MINUTES OF THE 71st EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD DURING 8th - 9th April, 2013 IN NEW DELHI.

COAL MINING PROJECTS

The 71st meeting of the reconstituted EAC (T&C) was held on 8th - 9th April, 2013 in Scope Complex, New Delhi to consider the projects of coal mining. The list of participants of EAC members and the proponents are given at Annexure 1 and 2 respectively. The minutes of the 69th meeting of EAC (T&C) held on 25th March, 2013 was confirmed.

Item No. 71.1 Tadicherla-1 Coal Block, Godavari Valley Coal Field Opencast coal mine (2.5 MTPA and ML area from 906 ha) of M/s A. P. Power Generation Corporation Ltd., Village Tadicherla, Dist. Karimnagar, Andhra Pradesh (EC based on TOR granted on 16.11.2007) - Further Consideration

71. 1.1 The proposal is of Tadicherla-1 Coal Block, Godavari Valley Coal Field Opencast coal mine (2.5 MTPA and ML area from 906 ha) of M/s A. P. Power Generation Corporation Ltd., Village Tadicherla, Dist. Karimnagar, Andhra Pradesh. The proposal was considered in 51st EAC meeting held during 21-22nd July, 2009 and in 68thEAC meeting held during 28th -29th April 2010. The Committee sought additional information with regard to quantity of OB Dump & its rehandling, Issues regarding CSR, R&R, ground water quality etc.

71.1.2 The proponent has submitted information. The proponent made the presentation and informed that:

i. It is a new proposal for which the Ministry had issued the TOR, vide letter no, J-11015/858/2007-IA.II (M) dated 16th November, 2007.

ii. The land usage of the project will be as follows:

Pre-Mining:

Sl. No.	**Classification of Lands**	**Extent (Acs-Gts)**			
		Tadicherla Acres	**Kapuram Acres**	**Total**	
				Acres	**Hectare**
I	**Within mine lease area**				
1.	Dry	631-01	62-06	693-07	280.52
2.	Single Crop Wet (SCW)	52-06	105-29	157-35	63.89
3.	Assigned Govt. land (Dry)	796-35	440-07	1237-02	500.63
4.	Shikam (Tank area)	6-17	9-30	16-07	6.55
5.	Khabrastan (Burial Ground)	1-37	Nil	1-37	0.78
6.	Abadi (Habitation)	Nil	**0-33**	0-33	0.33
7.	Forest (RF-132-33)	132-33	Nil	132-33	53.75
	Sub-total ML area	**1621-09**	**618-25**	**2239-34**	**906.45 say 906**
II	**Outside the ML area**				
8.	Private land for facilities	Nil	59-28	59-28	24.16
	Grand Total (within ML+ outside the ML)	**1621-09**	**678-13**	**2299-22**	**930.61 say 930**

Post- Mining:

Sl. No.	Description	Post mining land use, ha
Part-I	**Within ML**	
1.	Mining / Excavation	656.86
2.	Dumps	
	a) Surface dump in ML area	137.61
	b) Inside dump (backfilling)	607.80
	c) Topsoil dump	0.00
	d) Bund	2.48
3.	Facilities	0.00
	a) Roads	3.50
4.	Settling Pond	10.00
5.	Void	49.06
6.	Undisturbed	95.55
	Sub Total	**906.00**
Part-II	**Outside ML**	
	Facilities	15.00
	Roads	1.50
	Plantation	5.00
	Undisturbed	2.50
	Sub Total	24.00
	Grand total	**930.00**

iii. The total geological reserve is 47.9355 MT. The mineable reserve is 45.36 M, extractable reserve is 45.36 MT. The per cent of extraction would be 94.63 %.

iv. The coal grades are A to G having stripping ratio of 13.66. The average Gradient is 1 in 3.7 to 5.8 towards north to NNE and 1 in 4 to 5 towards ENE- and NE. There will be total ten seams with thickness ranging from 0.05to 67.90 meter .

v. Tadicherla-1 coal block falls in Godavari River Basin which is one of the major rivers in South India. The Maneru river which flows along the North-Western boundary of ML area, is a perennial river and is a major tributary of Godavari river.

vi. The mine lease area of Tadicherla-1 coal block is drained by some small seasonal nalas that connect to Maneru river. There are seven small ponds in the ML area that holds water only during monsoon and post monsoon months. There is no perennial surface water body within the ML area.

