MINUTES OF THE 69th EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 25th March, 2013 IN NEW DELHI.

COAL MINING PROJECTS

The 69th meeting of the reconstituted EAC (T&C) was held on 25th March, 2013 in SCOPE Complex, New Delhi to consider the projects of coal mining sector. The list of participants of EAC members and the proponents are given at Annexure 1 and 2 respectively.

The minutes of the 67th meeting of EAC (T&C) held on 4th - 5th February, 2013 was confirmed.

Monday, the 25th March, 2013

1. Cluster XI (5.08 MTPA with a peak capacity of 6.04 MTPA in a combined ML area of 3527.58 ha) of M/s Bharat Coking Coal Limited, located in Jharia Coalfields, dist. Dhanbad, Jharkhand (EC based on TOR granted on 15.06.2011 and modification of TOR dated 23.05.2012) - Further Consideration

1.1 The proposal is for Cluster XI consisting of underground coal mine projects having 5.08 MTPA with a peak capacity of 6.04 MTPA in a combined mining lease area of 3527.58 ha of M/s Bharat Coking Coal Limited, located in Jharia Coalfields, dist. Dhanbad, Jharkhand. Cluster-XI group of mines of BCCL is a group of eight mines consisting of five operating underground, three closed underground mines and one washery (Moonidih washery).

1.2 The proponent made the presentation and informed that:

i. The total mine lease area is 3527.58 ha. The mining operations are being continued as amalgamated collieries in Cluster-XI.

Sl. No.	Name of Mine	Production (MTY)		Leasehold Area (ha)	Life of the mine (Years)
		Normative	Peak		
1	Gopalichak UG Mine	0.11	0.143	241.94	> 30
2	KachhiBalihari 10/12 Pit UG Mine	0.09	0.117	60.00	19
3	PB UG Project	0.80	1.040	89.00	> 30
4	Bhagabandh UG Mine	0.08	0.104	581.17	10
5	Kendwadih UG Mine (Closed)	Nil	Nil	217.54	--
6	Pootkee UG Mine (Closed)	Nil	Nil	153.77	--
7	KachiBalihari 5/6 Pit UG Mine (Closed)	Nil	Nil	120.17	--
8	Moonidih UG Mine	4.00	5.20	2063.45	>30
	Total	5.08	6.604	3527.58	
9	MoonidihWashery	1.60	1.60	0.27	--

ii. TECHNICAL PARAMETERS OF CLUSTER XI

Particulars	Name of the Mines									
	Gopalichak Colliery	**Kachi Balihari 10/12 Pit UG Mine**	**PB Project UG**	**Bhagabandh UG Mine**	**Kendwadih UG Mine**	**Pootkee UG Mine**	**Kachi Baliohari 5/6 Pit UG Mine**	**Moonidih UG Mine**	**Moonidih Washery**	**Total**
Lease Area	**241.94**	**60.00**	**89.00**	**581.17**	**217.54**	**153.77**	**120.71**	**2063.45**	**0.27 (Within LH of Moonidih UG)**	**3527.58**
Life of Mine/Plant	12 years	22 years	> 30 years	9 years	Closed for production			> 50 years	18	
Method of mining	B &P	B &P	B &P,	B &P	-----	-----	-----	Longwall		
Production 1993-94(in MT)	0.20	0.13	0.20	0.18	-----	0.08	0.06	0.07	-	0.92
Production 2011-12 in MT	0.1	0.038	0.114	0.049	Closed for production			0.131	0.653	0.432
Proposed Peak Production in MTPA	0.143	0.117	1.04	0.104	-----	-----	-----	5.2	1.60	6.604

TECHNICAL PARAMETERS OF CLUSTER XI Contd..

Particulars	**Gopalichak Colliery**	**Kachi Balihari 10/12 Pit UG Mine**	**PB Project UG**	**Bhagabandh UG Mine**	**Moonidih UG Mine**	**Moonidih Washery**
Manpower	678	678	1859	871	1518	389
Ventilation	P-v200 Exhaust	PV 200 &AF 80	VF-3000 &AF-80	PV 200	MV2-3 Double stage	
Seam gradient	1 in 8/1 in 9.8	1 in 5.5	1 in 6	1 in 7	1 in 6	
Mineable Reserve (MT)	1.14	1.99	32.23	3.94	28.385+152.75	
Linkage	Moonidih Washery	Moonidih Washery	Moonidih Washery	Moonidih Washery	Moonidih Washery	Steel & Power Plants
Grade of Coal	W- II/IV	ST-II	W-I	ST-I	W-II	
Seams to be worked	IX (geo-viii) /X Seams	XV Seam	XII/XI	XV	XVI(T)/ XVI(B)/ XV(T) , XV(B), XV(Com)	
Max. depth	236	300	480	260	680(existing) 820(proposed	

Cost of Production (Rs/te)	25808.60	5509.57	5509.57	5509.57	12385.76	8553.90
Selling Price- (Rs./ Te) (2011-12)	2542.82	3890	3890	3890	2609.00	Clean : **8410.79** Power : **1189.96**

iii. **PRODUCTION OF COAL OF CLUSTER XI MINES DURING 1993-94 and LAST 5 YEARS**

Coal Production in MT									
Year	**Gopalichak Colliery**	**Kachi Balihari 10/12 Pit UG Mine**	**PB Project UG**	**Bhagabandh UG Mine**	**Kendwadih UG Mine**	**Pootkee UG Mine**	**Kachi Baliohari 5/6 Pit UG Mine**	**Moonidih UG Mine**	**Total**
1993-94	0.20	0.13	0.20	0.18	---	0.08	0.06	0.07	0.92
2007-08	0.11	0.04	0.20	0.05	--------			0.20	0.59
2008-09	0.01	0.04	0.19	0.04	-------			0.17	0.45
2009-10	0.03	0.03	0.17	0.04	------			0.20	0.48
2010-11	0.04	0.04	0.12	0.05	------			0.17	0.42
2011-12	0.10	0.04	0.11	0.05	------			0.13	0.43

iv. **LIST OF 4 FIRE AFFECTED HABITATED SITES WITH FIRE DOUSING PROJECTS/ PLAN IN CLUSTER XI**

Sl. No	Colliery	Site name & no.	No. of Houses Total	Rehab Cost (RsLacs)
1	Kenduadih	East of Hindi Bhawan / 16	41	102.64
2	Kenduadih	LabourDhowra/17	12	45.00
3	Kenduadih	4 Pit Ghansadih Colliery Qtrs./20	58	153.64
4	Kenduadih	Ghansadih/14	249	596.78

