zone clearly delineating the location of various stations superimposed with location of habitats, other industries/mines, polluting sources. The number and location of the stations in both core zone and buffer zone 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. Values should be provided based on desirable limits.
- (xvi) Study on the existing flora and fauna in the study area (10km) carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I fauna, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a comprehensive Conservation Plan should be prepared and submitted with EIA-EMP Report and comments from the CWLW of the State Govt. also 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 end of mine life should be reflected 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.
- (xviii) Details of mining methods, technology, equipment to be used, etc., rationale for selection of that technology and equipment proposed to be used vis-à-vis the potential impacts.
- (xix) Impact of mining on hydrology, modification of natural drainage, diversion and channelling 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 breakup 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.
- (xxii) Impact of mining and water abstraction use in mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term modelling studies on. 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.
- (xxiv) Impacts of mining on the AAQ, predictive modelling using the ISCST-3 (Revised) or latest model.
- (xxv) Impacts of mineral transportation ?within and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop, management plan for maintenance of HEMM, machinery, equipment. Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities.
- (xxvi) Details of waste generation ?OB, topsoil ? as per the approved calendar programme, and their management shown in figures as well explanatory chapter with tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use. OB dump heights and terracing should be based on slope stability studies with a max of 28° angle as the ultimate slope. Sections of dumps (ultimate) (both longitudinal and cross section) with relation to the adjacent area should be shown.
- (xxvii) Progressive Green belt and afforestation plan (both in text, figures as well as in tables prepared by MOEF) and selection of species (local) for the afforestation/plantation programme based on original survey/landuse.

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

S.N.	Land use Category	Present (1 <sup>st</sup> Year)	5 <sup>th</sup> Year	10 <sup>th</sup> Year	20 <sup>th</sup> year	24 <sup>th</sup> Year (end of Mine life)*
1.	Backfilled Area(Reclaimed with plantation)					
2.	Excavated Area (not reclaimed)/void					
3.	External OB dump Reclaimed with plantation)					
4.	Reclaimed Top soil dump					
5.	Green Built Area					
6.	Undisturbed area (brought under plantation)					
7.	Roads (avenue plantation)					
8.	Area around buildings and Infrastructure					
	<b>TOTAL</b>	110*	110*	110*	110*	110*

\* As a representative example

**Table 2: Stage-wise Cumulative Plantation**

S.N.	YEAR*	Green Belt		External Dump		Backfilled Area		Others (Undisturbed Area/etc)		TOTAL	
		Area (ha)	No. of trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees
1.	1 <sup>st</sup> year										
2.	3 <sup>rd</sup> year										
3.	5 <sup>th</sup> year										

4.	10 <sup>th</sup> year									
5.	15 <sup>th</sup> year									
6.	20 <sup>th</sup> year									
7.	25 <sup>th</sup> year									
8.	30 <sup>th</sup> year									
9.	34 <sup>th</sup> year (end of mine life)									
10.	34-37 <sup>th</sup> Year (Post- mining)								85	

\* As a representative example

(xxviii) Conceptual Final Mine Closure Plan, post mining land use and restoration of land/habitat to pre- mining. A Plan for the ecological restoration of the area post mining and for land use should be prepared with detailed cost provisions. Impact and management of wastes and issues of rehandling (wherever applicable) and backfilling and progressive mine closure and reclamation.

**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					
4.	Built up area					
5.	Green Belt					
6.	Undisturbed Area					
	<b>TOTAL</b>	85				<b>110</b>

(xxix) Flow chart of water balance. Treatment of effluents from workshop, township, domestic wastewater, mine water discharge, etc. Details of STP in colony and ETP in mine. Recycling of water to the max. possible extent.

(xxx) 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 for the mine.

(xxxii) Risk Assessment and Disaster Preparedness and Management Plan.

(xxxiii) Integrating in the Env. Management Plan with measures for minimising use of natural resources - water, land, energy, etc.

(xxxiiii) Including cost of EMP (capital and recurring) in the project cost and for progressive and final mine closure plan.

- (xxxiv) 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.
- (xxxv) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project.
- (xxxvi) Public Hearing should cover the details of notices issued in the newspaper, proceedings/minutes of public hearing, the points raised by the general public and commitments made by the proponent 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.
- (xxxvii) In built mechanism of self-monitoring of compliance of environmental regulations.
- (xxxx) Status of any litigations/ court cases filed/pending on the project.
- (xxxxi) Submission of sample test analysis of:  
Characteristics of coal - this includes grade of coal and other characteristics ?ash, S and heavy metals including levels of Hg, As, Pb, Cr etc.
- (xxxixii) Copy of clearances/approvals ? such as Forestry clearances, Mining Plan Approval, NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.