v. The total estimated water requirement is 1620 m^3/d. The potable water would be 850 m^3/d from bore well & industrial water 770 m^3/d from mine sump and surface reservoir. The level of ground water ranges from 0-15 m.

vii. The Method of mining would be mechanized opencast by shovel dumper combination requiring drilling and blasting.

viii. There are two external OB Dumps covering an area of 137.61 Ha. (D1= 77.70 Ha & D2 = 59.91 Ha). The height for both the dumps would be 100 m with a total quantity of 71.96 mm3. The year of back filling would be 3 years. There is one internal dump covering an area of 607.80 ha having a height upto ground level with the quantity of 543.599 mm3. The final mine voids will have an area of 49.06 ha. and depth 320 m bgl, which will be reduced by using TPP ash mixed with OB.

ix. The seasonal data for ambient air quality has been documented for the summer season (March, 2007- May, 2007) and results at all stations are within prescribed limits.

x. The life of mine is 21 years. Maximum depth of the mine is 320 m. At the end of mine life an area of 607.80 ha of the quarry would be backfilled.

xi. **Transportation:** The transportation of coal from mine to power station shall be by covered conveyor belt to avoid spillage. Transportation of coal will from face to CHP will be by dumpers. There will be no siding. Coal will be used for captive Kakatiya Thermal Power Project (TPS)1 x 500 MW, located at Chelpuru, about 15 km away from the Coal Block.

xii. There is no R & R involved. No of PAFs 248 (No. of displaced families = 148, No. of project affected and displaced families = 100).

xiii. **CSR Activity:** There shall be 248 project affected and displaced families. There are two villages which fall within the project area, namely, Tadicherla and Kapuram wherein the CSR shall be carried out as well as the ones near to the project site and south of Maneru river upto the forest area, namely Shatraj palli, Pedda Tundla, Chinna Tundla, Dubbapeta and Mallaram.

xiv. CSR activities would be subject to minimum Rs. 5/T of coal extracted.

xv. **Cost :** Total capital cost of the project is Rs. 1944.90 Crore. The cost of production would be Rs. 1000 /Te. The CSR capital cost is Rs. 126.38 lakh, annual recurring CSR cost is Rs. 125.4 lakh. R&R Cost Rs. 8.47 crores. Environmental Management Cost is Rs. 1144.90 lakhs, and its recurring cost is Rs. 399.00 lakhs per year.

xvi. Approvals: The CGWB approval was obtained on 08.02.2008. The Mine Closure Approval is under process. The Mining Plan was approved on 06.08.2008 vide letter no.13016-9-/2005-CA-I from the Ministry of Coal. The Board's Approval was accorded on 14.09.2006.

xvii. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.

xviii. Forestry issues: Total forest area involved for mining 53.55 ha. The forest clearance is under process at State Government level.

xix. Total Afforestation plan shall be implemented covering an area of 769.81 ha at the end of mining where reclaimed external OB dump 137.61 ha and Internal OB Dump 607.80 ha. Green Belt over an area of 12.40 ha. Density of tree plantation 2500 trees/ ha of plants.

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

xxi. **Public hearing:** The public hearing was held on 20.10.2008.The issues raised were regarding land acquisition, compensation and employment, pollution control measures, training to the unskilled people, etc.

71.1.3. The EAC has received a letter from an NGO sending its views on the proposal, which include that ToR was granted on 16.11.2007 which is no more valid as per the MoEF OM No. J-11013/41/2006-IA.II (I) dated 22nd March, 2010; the mining is located close to the Maneru river which is tributary to the Godavari river; total 800 ha of agricultural land which is presently under cultivation of double crop would be affected by the proposed Tadicherla opencast coal mining and would impact local food security and livelihood; the depth of mine is 320 meter which would affect the ground water not only of the mining area but also of the surrounding areas.