Sl.No	Total habitated Unstable Sites	82 no.	
1.	Total habitated area affected	5685851m^2	
2.	Habitated area affected by fire	89150 m^2	
3.	Habitated sites affected by fire	4 nos	
4.	No. of Houses to be rehabilitated	16944 no. as per JAP	
5.	Land for Resettlement	BCCL	83.56 Ha
		Non BCCL	201.87 Ha
6.	Total Cost of resettlement	Rs. 53776.60 lakhs	
7.	Cost of fire dealing	Rs 91.57 Crs	

v. **Master Plan for Dealing with Fire, Subsidence & Rehabilitation**

The mines in the cluster have been severely affected by fire and subsidence mainly due to unscientific mining prior to nationalization. Out of 595 unstable sites identified in the Master Plan, 82 sites of affected area of 5.69 Km^2 consisting of 16944 no. of houses/families are affected. The affected families will be rehabilitated in adjacent non coal bearing area at a cost of Rs. 53776.60 lakhs.R&R package will be given to affected families as per approved Master Plan. R&R package is offered for safety of the people living in endangered areas.

vi. Rehabilitation requirements in Cluster XI under the Master Plan

PHASE 1

No. of sites	Affected Area (Sq.m.)	No. of Houses					Land for Resettlement		Total Amount (Rs in Lakhs)
		BCCL	Pvt.	Enchr.	Oth.	Total	BCCL (Ha)	Non BCCL (Ha)	
39	**1853690**	**1509**	**1204**	**5355**	**79**	**8147**	**24.22**	**102.14**	**22078.64**

PHASE 2

No. of sites	Affected Area (Sq.m.)	No. of Houses					Land for Resettlement		Total Amount (Rs in Lakhs)
		BCCL	Pvt.	Enchr.	Oth.	Total	BCCL (Ha)	Non BCCL (Ha)	
43	3832161	3709	2452	2578	58	8797	59.34	99.73	31697.96
Total (Ph-1 + Ph-2)									
82	5685851	5218	3656	7933	137	16944	83.56	201.87	53776.6

vii. ENVIRONMENTAL ISSUES-MITIGATION & BENEFITS: CLUSTER XI

Major Env. issues	Mitigation measures & Benefits
Voids (14.43 Ha.)	14.43 Ha. Water body
Fire/Unstable area (82 sites with 5.69 sq km consisting of 16944 families)	Dig out fire at cost of Rs. 91.57 Crs and rehabilitate affected families at cost of Rs. 53776.60 lakhs
Loss of coal (10% locked in barriers)	Recover 22.043 MT of coal from barriers
Reclamation/Mine closure	Plantation in 254.67 Ha. At a cost of Rs. 140.33lakhs (Fund allocation for mine closure as per MoC guideline and adopted by BCCL @ Rs.1 lakh/Ha. in case of U/G mines and Rs.6 laks/Ha. in case of OCP mines)
CSR	(Fund allocation for CSR as per CIL guideline and adopted by BCCL @ Rs. 5/Tonne of Coal produced

viii. COMBINED LAND USE OF CLUSTER-XI

Sl.No.	Type of land use	Present mining land use (in Ha)	Post-mining land use (in Ha)
1	Running Quarry		
	Backfilled	0	0
	Not Backfilled	0	0
2	Abandoned Quarry		
	- Backfilled	19.24	0
	- Not Backfilled	14.43	0
3	External OB dump	0	0
4	Service building/ Mine Infrastructure	148.41	0
5	Coal dump	7.47	0
6	Homestead Land	621.68	53.1
7	Agricultural Land	794.57	794.57
8	Forest Land	80.44	80.44
9	Plantation / reclamation	185.6	440.27+ 568.58
10	Water Body	92.11	106.54
11	Barren Land	1375.47	1313
12	Fire area	17.08	0
13	Others (rail/road etc.)	171.08	171.08
	Total	**3527.58**	3527.58

ix. **Stage-wise (cumulative) Land use for Reclamation Area (ha)**

Land use Category	Present (1st Year)	5th Year	10th Year	30th Year	Post Mining
Backfilled Area (Reclaimed with plantation)	3	15	19.24	19.24	19.24
Excavated Area /void (backfilled and Reclaimed with plantation)	-	-	-	-	-
External OB dump (Reclaimed with plantation)	-	-	-	-	-
Reclaimed Top soil dump	Included in OB dump				

Green Belt Area	2	10	20	20	20
Undisturbed area (brought under plantation)	2	11	27	59.55	59.55
Roads (avenue plantation)	Included in green belt area				
Area around buildings and Infrastructure	4	22	49.6	84.9	155.88
TOTAL	**11**	**58**	**115.84**	**183.69**	**254.67**

x. **CONCEPTUAL LAND USE OF CLUSTER XI**

Land Use Classification	**Post Mining Land use (Ha)**				
	Plantation	**Water Body**	**Public Use**	**Undisturbed**	**TOTAL**
Top Soil Dump					0
External Waste Dump					0
Excavation (backfilling)	19.24	14.43			33.67
Road & Rail				171.08	171.08
Built up area(Infrastructure, Coal Dump)	155.88			621.69	777.57
Afforestation				185.6	185.6
Water Body				92.11	92.11
Undisturbed Area	79.55			2188.01	2267.56
TOTAL	**254.67**	**14.43**	**0**	**3258.49**	**3527.59**

xi. **Coal Transportation Scheme:** It is proposed to continue the existing Road-Rail transport network system in view of the implementation of the Master Plan (for 10 years) and another 5 years gestation period after the completion of Master Plan for consolidation of the backfilled dug out fire areas and unstable areas is required. Thus the period of 15 years make the Phase-I. All mitigation measures (like covered trucks, green belting on either sides of the roads, enhanced water sprinkling, strengthening and maintaining the roads etc.) shall be adopted up to 15 years with the existing road-rail transport system. In phase-II, BCCL shall implement conveyor-cum-rail transport to avoid movement of trucks within the cluster for coal transportation in Phase-II which shall start after 15 years from now.It is proposed to carry all coal transport by Rail and Conveyor belt, minimizing the existing road transport system in all the mines of the cluster and would continue after 15 years. Loading of coal by pay loaders shall be discontinued. As suggested by the Committee adequate number of suitably designed off-take points shall be provided.