**(A) FORESTRY CLEARANCE**

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 one, provide details of each FC			

### GENERIC TOR FOR AN UNDERGROUND COALMINE PROJECT

- (i) An EIA-EMP Report should be prepared for a peak capacity of **????.. MTPA** over an area of **????.. ha** addressing the impacts of the underground coalmine project including the aspects of mineral transportation and issues of impacts on hydrogeology, plan for conservation of flora/fauna and afforestation/plantation programme based on the generic structure specified in Appendix III of the EIA Notification 2006.. Baseline data collection can be for any season except monsoon.
- (ii) The EIA-EMP report should also cover the impacts and management plan for the project specific activities on the environment of the region, and the environmental quality ?air, water, land, biotic community, etc. through collection of baseline data and information, generation of baseline data on impacts for **??.. MTPA** of coal production based on approval of project/Mining Plan.
- (iii) A Study area map of the core zone and 10km area of the buffer zone (15 km of the buffer zone in case of ecologically sensitive areas) delineating the major topographical features such as the land use, drainage, locations of habitats, major construction including railways, roads, pipelines, major industries/mines and other polluting sources, which shall also indicate the migratory corridors of fauna, if any and the areas where endangered fauna and plants of medicinal and economic importance are found in the area.
- (iv) Map showing the core zone along with 3-5 km of the buffer zone) delineating the agricultural land (irrigated and unirrigated, uncultivable land (as defined in the revenue records), forest areas (as per records) and grazing land and wasteland and water bodies.
- (v) Contour map at 3m interval along with Site plan of the mine (lease/project area with about 3-5 km of the buffer zone) showing the various surface structures such as buildings, infrastructure, CHP, ETP, Stockyard, township/colony (within/adjacent to the ML), green belt and undisturbed area and if any existing roads, drains/natural water bodies are to be left undisturbed along with details of natural drainage adjoining the lease/project and modification of thereof in terms of construction of embankments/bunds, proposed diversion/rechannelling of the water courses, etc., highways, passing through the lease/project area.
- (vi) Original land use (agricultural land/forestland/grazing land/wasteland/water bodies) of the area. Impacts of project, if any on the landuse, in particular, agricultural land/forestland/grazing land/water bodies falling within the lease/project and acquired for mining operations. Extent of area under surface rights and under mining rights.

S.N.	ML/Project Land use	Area under Surface Rights (ha)	Area Under Mining Rights (ha)	Area under Both (ha)
1.	Agricultural land			
2.	ForestLand			
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	

- (vii) Study on the existing flora and fauna in the study area carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna. The flora and fauna details should be furnished separately for the core zone and buffer zone. The report and the list should be authenticated by the concerned institution carrying out the study and the names of the species scientific and common names) along with the classification under the Wild Life Protection Act, 1972 should be furnished.
- (viii) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working plan/scheme until end of mine life should be reflected on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps should also be included.
- (ix) Impact of mining on hydrology, modification of natural drainage, diversion and channelling 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.
- (x) Collection of one-season (non-monsoon) primary baseline data on environmental quality ? air (PM10, PM2.5, SOx, NOx and heavy metals such as Hg, Pb, Cr, AS, etc), noise, water (surface and groundwater), soil along with one-season met data.
- (xi) Map of the study area (core and buffer zone) clearly delineating the location of various monitoring stations (air/water/soil and noise ? each shown separately) superimposed with location of habitats, wind roses, other industries/mines, polluting sources. The number and location of the stations should be selected on the basis of the proposed impacts in the downwind/downstream/groundwater regime. One station should be in the upwind/upstream/non-impact non-polluting area as a control station. Wind roses to determine air pollutant dispersion and impacts thereof shall be determined. Monitoring should be as per CPCB guidelines and standards for air, water, noise notified under Environment Protection Rules. Parameters for water testing for both ground and surface water should be as per ISI standards and CPCB classification of surface water wherever applicable.
- (xii) Impact of mining and water abstraction and mine water discharge in mine on the hydrogeology and groundwater regime within the core zone and 10km buffer zone including long-term modelling studies on the impact of mining on the groundwater regime. Details of rainwater harvesting and measures for recharge of groundwater should be reflected wherever the areas are declared dark/grey from groundwater development.
- (xiii) Study on subsidence, measures for mitigation/prevention of subsidence, modelling subsidence prediction and its use during mine operation, safety issues.
- (xiv) 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.
- (xv) 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.
- (xvi) Impacts of mineral transportation ?within and outside the lease/project. The entire sequence of mineral production, transportation, handling, transfer and storage of mineral and waste, and their impacts on air quality should be shown in a flow chart with the specific points where fugitive emissions can arise and the specific pollution control/mitigative measures proposed to be put in place. Examine the adequacy of roads existing in the area and if new roads are proposed, the impact of their construction and use particularly if forestland is used.
- (xvii) Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities. Examine whether existing roads are adequate to take care of the additional load of mineral and their impacts.
- (xviii) Examine the number and efficiency of mobile/static water sprinkling system along the main mineral transportation road within the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality.