71.1.4. The proponent has responded to these views which include the following:-

a. The MoEF's Office Memorandum No. J-11013/41/2006-IA.II (I) dated 22nd March, 2010 states that "from 01.04.2010, the prescribed ToRs would be valid for a period of two years for submission of the EIA/EMP Reports, after public consultation where so required. The period will be extendable to the 3rd year, based on proper justification and approval of the EAC/SEAC, as the case may be. Thus an outer limit of three years has been prescribed for the validity of TORs with effect from 01.04.2010. In case of the proposals, which had been

granted ToRs prior to the issue of this O.M., the EIA/EMP reports should be submitted, after public hearing where so required, no later than four years from the dated of grant of ToRs, with primary data not older than three years". The ToR for this project was granted on 16 November 2007 which is prior to 01.04.2010. As per the OM dt. 22.03.2010, the EIA/ EMP report had to be submitted to MOEF after public hearing no later than four years i.e. 16.11.2011.The proponent further mentioned that the EIA/EMP was submitted to MoEF on 27.06.2009 vide its letter no Lr. no. CEG-II/5111/F. CEGII(e5)/06/2006-07/D.No.434/2009 dt.27.06.2009. This was within 2 years of the issue of TOR.

b. Maneru river is flowing along the eastern boundary of the ML area. A 60 m wide safety barrier from the bank of Maneru river has been kept. A protective bund having 5 m height bund (above HFL) will be made along the river over a length of 2.5 km with a width of 25 m to prevent any inrush of water into the mine. The design has been duly prepared by the Irrigation and CAD department of Govt. of Andhra Pradesh. This has been got done in line with the directions of MOEF to ensure protection of Maneru river. In order to minimize the flow of suspended solids from external dumps with run off, a safe distance from the river bank has been maintained (100 m). In addition, various safety and control measures have been proposed which include: Toe walls to provide stability to the base of the dump; Garland drains around the dump to intercept rain water; Settling tanks to received rain water runoff from garland drains and settle the suspended solids; Water will be released only after complying to the norms; The pH of the water shall also be monitored of the above dewatering. Although there is no possibility of acid mine drainage due to the nature of coal, still provision shall be kept for neutralizing of water with lime dozer and mixer, to be used only in case of emergency etc..

c. The coal of Tadicherla seams has been tested and the results from the GR have been incorporated in EIA report. The test results show that the sulphur content is found to be between 0.41% to 1.32%.

d. The mines of M/s Singareni have been operating in the region for the last 15 years. The nearest mines are Kakatiya Khani group of mines. No pyrite has ever been reported in this area. The water of mine sumps of the operating mines of M/s Singareni is tested regularly by EPTRI, Hyderabad and the pH is found to be neutral. The concentration of heavy metals is mostly below detectable limit and in other cases negligible. The proposed Tadicherla is a coal mine and the overburden shall comprise of weathered mantle, soil, shale, etc. Unlike metalliferous mines, where the OB can also contain large amount of heavy metals and can leach, the overburden in the coal mines will be inert and not leach toxic trace elements. Indian Institute of Chemical Technology, Hyderabad conducted tests for the soil and over burden in SCCL OC mine Ramagundam -OC II which shows that there are no high concentrations of heavy metals. The runoff water from OB dumps of Medipalli OCP has also been tested by EPTRI which shows that there are no contaminants in the water.

e. There is no land under cultivation of double crop.

f. The groundwater will be lost on account of opencast mining when the water table will be cut in mining pit. The depth to water table over the ML area is around 6 to 8 m below ground while the depth of mining during different years of mining will be much below the water table. To mitigate the impact, APGENCO will supply potable and non-potable water to the villages in the radius of impact for which separate provision has been made in the CSR budget to the tune of Rs. 12 lakhs capital and Rs. 9 lakhs/annum recurring expenditure. The

maximum anticipated groundwater seepage of 3135.6 cum/day will cause annual loss of 1.14 MCM which is minor when compared to available resources of 61.20 MCM forming only 1.86%. Therefore, negligible impact on groundwater resources is anticipated.

71.1.5 The Committee after detailed deliberation recommended the proposal for Environmental Clearance with following specific conditions:

i. The depth of the mine void should be brought to practically zero by rehandling total external dumps.
ii. The OB dump area should be planted with grass.
iii. The re-handling schedule for External OB Dumps should be submitted to the Ministry for record.
iv. The Proponent should identify the no. of PAFs based on the 2011 census data.
v. Need based CSR activity should be adopted for the PAFs.
vi. One season air quality data for PM_{10} and $PM_{2.5}$ should be monitored. The repot be submitted to the MoEF record.
vii. The flood management plan alongwith charts/maps with proper documentation/authentication of the source of information should be verified with Mr. M S Puri, Member, EAC.
viii. The project proponent should provide covered conveyor system for transport of coal from mine to the Thermal Power Station.
ix. Plantation of trees along the road sides should be provided for control of dust pollution during coal transportation.
x. Details of water linkage and coal linkage should be submitted to the MoEF for record.
xi. The water quality of the River Maneru should be regularly monitored and the report be submitted to the SPCB & Regional Office of the Ministry.
xii. CSR audit should be done at annual intervals through a well reputed institute and results uploaded on the company's website.
xiii. Necessary step are required to be taken with respect to the CSR activity, as the site is prone to nuxalites.