xii. The treated mine discharge water will be gainfully utilised for industrial (dust suppression, green belt development etc) and Domestic purposes. Excess mine water, after treatment will be discharged into local nala with check dam for artificial recharge to the groundwater system. BCCL will monitor the impact of mining on ground water levels and quality throughout the life of the project. The project will provide necessary water supply arrangement to the affected habitations and improve the ground water recharge.

xiii. **The impact on Ground water level** will be minimized by artificial recharge by spreading of pumped out treated mine water; creation and filling of ponds; construction of rain water harvesting structures.

xiv. Subsidence prediction study has been done for the panels as proposed to be depillared in mine projection plans for different seams and considering the geo-mining parameters as provided by Colliery Authority.

xv. The anticipated maximum subsidence likely to occur over the mining area due to extraction of XV, XII, XI, X and IX seams are 0.33m, 0.21m, 0.23m, 0.21m and 0.32m respectively, which would occur over the panel KB-XV-C of Katchi Balihari mine, SB-XII-9/PB-XII-8 of PB Project, SB-XI-2/PB-XI-4 of PB Project, G-X-IV of Gopali chak mine and G-IX-H of Gopali chak mine of respective seams. The maximum possible slope and tensile strain likely to occur over the mining area are 3.33 mm/m and 1.75 mm/m respectively which would occur over the panel G-IX-L of Gopali chak UG Mine. Such values of slope and strain are well within the permissible limit for damaging impact on most of the surface features.

xvi. River Damodar flows at the southern periphery, Jarain/Katrinallah at the western boundary and arijore at the eastern boundary.

xvii. Total geological reserve is 1425 Mt. of which mineable reserve is 950 Mt. The percent of extraction will be 67%.

xviii. Mining would be by longwall mining.

xix. Final mine Voids covers an area of 14.43 ha (Filled up with water) with a depth up to 30 m.

xx. The life of mine is 18 years at the present rate of production.

xxi. The Cost of the project is Rs. 1747.715 Cr. The R&R cost is Rs 537.7660 Cr. The environment management cost is Rs. 2.63145 Cr. For CSR Cost: company will spend 5 % of the retained earning of the previous year subject to a minimum of Rs. 5/- per tonne of coal production.

xxii. The project was approved by WCL Board on 03.07.2011 & 02.07.2012 for Moonidih XV seam/ XVI Seam.

xxiii. Mine closure approval is under process.

xxiv. Baseline data has been generated from February 2012 to April 2012 in pre-monsoon season. The results are within limit.

xxv. Reclamation : Total afforestation plan shall be implemented covering an area of 254.67 Ha at the end of mining which includes ; Internal dump after physical reclamation 19.24 ha, Green belt is : 20 ha, Density of tree plantation will be 2500/ha, Void at a depth of which is proposed to be converted into water body is 14.43 ha

xxvi. Corporate Social Responsibility: BCCL is formulating a detailed Corporate Social Responsibility (CSR) Action Plan through Tata Institute of Social Sciences (TISS), Mumbai which will consist of need-based base-line survey, CSR Action Plan, CSR Auditing and monitoring mechanism etc.

xxvii. Once the base-line survey and the CSR Action Plan are completed by TISS, BCCL shall identify suitable NGO's and other agencies shall be involved in the implementation of the CSR activities.

xxviii. Legal issues: State Govt./ Jharkhand State Pollution Control Board had issued closure orders for all the mines of BCCL in Aug., 2011 and March 2012 stating that M/s BCCL is operating all its mines without the Environmental Clearance. BCCL had approached and filed Writ Petition in the Hon'ble High Court of Jharkhand, Ranchi for legal relief against the closure of mines by JSPCB with the following facts that BCCL had already initiated the process of Environmental Clearance in 2008 onwards and was approved the cluster concept in 2009. M/s BCCL is completing all its EMP process well within the validity periods of two years stipulated in the Terms of Reference (TOR). Further all the mines of BCCL are infected by coal fires and a PIL case is being dealt in this regard in the Hon'ble Supreme Court of India. By closing the mines, the fires will not stop and shall aggravate and cause more devastation and pollution. The court had taken cognizance of the facts and appreciating the sincere efforts of M/s BCCL in obtaining the Environmental Clearance had granted "Status Quo" to be observed and admitted the case i.e. No. WP(C) 4944/2011.

xxix. No excess production beyond the EC sanctioned committed.

xxx. **Wildlife issues:** There are no National parks, wildlife Sanctuary, Biosphere Reserves located within the core zone and in the 10 km buffer zone.

xxxi. **Forestry issues:** No forest land is involved for mining purposes. However, the ML area has forest land within the project (including safety zone and all types of forest land) to the tune of 80.44 ha.

xxxii. **Public hearing:** Public Hearing was held on 26.11.2012 at Aralgaria Ground, Dhanbad. The issues raised during the public hearing were facility for drinking water, afforestation, maintenance of road, BPL holders to be given free education in DAV schools, CSR activity etc.

1.3 **The Committee, after detailed deliberations, has recommended for Environmental Clearance** with the following additional specific conditions, in addition to the specific and general conditions:

i. The open cast quarries of the abundant mines should be backfilled to the ground level and restored with native species.
ii. All coal from smaller UG mines should be transported by high capacity and mechanically covered trucks/ tippers.
iii. Green belts shall be developed on both sides of the roads.
iv. Action plan for quenching of fires and rehabilitation alongwith the details of master plan be submitted to the MoEF for monitoring purpose.
v. Presently coal to Munidih washery from other mines of the cluster is taking place through NH. An alternate route for coal transportation may be explored.
vi. For understanding the composition of emissions from coal mine fires, BCCL may initiate action as proposed in the visit report of the EAC to Dhanbad.
vii. The approved mining plan be submitted to the MoEF.