- (xix) Impacts of CHP, if any on air and water quality. A flow chart of water use and whether the unit can be made a zero-discharge unit.
- (xx) Conceptual Final Mine Closure Plan along with the fund requirement for the detailed activities proposed there under. Impacts of change in land use for mining operations and whether the land can be restored for agricultural use post mining.

**Table 1 Stage-wise Cumulative Plantation**

S.N.	YEAR*	Green Belt		External Dump		Backfilled Area		Others (Undisturbed Area/etc)		TOTAL	
		Area (ha)	No. of trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees
1.	1 <sup>st</sup> year										
2.	3 <sup>rd</sup> year										
3.	5 <sup>th</sup> year										
4.	10 <sup>th</sup> year										
5.	15 <sup>th</sup> year										
6.	20 <sup>th</sup> year										
7.	25 <sup>th</sup> year										
8.	30 <sup>th</sup> year										
9.	34 <sup>th</sup> year (end of mine life)										
10.	34-37 <sup>th</sup> Year (Post-mining)									85*	2,12,500

\*As a representative example

- (xxi) 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 for the mine should be furnished.
- (xxii) Details of cost of EMP (capital and recurring) in the project cost and for final mine closure plan. The specific costs (capital and recurring) of each pollution control/mitigative measures proposed in the project until end of mine life and a statement that this is included in the project cost.
- (xxiii) Integrating in the Env. Management Plan with measures for minimising use of natural resources ?water, land, energy, raw materials/mineral, etc.
- (xxiv) R&R: Detailed project specific R&R Plan with data on the existing socio-economic status (including tribals, SC/ST) of the population 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.
- (xxv) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project.

(xxvi) Public Hearing should cover the details as specified in the EIA Notification 2006, and include notices issued in the newspaper, proceedings/minutes of public hearing, the points raised by the general public and commitments by the proponent made 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.

(xxvii) Status of any litigations/ court cases filed/pending in any Court/Tribunal on the project should be furnished.

(xxviii) Submission of sample test analysis of:

(xxix) Characteristics of coal - this includes grade of coal and other characteristics ash, and heavy metals including levels of Hg, As, Pb, Cr etc.

(xxx) Copy of clearances/approvals such as Forestry clearances, Mining Plan Approval, NOC from Flood and Irrigation Dept. (if req.), etc.

(A) FORESTRY CLEARANCE

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 one, provide details of each FC			

**GENERIC TOR FOR AN OPENCAST-CUM-UNDERGROUND COALMINE PROJECT**

- (i) An EIA-EMP Report would be prepared for a combined rated capacity of???.MTPA for OC-cum-UG project which consists of ?? MTPA 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 cover the impacts and management plan for the project specific activities on the environment of the region, and the environmental quality ?air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modelling for ??? MTPA of coal production based on approval of project/Mining Plan for ??.. MTPA. Baseline data collection can be for any season except monsoon.
- (iii) A map specifying locations of the State, District and Project location.
- (iv) A Study area map of the core zone and 10km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage of rivers/streams/nalas/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 area of the buffer zone 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 of the land use. Satellite imagery per se is not required.
- (vi) Map showing the core zone delineating the agricultural land (irrigated and unirrigated, 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 2-5 km of the buffer zone (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated as a separate map.
- (viii) A detailed Site plan of the mine showing the various 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 and if any, in topography such as existing roads, drains/natural water bodies are to be left undisturbed along with any natural drainage adjoining the lease /project and modification of thereof in terms of construction of embankments/bunds, proposed diversion/rechannelling of the water courses, etc., approach roads, major haul roads, etc.
- (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.
- (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.
- (xi) Break up of lease/project area as per different land uses and their stage of acquisition.