Item No. 71.2 Cluster XV (4 UG mines with a normative production of 0.325 MTPA with a peak prod. of 0.423 MTPA in a combined ML area of 1696.55 ha) of M/s Bharat Coking Coal Ltd located in Jharia coalfields, Dist. Dhanbad, Jharkhand- EC based on TOR granted on 27.06.2011.

71.2.1 It is noted that the proposal is for cluster XV of the BCCL which consists of 4 underground mines of which 3 are working underground mines viz. Kharkharee Colliery, Madhuband Colliery, Phularitand Colliery and 1 closed Dharmaband Colliery of a combined ML area of 1696.55 ha for a production capacity of 0.325 MTPA (normative) with a peak prod. of 0.423 MTPA of M/s Bharat Coking Coal Ltd located in Jharia coalfields, Dist. Dhanbad, Jharkhand,. The proponent made the presentation and informed that:

i. It is neither new nor expansion Project. Cluster consisting of mines taken over by BCCL from private mine owners after nationalization through Coal Mines Nationalization Act, 1972-73. It is a cluster of four underground mines namely; Kharkharee Colliery, Dharmaband Colliery, Madhuband Colliery, Phularitand Colliery for which Ministry issued the TOR vide letter no J-11015/100/2011-IA.II (M) on 27th June, 2011.

Sl.	Name of Mines	Production Capacity (MTY)	Lease Hold Area (Ha)

No.		Normative	Peak	
1	Kharkharee Colliery	0.092	0.12	584.00
2	Madhuband Colliery	0.113	0.147	393.77
3	Phularitand Colliery	0.120	0.156	340.88
4	Dharmaband Colliery (Closed for production)	0	0	377.90
	Total	0.325	0.423	1696.55

ii. **Details of Land usage**

Sl.No.	**Type of land use**	**Present mining land use (in Ha)**	**Post-mining land use (in Ha)**
1	Service building/ Mine Infrastructure	17.36	0.00
2	Coal dump	3.8	0.00
3	Road and rail	101.67	101.67
4	Homestead Land	102.13	52.69
5	Agricultural Land	352.38	352.38
6	Forest Land	0.00	0.00
7	Plantation	12.80	634.08
8	Water Body	45.37	45.37
9	Barren Land	1061.04	510.36
	Total	1696.55	1696.55

iii. **The t**otal geological reserve is 504 MT. The mineable reserve is 382 MT. The percentage of extraction 75%.

Name of the mines	i	ii	iii	iv	v	vi	vii
	Seam	**Thickness of seams to be worked**	**Grade of Coal**	**Stripping ratio**	**Category of gaseousness**	**Average gradient**	**Maximum thickness of seams (m)**
Karkharee Colliery	XVI	4.16	W-II	Not Applicable	Degree-I	1 in 5	4.16
	XV	4.41					4.41
Madhuband Colliery	XVID/DE	0.15-2.98	W-IV, ST-I, ST-II	Not Applicable	Degree-I	1 in 5.5	2.98
	XVIC	0.60-4.15					4.15
	XVIB	0.15-2.37					2.37
	XVIA/AB	0.36-6.13					6.13
	XVI	0.18-4.63					4.63
	XV	1.73-5.41					5.41
Phularitand Colliery	IX/X/VIIIC	9.00	W-III	Not Applicable	Degree-I	1 in 7.5	9.00
	VIIIB	2.31					2.31
	VIIIA	2.30					2.30

	VIII	4.0					4.0
	III						3.35
	I						2.99

iv. Technical parameters :