2. Cluster IX group of six mines (combined production capacity of 6.548 MTPA with a peak capacity of 8.512MTPA in a total combine ML area of 1942.12 ha) of M/S Bharat Coking Coal Limited located in Jharia Coal Field Dist. Dhanbad, Jharkhand (EC based on TOR granted on 23.12.2010) – Internal Discussion

2.1 The proposal of Cluster IX group of six mines (combined production capacity of 6.548 MTPA with a peak capacity of 8.512 MTPA in a total combine ML area of 1942.12 ha) of M/S Bharat Coking Coal Limited located in Jharia Coal Field Dist. Dhanbad, Jharkhand: EC based on TOR granted on 23.12.2010 was earlier considered in the 61st Coal mining meeting held during November, 2012.

2.2 The Proponent has requested, vide its letter no. BCCL no. BCCL/HoD(Env.)/F-EMP/13 dated 31.1.2013 to rectify the typographical error in the agenda and the minutes of the 61st EAC meeting held on 19-20 November, 2012 be corrected to **"6.548 MTPA with a peak capacity of 8.512 MTPA".** The EAC took a note of the request of the proponent and recommended for corrections for "combined **production capacity** production capacity of 6.548 MTPA with a peak capacity of 8.512 MTPA in a total combine ML area of 1942.12 ha"

3. Nimbri-Chandwatan Lignite Mining Project (0.5 MTPA in an ML area of 350 ha) of M/s Binani Cements Ltd. located in village Nimbri, Tehsil Jayal-Degana, District Nagaur, Rajasthan (EC based on TOR granted on 22.08.2007) - Further Consideration

3.1 The proposal was earlier considered in 31st EAC (Thermal & Coal Mining) Meeting held on 29th -30th Aug. 2011 and the Committee recommended the project. However, Ministry raised some issued with respect to water-body. A subcommittee comprising Mr. C.R. Babu, Mr. T.K. Dhar and Dr. T. Chandini was formed to visit the site on the said matter. Sub-Committee visited the site on 02.05.2012 and submitted their report. The issues raised by the Sub-Committee were also conveyed to the project proponent. The

information form SAC Ahmadabad was also considered which stated that there are total 13 wetlands which belong to artificial/man made tank and ponds category in the entire region of approximately 50 Km^2. However, SAC has shown only one wetland less than 2.25 ha in the proponent's ML area. These water bodies are categorized as man-made tanks and ponds which are seasonal and dry up during post monsoon period. The EAC considered the responses of the proponent.

3.2 The proponent made presentation and informed that:

i. It is a new project of open cast mechanized mine for extraction of lignite having capacity 0.5 MTPA covering mining lease area of 350 ha.
ii. Out of the total 350 ha, the pre-mining land use will be 293.29; Govt. Waste Land will be (Ha.): 12.96; Grazing Land (Ha.): 43.75. The application submitted to State government for an alternative grazing land for which the approval is pending.
iii. The Post- Mining land use will be that out of the total 350 ha, 179.412 ha area will be under greenbelt and plantation; 101 ha will be area used as a Rain Water Harvesting Pond; 55.9633ha will be waste dumps; 13.62 ha will be undisturbed area.
iv. The total geological reserve is 8.23 MT. out of which mineable reserve will be 5.53 MT and extractable reserve will be 5.53 MT.
v. No river/nallah flowing near or adjacent to the proposed mine.
vi. Method of mining will be open cast by shovel dumper combination requiring drilling and blasting.
vii. Total water requirement: fresh 20 m^3/d, dust suppression 50-200 m^3/d and plantation 50-250 m^3/d.
viii. Coal stripping ratio is 2.31:47 (lignite) cum/t.
ix. **Transportation** of coal from mine to mine top by dumpers. From mine top to TPP 300 km away by road.
x. Life of mine will be 12 years in opencast.
xi. One seam divided into four sub –seams. Thickness of seams to be worked on 0.2to 4.5 m with an average of 2.57 m.
xii. Ambient air quality monitoring has been carried out during March to May, 2007. Results are within prescribed limit.
xiii. The total cost of the project is Rs 100 crore. Cost of the product is Rs. 1500 /t.
xiv. The R & R cost is nil.
xv. The environment management cost will be (capital Rs. 3.84 crore & Recurring 0.68 crore).
xvi. The CSR cost is (capital Rs. 5.5 crores & recurring 1.5 crore).
xvii. There will be 107 project affected families and 40 land outsees
xviii. Ground water clearance obtained on 01.01.2008 and renewed on 01.09.2011.
xix. Mine closure approval is under process for submission to Ministry of Coal.
xx. The Mining plan was approved on 06.05.2010 vide letter no. 13016/511/2007-CA-I by Ministry of Coal. Board approved on 29.01.2009.
xxi. **Forest issue**: No forests land involved.
xxii. **Reclamation**: The afforestation plan shall be implemented covering an area of 249 ha. Reclaimed OB dump in 57.9978 ha. Green belt over an area of13.62. Density of tree plantation will be 570 trees/ha, void 101 ha at a depth of 10 m which proposed to be converted into water body.
xxiii. **Public Hearing** was held on 21.06.2008. The issues raised during the public hearing regarding khasra details, copy of letter for allocation of block, adverse effect on environment, drinking water problems etc.
xxiv. The Committee noted that:
   a) An external OB dump of 55.96 ha and 60 m height with a mine void of 105ha and 90m depth is being left and desired that external dump be fully filled back in the void and exact position of the void and rehandling programme be submitted.

b) Transport of lignite from mine to TPP is 300 km away is by road. Adequate precaution is required in this and to be done by mechanically covered trucks. Arrangement for rail transport needs to be looked into and informed.
c) Mine closer report is yet to be submitted to MOC for approval

3.3 The Committee took a note of the responses from the project proponent and after deliberations desired that a note containing the following details be prepared by MoEF and circulated to the EAC Members for its **further consideration:**

i. Background of the case
ii. Recommendation of the sub-Group.
iii. Responses by the project proponent
iv. Details of any other case in the vicinity of the area having the same/similar ecology recommended by the EAC, if any.