## LANDUSE DETAILS FOR OPENCAST PROJECT

S.N.	LANDUSE	Within ML Area (ha)	Outside ML Area (ha)	TOTAL (ha)
1.	Agricultural land			
2.	Forest land			
3.	Wasteland			
4.	Grazing land			
5.	Surface water bodies			
6.	Settlements			
7.	Others (specify)			
	<b>TOTAL</b>			

## LANDUSE DETAILS FOR UNDERGROUND PROJECT

S.N.	ML/Project Land use	Area under Surface Rights (ha)	Area Under Mining Rights (ha)	Area under Both (ha)
1.	Agricultural land			
2.	ForestLand			
3.	Grazing Land			
4.	Wasteland			
5.	Water Bodies			
6.	Settlements			
7.	Others (specify)			
	<b>TOTAL</b>			

Area under Surface Rights

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

- (xii) Break-up of lease/project area as per mining operations.
- (xiii) Impact of changes in the land use due to the start of the projects if much of the land being acquired is agricultural land/forestland/grazing land.
- (xiv) Collection of one-season (non-monsoon) primary baseline data on environmental quality - air (PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>x</sub>, NO<sub>x</sub> and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil along with one-season met data.
- (xv) Map of the study area (1: 50, 000 scale) (core and buffer zone clearly delineating the location of various stations superimposed with location of habitats, other industries/mines, polluting sources. The number and location of the stations in both core zone and buffer zone 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. Values should be presented in comparison to desirable limits.
- (xvi) Study on the existing flora and fauna in the study area (10km) carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna. If the study area has endangered flora and fauna, or if the project falls within 15 km of an ecologically sensitive area, then a comprehensive Conservation Plan should be prepared and furnished along with comments from the CWLW of the State Govt.
  - (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 end of mine life should be reflected 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 final mine closure plan should also be shown in figures.
  - (xviii) Details of mining methods, technology, equipment to be used, etc., rationale for selection of that technology and equipment proposed to be used vis-à-vis the potential impacts.
  - (xix) Study on subsidence, measures for mitigation/prevention of subsidence, modelling subsidence prediction and its use during mine operation, safety issues.
  - (xx) Impact of mining on hydrology, modification of natural drainage, diversion and channelling 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.
  - (xxi) Detailed water balance should be provided. The break up of water requirement for the various mine operations should be given separately.
  - (xxii) Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-à-vis the competing users.
  - (xxiii) Impact of mining and water abstraction use in mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long? Term modelling studies on. 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.
  - (xxiv) Impact of blasting, noise and vibrations.
  - (xxv) Impacts of mining on the AAQ, predictive modelling using the ISCST-3 (Revised) or latest model.
  - (xxvi) Impacts of mineral transportation ?within and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop, management plan for maintenance of HEMM, machinery, equipment. Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities.
  - (xxvii) Details of waste generation ? OB, topsoil ? as per the approved calendar programme, and their management shown in figures as well explanatory chapter with tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use. OB dump heights and terracing should be based on slope stability studies with a max of 28° angle as the ultimate slope. Sections of dumps (ultimate) (both longitudinal and cross section) with relation to the adjacent area should be shown.
  - (xxviii) Impact and management of wastes and issues of rehandling and backfilling and progressive mine closure and reclamation.
  - (xxix) Flow chart of water balance. Treatment of effluents from workshop, township, domestic wastewater, mine water discharge, etc. Details of STP in colony and ETP in mine. Recycling of water to the max. possible extent.
  - (xxx) 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 for the mine.

- (xxxix) Risk Assessment and Disaster Preparedness and Management Plan.
- (xxxii) Integrating in the Env. Management Plan with measures for minimising use of natural resources - water, land, energy, etc.
- (xxxiii) Progressive Green belt and afforestation plan (both in text, figures as well as in tables prepared by MOEF given below) and selection of species (local) for the afforestation/plantation programme based on original survey/landuse.

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

S.N.	Land use Category	Present (1 <sup>st</sup> Year)	5 <sup>th</sup> Year	10 <sup>th</sup> Year	20 <sup>th</sup> year	24 <sup>th</sup> Year (end of Mine life)*
1.	Backfilled Area (Reclaimed with plantation)					
2.	Excavated Area (not reclaimed)/void					
3.	External OB dump Reclaimed with plantation					
4.	Reclaimed Top soil dump					
5.	Green Built Area					
6.	Undisturbed area (brought under plantation)					
7.	Roads (avenue plantation)					
8.	Area around buildings and Infrastructure					
	<b>TOTAL</b>	110	110	110	110	110