Name of Mines	Madhuband Colliery (UG)	Phularitand Colliery (UG)	Kharkharee Colliery (UG)	Dharmaband Colliery (UG) (Closed for production)
Lease Area (Ha)	393.77	340.88	584	377.90
Life (in years)	>30	>30	>30	-
Method of Mining	B&P Manual , dev depillaring With Stowing	B&P Dev/Dep with SDL, Dep with caving	B&P Dev with SDL	-
Production in 1993-94 (MT)	0.107	0.078	0.080	-
Production in 2011-12 (MT)	nil	0.035	0.063	--
Proposed peak Production (MTPA)	0.147	0.156	0.12	-
Manpower	1337	1050	652	-
Ventilation	PV-160X2	PV-160	PV-200	-
Seams to be worked	XVID/DE, XVIC, XVIB, XVIA/AB, XVI, XV	IX/X & VIIIC, VIIIB, VIIIA, VIII ,III,I	XVI, XV	-
Seam Gradient	1 in 2.5 to 4	1 in 7.5	1 in 5	-
Grade of Coal	ST-I, ST-II, W-IV	W-III	W-II. W-I	-
Mineable Reserve (Mt)	20.29	17.07	22.54	111.05
Linkages	Madhuband Coal washery	Madhuband Coal washery	Madhuband Coal washery	-
Maxm. Depth (m)	410	350	480	300
Cost of Production (Rs/te)	3092	3465	5171	--
Selling Price- (Rs./ Te)	4080	1920	2569	--

v. **Details of actual coal production vis-à-vis sanctioned capacity since the inception of mine:**

Year	EC sanctioned capacity (MTPA)	**Actual coal production** (MTPA)			Excess production beyond the EC sanctioned capacity
	Not Applicable	Karkharee Colliery	Madhuband Colliery	PhularitandColliery	Not Applicable
1993-94		80000	107406	78000	
2007-08		57745	29681	27171	
2008-09		58010	26270	28464	
2009-10		54271	16392	33425	
2010-11		49330	34	45353	
2011-12		63200	Temp susp. prod	35039	
Normative production(MTY)		0.092	0.113	0.120	
Peak Production(MTY)		0.12	0.147	0.156	

vi. Damodar River flows at a distance of 3.2 km to the south. The run-off from the area during monsoon drains into Jamunia River and Khudia Nala through a numbers of streams flowing towards south-west. Besides these streams, there are number of small ponds in the area. The unconfined aquifer, average 28 m thick lying above the top most working seam contributes the mine inflow. The semi-confined aquifers, with max. saturated thickness of 300 m, lying above the bottommost working seam will also contribute the mine inflow.

vii. Pre-monsoon water levels vary from 4.96 to 19.08 m below ground level and Post-monsoon Water Levels vary from 2.10 to 15.88 m below ground level. The total water requirement 4147 m^3/day of which for industry requirement 1487 m^3/day and Domestic water requirement 2660 m^3/day. 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.

viii. The method of mining would be manual Bord and Pillar, depillaring with stowing

ix. **Approvals:** Applied for Ground water clearance on 16.2.2013 to CGWB. The Mine closure approval is under process.

x. There are no external & internal OB Dumps and no voids.

xi. The seasonal data for ambient air quality has been documented for one season (Feb 2012 to April 2012) and results at all stations are within prescribed limits.

xii. **Transportation:** Coal produced will be transported to existing Madhuband Washery by road.

xiii. **The** Life of Mine is 30 years.

xiv. R&R is involved. The no of PAFs are 1537. The Master plan for dealing with subsidence and rehabilitation within the leasehold area of BCCL has already been approved by Govt. of Jharkhand & Govt. of India. Out of 595 unstable sites identified in the Master plan, 18

sites are with an area of 49.44 Ha consisting of 1537 no. of houses/families are affected. The affected families will be rehabilited in adjacent non-coal bearing area at a cost of Rs. 14002.80 lakhs.

xv. **Subsidence**: 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.

xvi. **Cost :**Total cost of the project is Rs. 43.3 Crore. The CSR cost is Rs.21 lakhs per year. Project proponent will follow the latest CIL's Policy and will spend 5% of the retained earnings of the previous year subject to a minimum of Rs. 5/- per tonne of coal production. The R&R cost is Rs. 140.03 Crore and the environment management cost is Rs. 1.84 crore. Annual social audit should be got done through a reputed institute and uploaded on the company's website.

xvii. Total afforestation plan shall be implemented covering an area of 621.28 Ha (additional) at the end of mining which will include; Green belt over an area of 229.12 ha; Density of tree plantation 2500/ha of plants.

xviii. **Wildlife issues:** There are no national parks, wildlife sanctuary, biosphere reserves within 10 km buffer zone.

xix. Forestry issues: There is no forest area involved.

xx. **Violation/ Court Case:** 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 BCCL is operating all its mines without the Env. 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. 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 BCCL in obtaining the Environmental Clearance had granted "Status Quo" to be observed and admitted the case i.e. No. WP(C) 4944/2011. No violation case pending.

xxi. **Public hearing:** The public hearing was held on 01.11.2012 at Dhanbad. The issues raised were regarding pond, water & electricity, medical facility, road construction, plantation, basic amenities, water sprinkling on road, etc.