4. Saregarha Open Cast Coal Mine Project of (4 MTPA in an ML area 350 ha and coal washery capacity 4 MTPA) M/s Seregarha Mines Ltd., Village Saregarha and Ganeshpur, Block – Balumath Dist. Latehar, Jharkhand – (TOR)

4.1 The proposal is for Saregarhaopen castCoal MineProject of **(4 MTPA in an ML area 350 ha and coal washery capacity 4 MTPA) of** M/s Seregarha Mines Ltd., **(JV of ArcelorMittal India Limited & GVK Power Govindwal Sahib Limited),** Village Saregarha and Ganeshpur, Block – Balumath; Dist. Latehar, Jharkhand.

4.2 The proponent made the presentation and informed that:

i. It is a new project of open cast mine having 4 MTPA capacity over mine lease area of 350 ha. The total project area is 520 ha. Mine plan approval, Hydrogeological study for ground water clearance and Mine closure approval is under process.

ii. The land use pattern would be as follows:

Existing Land Use as per Revenue (in ha)			
S.No	**Particulars**	**Mining Lease**	**External Dumping, washery, office and other facilities**
1a	Agricultural Land	71.50	81.86
1b	Settlements	0.47	0
2	Road	1.59	1.31
3	GM Land	12.37	2.00
4	Protected Forest	152.33	84.83
5	Revenue Forest	111.73	-
	Total	**350.00**	**170.0**

iii. Pre-mining:

Sl. No.	Particulars	Area(Ha)
1	Agricultural Land	153.36
	Settlement	0.47
2	Road	2.9

3	GM Land	14.36
4	Forest	348.90
	Total	520.0

iv. Post- Mining:

Sl.No.	Particulars	Green Area	Water Body	Public Use	TOTAL
1	External OB Dump (Reclaim)	95.6	0	0	95.6
2	Top Soil Dump	0	0	0	0
3	Internal OB Dump (Reclaimed)	192	132	0	324
4	Roads	0	0	2	2
5	Built up area	0	0	74.4	74.4
6	Green Belt	24	0	0	24
7	Undisturbed Area	0	0	0	0
	TOTAL	**311.6**	**132**	**76.4**	**520**

v. Total geological reserve is 178.43 Mt. of which mineable reserve is 108 Mt.

vi. The total estimate water requirement 887 m^3/d.The industrial requirement is 552 m^3/dand 335 m^3/dfor potable use**.**

vii. The western boundary of the block is formed by the Barwapani nala which flows almost N-S to NW-SE and separates the Seregarha Coal Block whereas on the eastern boundary with Karimati block is separated by the BhityahiNala, which flows almost North to South. Both are seasonal Nalas.

viii. Mining would be by mechanized open cast method.

ix. The voids covers an area of 132 ha (Filled up with water) with a depth up to 20-320 m.

x. The life of mine is 28 years

xi. Total OB generation will be 314.49 MBCM (378 MCM).

xii. The OB Dumping & Reclamation would start from 1 to 7 year. OB reclamation to be completed by 10^{th} year. 37 MBCM OB (45 MCM) shall remain in the Dump Yard after 7th year.

xiii. The ultimate mining depth would be 320 m.

xiv. Under the PAFs 128 houses will be affected.

xv. There are five major coal seams in Seregerha Block which are designated as Seam- I to Seam- V in ascending order. Seam- I is splitted into three distinct splits and has been named as Seam- I Top, Middle and Bottom. Seam V occurs in two splits, named as V-Top and V-Bottom. Seam II & III occur as composite seam in this block.

xvi. The predominant grade of coal is G. The stripping ratio is 1:2.97 m3/t.

xvii. The power requirement of the State Electricity Board is 7.5 MVA.

xviii. Total afforestation plan shall be implemented covering an area of 311.6 Ha at the end of mining which includes ; Internal dump after physical reclamation 95.6 ha, Green belt is 24 ha, Density of tree plantation will be 2000 nos /ha,

xix. Transportation of Coal: in pit dumper will be used. Surface to siding dumper/Tipper and siding to loading front end loader .rapid loading system to railway wagon.

xx. No legal /violation case pending.

xxi. **Forestry issues:** Total forest land/area involved in mining is 349 ha.

xxii. **National Park:** No National parks, wildlife Sanctuary, Biosphere Reserves located within the core zone and in the 10 km buffer zone.

xxiii. **Capital Cost of the project** is Rs. 800 Cr. The cost of production is 600/t (ROM). The R&R cost is included in capital cost. The environment management cost is Rs. 57 Cr. CSR Cost would be Rs. 5/ton of coal production.

4.3 The Committee, after detailed deliberations, Recommended for ToR with the following specific ToRs:

i. The proponent may examine the method of underground mining for extraction of coal as the mining lease area covered with the dense forests. .
ii. Re-examine the OB management in case of open cast option.
iii. All mine void should be backfilled.
iv. The project proponent should explain the reasons for setting up a washery of 4 MTPA when the allocation for the GVK power plant is only 1.8 MTPA from the mine.
v. The proponent should examined the quality of the rejects and it usage
vi. Capital CSR expenditure should be provided to the tune of Rs. 3.20 crore and Action Plan submitted at operation stage at the rate of Rs.5/MT

5 Proposed Bijahan Opencast Coal Block Mine (5.26 MTPA in an area of 1100 ha) of M/s Bhushan Power & Steel Ltd. Located at village Bijahan, Jharphar, Girisima and Bhograkachar, in Dist. Sundergarh, Orissa - (Extension of validity TOR issued on 12.06.2008) – Further Consideration- (TOR)

5.1 The proposal is for the extension of validity TOR to the Bijahan Opencast Coal Block of M/s Bhushan Power & Steel Ltd. for production of 5.26 MTPA coal over an area of 1100 ha located in Dist. Sundergarh, Orissa. The proposal was considered in 23rd EAC meeting held on 28-29th May, 2008 and TOR was awarded on 23rdJune, 2008. Further, proponent requested for extension for validity of TOR. The proposal was considered in 65th EAC meeting on 8-9thJanaury, 2013 wherein the Committee sought additional information with regard to the reasons for holding the Public Hearing after the expiry of TOR validity, the details of Inter-Ministerial Group (IMG) and its outcome be presented to the EAC pertaining to the (i) Notices from Inter-Ministerial Group (IMG); (ii) details of the deduction of the Bank Grantee; (iii) the details of the presentation done before Inter-Ministerial Group (IMG) so as to facilitate EAC for further consideration of project.