\* Representative case as an example

**Table 2: Stage-wise Cumulative Plantation**

S.N.	YEAR*	Green Belt		External Dump		Backfilled Area		Others (Undisturbed Area/etc)		TOTAL	
		Area (ha)	No. of trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees
1.	1 <sup>st</sup> year										
2.	3 <sup>rd</sup> year										
3.	5 <sup>th</sup> year										
4.	10 <sup>th</sup> year										
5.	15 <sup>th</sup> year										
6.	20 <sup>th</sup> year										

7.	25 <sup>th</sup> year										
8.	30 <sup>th</sup> year										
9.	34 <sup>th</sup> year (end of mine life)										
10.	34-37 <sup>th</sup> Year (Post-mining)								85		

\* Representative case as an example

- (xxxiv) Conservation Plan for the endangered/endemic flora and fauna found in the study area and for safety of animals visiting/residing in the study area and also those using the study area as a migratory corridor.
- (xxxv) Conceptual Final Mine Closure Plan, post mining land use and restoration of land/habitat to pre-mining. A Plan for the ecological restoration of the area post mining and for land use should be prepared with detailed cost provisions.

**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					
4.	Built up area					
5.	Green Belt					
6.	Undisturbed Area					
	<b>TOTAL</b>	85				<b>110</b>

- (xxxvi) Including cost of EMP (capital and recurring) in the project cost and for progressive and final mine closure plan.
- (xxxvii) Details of R&R. Detailed project specific R&R Plan with data on the existing socio-economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan.
- (xxxviii) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project.
- (xxxix) Public Hearing should cover the details of notices issued in the newspaper, proceedings/minutes of public hearing, the points raised by the general public and commitments made by the proponent 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.
- (xxxx) In built mechanism of self-monitoring of compliance of environmental regulations.
- (xxxxi) Status of any litigations/ court cases filed/pending on the project.
- (xxxxii) Submission of sample test analysis of:  
Characteristics of coal - this includes grade of coal and other characteristics ?ash, S and heavy metals including levels of Hg, As, Pb, Cr etc.
- (xxxxiii) Copy of clearances/approvals ? such as Forestry clearances, Mining Plan Approval, NOC from Flood and Irrigation Dept. (if req.), etc.

(A) FORESTRY CLEARANCE

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

Copies of forestry clearance letters (all, if there are more than one)

- (A) MINING PLAN APPROVAL
- (B) MINING PLAN/PROJECT APPROVAL

Date of Approval of Mining Plan/Project Approval:

Copy of Letter of Approval of Mining Plan/Project Approval

(xxxxiv) 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.

### GENERAL CONDITIONS AND ADDITIONAL POINTS OF TOR

**The following general points should be noted:**

- (i) All documents should be properly indexed, page numbered.
- (ii) Period/date of data collection should be clearly indicated.
- (iii) Authenticated English translation of all material provided in Regional languages.
- (iv) After the preparation of the draft EIA-EMP Report as per the aforesaid TOR, the proponent shall get the Public Hearing conducted as prescribed in the EIA Notification 2006 and take necessary action for obtaining environmental clearance under the provisions of the EIA Notification 2006.
- (v) The letter/application for EC should quote the MOEF file No. and also attach a copy of the letter prescribing the TOR.
- (vi) The copy of the letter received from the Ministry on the TOR prescribed for the project should be attached as an annexure to the final EIA-EMP Report.
- (vii) The final EIA-EMP report submitted to the Ministry must incorporate the issues in TOR and that raised in Public Hearing. The index of the final EIA-EMP report, must indicate the specific chapter and page no. of the EIA-EMP Report where the specific TOR prescribed by Ministry and the issue raised in the P.H. have been incorporated. Mining Questionnaire (posted on MOEF website) with all sections duly filled in shall also be submitted at the time of applying for EC.
- (viii) General Instructions for the preparation and presentation before the EAC of TOR/EC projects of Coal Sector should be incorporated/ followed.
- (viii) The aforesaid TOR has a validity of two years only.

**The following additional points are also to be noted:**

- (i) Grant of TOR does not necessarily mean grant of EC.
- (ii) Grant of TOR/EC to the present project does not necessarily mean grant of TOR/EC to the captive/linked project.
- (iii) Grant of TOR/EC to the present project does not necessarily mean grant of approvals in other regulations such as the Forest (Conservation) Act 1980 or the Wildlife (Protection) Act, 1972.
- (iv) Grant of EC is also subject to Circulars issued under the EIA Notification 2006, which are available on the MOEF website: [www.envfor.nic.in](http://www.envfor.nic.in)

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