71.2.2 The EAC has received a letter from an NGO expressing its views on the proposal, several villages in the area which are predominantly inhabited by Scheduled Tribes. The total population in core zone and buffer zone of the mine area is 97,410. Underground mining in this area will put the people at risk of subsidence cracks. health impacts due to mining; discharge of 8200 m^3/day, water from the mine into the Jamunia river and the Khudia river will not only contaminate the river water and affect aquatic organism but also affect the communities depending on the water for agriculture and domestic use.

The proponent has responded that:-

a. There are 9 villages in Cluster-15 with a total population of 16,912 as per the Govt. of India Census. Out of this population, 191 are Scheduled Tribes (both male and female) which constitute 1.13% of the total population. BCCL is very sensitive for the welfare of the SC/ST population living in and around the cluster-15 and also as the whole of Jharia coalfield and Dhanbad district. BCCL under its CSR policy extends welfare activities to SC/ST population. Out of Total CSR Budget, 15% and 8% would be allocated separately

and exclusively in the Annual Plan for undertaking welfare activities under CSR for development of Scheduled Caste and Scheduled Tribes populations respectively and balance 77% Fund would be utilized for implementation of CSR Activities for the entire population including SCs and STs. Lahbera, a SC/ST village in Dhanbad has been adopted for its all-round development and a number of development activities have been carried out.

b. The mining operations are carried out strictly under provisions of Mines Act., 1952. No extraction of pillars in Bord & mining method or extraction of coal by other method can be started without the permission of Directorate General Of Mines Safety. As per the Govt. of India approved Master Plan for fire, subsidence and rehabilitation in BCCL area, there are 18 nos. of unstable sites (prone to subsidence) spread over 49.44 ha. and involve 1537 families. An amount of Rs.140.02 crores has been allotted for rehabilitation of these families from unstable sites to stable sites beyond the coalfield. Subsidence prediction has been done by CMPDI for the underground mining areas of this Cluster. This amount of subsidence is negligible and within the limits prescribed by DGMS. If any surface cracks develop on the surface they shall be properly filled immediately as per procedure.
c. The mines of cluster-15 are all underground mines and do not involve activities like drilling and blasting at surface. All associated activities of mining are done within the work zone of the mining areas and will not impact the surrounding people. However all mitigative measures for arresting dust pollution are being taken care of and shall continue. Transportation of coal is being done in covered trucks BCCL is very sensitive to health issues of the people in and around cluster-15. BCCL under its CSR activities extends significant medical aid to the people in and around the cluster-15. Mobile ambulance has been provided exclusively for the service of the peripheral villages. There is no mine fire in Cluster-15. Sulphur content in Jharia coals is negligible and occurrence of pyrite in these coals may be in traces. Therefore, the problem of yellow boy also does not occur.
d. Though, the project site falls in drainage area of the Damodar River, there is no interaction between ground water and surface water in the Cluster due to its terrain features.
e. Present mine water discharge is about 7600m^3/day and the projected maximum water discharge would be 8200m^3/day from the mines of Cluster-15. This water is neither being discharged nor will be discharged into the Jamunia river and the Khudia rivers. There are no perennial drains in Cluster-15 and are not fed by ground water.
f. Subsidence prediction has been done by CMPDI for the underground mining areas of this Cluster. The anticipated maximum subsidence likely to occur over the mining area due to extraction of coal seams is 0.10 mtr. to 0.15 mtrs. and the maximum possible slope likely to occur over mining area are 0.09 mm/m to 1.87 mm/m. This amount of subsidence is very negligible and will not affect the aquifer system. If any surface cracks develop on the surface they shall be properly.
g. There is neither heavy metal contamination nor acid mine discharge issues in the mine water discharge. The problems of acid mine drainage does not occur anywhere in Jharia Coalfield.
h. All the mines in cluster-15 are of underground nature and there are no opencast mines, so no overburden will be generated and there is no problem of siltation and pollution in River Damodar. However, check dams, sedimentation ponds and garland drains shall be constructed to arrest the flow of sediments through natural runoff during rainy season into the Damodar River.