5.2 The proponent made presentation and informed that:
i. Because of disturbances in the area and opposition by villagers, the Public Hearing could not be held. It has been also advised us to keep on hold the process of Public Hearing.
ii. Notification for Public Hearing was advertised by the State Pollution Control Board, Odisha on 26/11/2012 in local newspapers.
iii. After continued persuasion with the villagers and with the help of District Administration, Public Hearing could be held on 28/12/2012. The delay was beyond control of the company.
iv. In response to the observations of the EAC, the project proponent vide its letter of 19th January, 2013 has submitted the details of the presentation made before the IMG by the Coal Allocate (vide its letter of 8th September, 2012); the letter of Ministry of Coal (No. 13016/33/2005-CA-I dated 26th November, 2012 w.r.t deduction of Bank guarantee under option –III.

5.3 The proposal was considered by the **Committee and Recommended** the proposal for extension of the validity of TOR by one year i.e. up to 25th March, 2014.

6 Balaram OCP Expansion of (Normative Capacity 15 MTPA and Peak Capacity 20 MTPA in an area of 2507.42 ha) of M/s Mahanadi Coalfields Ltd., Tehsil – Talcher, Dist. Angul, Orissa (TOR)

6.1 The proposal is for the ToR for Balaram OCP Expansion of Normative Capacity 15 MTPA and Peak Capacity 20 MTPA in an area of 2507.42 ha (From 1329.4 ha to 2507.42 ha) of M/s Mahanadi Coalfields Ltd., Tehsil – Talcher, Dist. Angul, Orissa.

6.2 The proponent made the presentation and informed that:

i. It is an expansion project of open cast mine. The expansion is from 15 MT to 20 MT(peak). The total mine lease area is 2504.42 ha. From 1329.4 ha to 2507.42 ha (1178.02 ha incremental).

ii. Land Use: Pre-mine:

	Category of Land Usage	For 8 Mty	Addl. Incremental of 7 Mty	Total 15/20 Mty
(a)	Agricultural	680.93	559.0	1234.93
(b)	Forest	85.01	165.6	250.61
(c)	Waste land (Govt. land)	170.11	138.39	308.50
(d)	Grazing			
(e)	Surface water bodies	6.60	5.37	11.96
(f)	Others (specify) (Homestead other tenancy land)	386.76	314.66	701.42
	Total	**1329.40**	**1178.02**	**2507.42**

iii. Land use-Post-mine:

		Land use in ha					
S.No	**Category**	**Plantation**	**Water body**	**Dip side slope and haul road**	**Undist urbed**	**Built up area**	**Total**
1	Quary excavation	1166.95	658.69	40.98	--	--	1866.62
2	Blasting danger zone	74.06	--	--	296.24	--	370.30
3	External OB dump outside safety zone	11.40	--	--		--	11.40
4	Infrastructure	47.76	--	--	191.04	--	238.80
5	Rationalization of project boundary	14.00	--	--		--	14.00
6	Diversion of road	1.28	--	--	5.12	--	6.40
7	Residential colony	6.40	--	--	25.60	--	32.00
8	Resettlement site	3.72	--	--	14.88	--	18.60
	Total	**1325.57**	**658.69**	**40.98**	**532.88**	**--**	**2558.02**

iii. The mine closure plan:

Sl. No.	**Land Use Category**	**Land use (in ha)**				
		Left out void /water body	**Afforestation or arboriculture**	**Land to be converted for agriculture (Conceptual)**	**Undisturbed / built-up area**	**Total**
1	Quarry excavation	699.67	250.61	916.24	--	1866.52
2	Blasting danger zone	--	74.06	--	296.24	370.30

3	External dump	--	11.40	--	--	11.40
4	Infrastructure	--	47.76	191.04	--	238.80
5	Approach road	--	1.28	--	5.12	6.40
6	Rationalization of project boundary	--	14.00	--	--	14.00
	Total	699.67	399.11	1107.28	301.36	2507.42

iv. Total geological reserve is 785.80 Mt. of which mineable reserve is 756.37 Mt (as on 01.04.2011). The extractable reserves are 756.37 MT. The percent of extraction will be 96.5%.
v. The total estimate water requirement 4490 m^3/d. The industrial requirement is 367 m^3/d, Fire Fighting and Dust Suppression 3033 m^3/d and 1090 m^3/d for potable use
vi. There are no National park, Eco-sensitive zones, within 10 km of the project
vii. One seasonal nallah, Bangaru Jhor flows from SW to NE of the proposed mine
viii. Mining would be by Shovel – Dumper & Surface miners method.
ix. Final mine Voids covers an area of 699.67 ha (Filled up with water) with a depth up to 182 m.
x. Certificate of compliance of earlier environmental clearance from MOEF, regional office has been obtained.
xi. **Transportation of Coal**: The pit head of the mine from face to fix 2-3 km. is in the range of 0.05 to 0.15 KM. Surface to siding will be about 3 km.
xii. The life of mine is 53 years from the date 01.04.2011.
xiii. The Cost of the project is Rs. 2424.77 Cr. The cost of production is 807.45. The R&R cost is Rs 137.57 Cr. The environment management cost is Rs. 198.16 Cr. For CSR Cost: company will spend 5156 lakhs (Expenditure by MCL for first 5 years). Total mine closure cost Rs.19733.40 lakhs.
xiv. Resettlement & Resettlement to be provided to 1074 additional Families coming in the expansion Area
xv. There are 19 seams having thickness IX to IIC ranges from 1.3 m to 15.7 m .the coal grade is F-G. The stripping ratio is 2.08 m^3/t.
xvi. MCL Board approved mine closure approval on 01/08/2012 for 8 Mty.
xvii. The Mine closure plan for 15.0/20.0 Mty is under preparation.
xviii. Routine ambient air quality monitoring has been generated during the period Jan –Dec, 2011 which are within prescribed limit.
xix. **Wildlife issues:** There are no National parks, wildlife Sanctury, Biosphere Reserves located within the core zone and in the 10 km buffer zone.
xx. **Forestry issues:** Forest clearance has been obtained for 85.01 ha vide letter No.8-143/89-FC from MoEF dt.28.09.1990 (Stage-II). The application for forest land involving 179.8 ha in the expansion **project is under process** for submission to Principal chief-cum-secretary, Forest, Bhubaneswar. Extent of forest land in the project (including safety zone and all types of forest land) is 250.61 ha.
xxi. **Reclamation:** Total afforestation plan shall be implemented covering an area of 1325.57 Ha at the end of mining which includes; reclaimed external OB dump in 11.40 ha. Internal dump after physical reclamation 1166.96 ha, Green belt is 147.22 ha, Density of tree plantation will be 2500/ha, Void 699.67 ha at a depth o182 m of which is proposed to be converted into water body.
xxii. **Legal issues:** No legal /violation case pending.
xxiii. **Public hearing:** No public hearing was held for 8.0 Mty project. EMP clearance for 8.0Mty project obtained vide letter No. J/11015/4/87-IA dt. 24/10/1990.

6.3 The Committee took note of a letter dated 23rd March, 2013 received through e-mail from an NGO mentioning that the proposed expansion of the coal mine would be 3 km from the Derjang water reservoir. The reservoir may accumulate heavy metals from the run-offs of the coal mine that may lead to have bio-accumulative effects in the ecological cycle and human population. The proponent need to ensure the quality of the water in the reservoir. The distance of school and hospital is within 5 km from the proposed expansion of coal mine which may be affected by noise and air pollution generated by the blasting operations and transportation.

6.4 The Committee **recommended for granting the ToR** with the following additional specific ToRs, in addition to the specific and general ToRs:

i. Detailed impact studies of expansion of the Balram OCP on the Darjung (from email)
ii. The major nallas/revaluates passing thorough the project site should not be disturbed.
iii. The 100 m void green belt should be developed along the Singa Jor and the mine pit.
iv. No external OBD to be left at the end of the mining.
v. The mine void should be backfilled preferably to the ground level and restored.
vi. The Proponent shall monitor the water quality of the reservoir that may accumulate heavy metals from the run-offs of the coal mine that may lead to have bio-accumulative effects in the ecological cycle and human population.
vii. The proponent needs to ensure the quality of the water in the reservoir.
viii. The Proponent shall monitor the effects of the noise and air pollution generated by the blasting operations and transportation within within 5 km from the proposed expansion of coal mine.

7. Capacity expansion of Moher & Moher- Amlohri extension captive coal mine Project of (20 MPTA with peak prod. of 23 MTPA) in area -15.39 Km^2 (Moher Block – 10.70 Km^2&MoherAmlohri Extension Block – 4.69 Km^2) of M/s Sasan Power Ltd., Village Moher&Amlohri, Distt. Singrauli, Madhya Pradesh. (TOR)

The proponent did not attend the meeting. The proposal was deferred.

8. Proposed Ghogha-Surka Lignite Mining, Khadsaliya-I Lignite Mining and Khadsaliya-II Lignite mining Project of M/s Gujarat Power Corp. Ltd., Dist. Bhavnagar, Gujarat (Extension of validity TOR issued on 30.05.2011)

8.1 The proposal is for three mines namely; (i) GHOGHA-SURKA Lignite Mine (2.25 MTPA in 1355 ha), (ii) KHADSALIYA -I (1 MTPA in 711.4247 ha) and (iii) KHADSALIYA-II (0.75 MTPA in 914.1492 ha) of M/s Gujarat Power Corp. Ltd. Extension of validity TOR issued on 30.05.2011. The proponent made the presentation

8.2 The proposal was earlier considered in 19th EAC meeting held on 21-22 February 2011 and TOR was granted on 23rd March 2011. The Proponent requested for modification of TOR in 23rd EAC meeting held on 18-19 April 2011. The modification of TOR was also granted on 30th May 2011.The proponent again requested for Extension for Validity on 05.03.2013. The Proponent informed that:

i. As per the approved TOR, various field studies and reports were required to be prepared. As the studied were of special type, GPCL appointed eminent consultants for carrying out the said studies.
ii. One-season base line data as per the NAAQM guidelines was carried out by M/s Kadam Consultants; Vadodara submitted the report in June, 2012.

iii. Impact of mining on ground water regime was carried out by National Institute of Hydrology, Roorkee and report was submitted on April, 2012.
iv. The socio-economic survey was conducted by Bhavnagar University and they submitted the report on February, 2012.
v. Tsunami potential risk assessment study was conducted by institute of Seismological Research Gandhinagar and the report was submitted on 28.03.2012.
vi. A combined EIA Report as per the approved TOR has been prepared by the NEERI, Hyderabad and submitted to GPCL on 08.02.2013.
vii. GPCL has already approached GPCB for initiating the process for Public Hearing.
viii. GPCL vide letter dated 01.03.2013 submitted copies of the EIA report, executive summery in local language (Gujarati) and English to GPCB on 01.03.2013.
ix. GPCB intimated that the application for conducting Public Hearing in the prescribed format will be uploaded by GPCB after receipt of letter regarding extension of validity of TOR.
x. As of now, for completing the required formalities for public hearing, GPCL will require another two to three months times.
xi. After public hearing, details are to be forwarded to NEERI for compilation and preparation of final draft EIA/EMP report.
xii. This process of compilation and preparation of the draft final EIA/EMP report for submission to the EAC for getting EC may take another one month time.
xiii. The proponent has however requested for consideration for the Committee for extension upto one year i.e. 30 March, 2014.

8.3 The Committee **recommended** for granting the extension of validity of the ToR by one year i.e. upto 30 March, 2014.

9. Expansion of Coal Washery (0.9 MTPA to 4.5 MTPA) of M/s Swastik Power & Mineral Resources Pvt. Ltd., located in Tehsil Katghora, Dist. Korba, Chhattisgarh (For extension of TOR validity by one year issued by MoEF on 20.07.2012) - Further consideration - (TOR)

9.1 The proposal is for Expansion of Coal Washery (0.9 MTPA to 4.5 MTPA) of M/s Swastik Power & Mineral Resources Pvt. Ltd., located in Tehsil Katghora, Dist. Korba, Chhattisgarh (For extension of TOR validity by one year issued by MoEF on 20.07.2012) ffor urther reconsideration. The proposal was considered in the EAC meeting held on 30th - 31st August 2010 and TOR was awarded on 23rd September 2010. Further the proponent had requested on 20th July 2012 for extension for validity of the TOR. The proposal was placed for consideration in the 61st EAC meeting held on during 19-20 November 2012. However, the proponent had requested for postponement of consideration of the proposal.

9.2 The proposal was considered by the Committee and **recommended** for extension of the validity of TOR up to 22.09.2013.

The meeting ended with a vote of thanks to the Chair

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ANNEXURE-1

PARTICIPANTS IN 69th EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 25th March, 2013 ON COAL SECTOR PROJECTS.

LIST OF PARTICIPANTS Expert Appraisal Committee (Coal Mining) :		
1.	Shri V.P. Raja	Chairman
2.	Prof. C.R. Babu	Vice Chairman
3.	Dr. T K Dhar	Member
4.	Shri J.L. Mehta	Member
5.	Prof. G. S. Roonwal	Member
6.	Dr. Shiv Attri	Member
7.	Dr M. S. Puri	Member
8.	Dr. Manoranjan Hota	Director & Member Secretary
9.	P. R. Sakhare	Deputy Director
Special Invitee :		
10.	Dr. R K Garg, Adviser, Coal India Limited	

Annexure-2

PARTICIPANTS IN 69th EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 25th March, 2013 ON COAL SECTOR PROJECTS.

1 M/s Bharat Coking Coal Limited,

1. Shri D.C. Jha
2. Shri V.K. Sinha
3. Shri S. Panja
4. Dr. Raju (Env.)
5. Shri Kumar Ranjee
6. Dr. R. K. Sinha
7. Shri J.P. Gupta
8. Shri A.K. Gupta
9. Shri Debashish Panday

2. M/s Binani Cements Ltd

1. Shri Amit Singha
2. Shri P.K. Laheri
3. Shri Vikrant Sarup
4. Shri Alok Sood
5. Shri Robin Bose
6. Shri Swati Vikram
7. Shri P.T. Singh
8. Shri Jitendra Mishra

3. M/s Seregarha Mines Ltd

1. Shri M.P. Singh
2. Shri B.C.K. Reddy
3. Shri J.K.Mitra
4. Shri S.K. Sachdeva
5. Shri S. Dhwan
6. Shri S. Roy
7. Shri A.R. Ganpathy

4. M/s Bhushan Power & Steel Ltd.

1. Shri R.P. Goyel
2. Shri S. C. Wahie
3. Shri Ranjit Gosh
4. Shri Dheeaj Kumar
5. Ms. Marisha Sharma

5. M/s Mahanadi Coalfields Ltd.,

1. Shri B.C. Tripathi
2. Shri P.M. Prasad
3. Shri D. Bhatcharji
4. Shri Debashish Roy

5. Dr. Abani K. Samantroy
6. Shri K.S.Ganpathy
7. Shri C. Jayadeva Singh (Env.)

6. M/s Sasan Power Ltd.,

Absent

7. M/s Gujarat Power Corp. Ltd

1. Dr. M. K. Rohtas
2. Mrs. M.Kalita
3. Shri B.S.Rawat
4. Shri S.K. Goswami
5. Shri Rajkumar Raisinghania

8. M/s Swastik Power & Mineral Resources Pvt. Ltd.,

1. Shri Pawan Arora
2. Shri Nagarujna

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ANNEXURE-3

GENERIC TOR FOR COAL WASHERY

Based on the presentation made and discussions held, the Committee prescribed the following TOR:

(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_{10}, $PM_{2.5}$, SOx and NOx), 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

(xxxviii) 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.

ANNEXURE -4

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

(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_{10}, $PM_{2.5}$, SO_x, $NO_x$and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil along with one-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 are 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 though the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.

(xx) Detailed water balance should be provided. The break up of water requirement for the various mine operations should be given separately.

(xxi) Source of water for use in mine, sanction of the competent authority in 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?termmodelling studies on. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there us 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. OBdump heights and terracing should based on slope stability studies with a max of 28^{o} 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^{st} Year)**	**5^{th} Year**	**10^{th} Year**	**20^{th} year**	**24^{th} Year (end of Mine life)***
1.	Backfilled Area(Reclaimed with plantation)					
2.	Excavated Area (not reclaimed)/void					

3.	External OB dump Reclaimed with plantation)					
4.	Reclaimed Top soil dump					
5.	Green Built Area					
6.	Undisturbed area (brought under plantation)					
7.	Roads (avenue plantation)					
8.	Area around buildings and Infrastructure					
	TOTAL	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.	1st year										
2.	3rd year										
3.	5th year										
4.	10th year										
5.	15th year										
6.	20th year										
7.	25th year										
8.	30th year										
9.	34th year (end of mine life)										
10.	34-37th 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)**				
1.	External OB Dump	Plantation	Water Body	Public Use	Undisturbed	TOTAL
2.	Top soil Dump					
3.	Excavation					
4.	Roads					
4.	Built up area					
5.	Green Belt					
6.	Undisturbed Area					
	TOTAL	85				**110**

(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.

(xxxi) 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) 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.

(xxxxii) 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			

ANNEXURE -5

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 though 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 (PM_{10}, $PM_{2.5}$, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, AS, etc), noise, water (surface and groundwater), soil along with one-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?termmodelling 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.	1st year										
2.	3rd year										
3.	5th year										
4.	10thyesr										
5.	15thyear										
6.	20th year										
7.	25th year										
8.	30th year										
9.	34th year (end of mine life)										
10.	34-37th 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.

(xxxvii) Submission of sample test analysis of:

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

(xxxviii) 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			

ANNEXURE-6

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)			
	TOTAL			

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)			
	TOTAL			

Area Under Surface Rights

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

(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_{10}, $PM_{2.5}$, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil along with one-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 are 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 though 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?termmodelling studies on. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there us 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. OBdump heights and terracing should based on slope stability studies with a max of 28^{o} 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.

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

2.	3rd year										
3.	5th year										
4.	10th year										
5.	15th year										
6.	20th year										
7.	25th year										
8.	30th year										
9.	34th year (end of mine life)										
10.	34-37th 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)**				
1.	External OB Dump	Plantation	Water Body	Public Use	Undisturbed	TOTAL
2.	Top soil Dump					
3.	Excavation					
4.	Roads					
4.	Built up area					
5.	Green Belt					
6.	Undisturbed Area					
	TOTAL	85				**110**

(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)

(B) 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.

ANNEXURE-7

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