71.2.3 The Committee after deliberation sought the following additional information for further consideration:

i. The Information on underground fire and its impact on the affected area be documented and presented to the Committee.

ii. The committee noted that subsidence level, both slope and strain, is high in case of kharkharee colliery, as per report submitted. Action being taken in this regard be submitted.
iii. In underground mining, there are presence of organic gases. These gases are volatile in nature. Due to transmission of air, fire takes place. The Committee is of the considered view that routine mining engineering will not serve the purpose. Therefore, the Committee desired that proper studies be carried out to understand underground seams and how these fire areas could be sealed from further spreading.
iv. The project Proponent should prepare the cumulative impact of fire and gases for all the clusters of coal mines in Jhria Coal Field.
v. National Remote Sensing Agency (NRSA) should be contacted for thermal imaging techniques which are being utilized for assessing the extent of impact of underground of fire.
vi. The Committee suggested that BCCL should consider for an MOU with NRSA for short and long term studies so as to obtain detailed information on Satellite imagery, thermal imagery, subsidence prediction and surface features of the mining area.
vii. The project Proponent should monitor the water quality of the Jamunia river as per the standards prescribed by the JSPCB/CPCB to maintain the required BOD in river water.
viii. Study be carried out on ground water availability in the confined and unconfined area in mining zone. The nullh as adjacent to the river should not be disturbed.
ix. Physico-chemical characteristics for the surface water should be carried out and presented.
x. A detailed note on integrated water supply vis-à-vis utilization of surplus water be submitted.
xi. Details of drainage/water shed map of the Jamunia River be provided.
xii. The impact of mining/mine water on river Damodar, be presented.
xiii. Details of the transportation of coal upto the washeries and the future plan to reduce air pollution during transportation of coal be presented.

Item No. 71.3 Proposed Gauthamkhani Opencast Expansion Coal Mining Project (2 MTPA to 3 MTPA in an ML area of 923.27 ha) of M/s The Singareni Collieries Company Ltd., near Pengadapa village in Khammam dist. of Andhra Pradesh-TOR

71.3.1 The project proponent has requested, vide letter CRP/ENV/A/493/232 dated 03.04.2013 for deferment of proposal. The Committee took a note of the request of the proponent.

Item No. 71.4 Kesla North Opencast and Underground mine project (0.30 MTPA in an ML area of 750 ha) of M/s Rathi Steel and Power Ltd., Dist. Korba, Chhattisgarh (EC based on TOR granted on 28.05.2010)- Further Consideration

71.4.1 The proposal is of Kesla North opencast and underground mine project (0.30 MTPA in an ML area of 750 ha) of M/s Rathi Steel and Power Ltd., Dist. Korba, Chhattisgarh. The proposal was considered in 47th EAC meeting held during 23-24th April, 2012. The committee sought additional information with regard to mining process, water channel, sparing of dense forest, coal transportation, Railway siding at Murga, migitative measures for pollution control, and Permission under PESA. The proponent made the presentation and informed that:

i. It is a new opencast proposal for which the Ministry had issued the TOR, vide letter no. J-11015/336/2009-IA.II (M) dated 28th May, 2010. The land usage of project will be as follows:

Pre-Mining:

Sl. No.	Description	Area (Ha)
1.	**Village Area**	
	A. Tapra Village	22.784
	B. Bela Village	95.911
	C. Other government land	159.618
	Total village area	**278.313**
2.	**Forest Area**	**471.687**
	Total Mine Area	**750.00**

Post- Mining:

Sl. No.	Description	Post mining Area (Ha.)	
		Earlier	**Revised after presentation on 08.04.2013**
1.	Mining / Excavation	126.73	97.37
2.	Surface dump	13.18	13.18*
3.	Top soil dump	0.00	0.0
4.	Magazine	0.20	0.20
5.	Road	5.00	5.0
6.	Water reservoir (settling pond)	0.00	0.0
7.	Facility	3.00	3.0
	Sub Total Disturbed	**148.11**	**118.75**
8.	Undisturbed	**601.89**	**631.25**
	Total	**750.00**	**750.00**

ii. Total geological reserve is 36.148 MT. The mineable reserve is 1.994 MT. The extractable reserve is 12.266 MT by underground & 1.499 MT by opencast. Percentage of extraction would be 34% by UG & 75% by OC.

iii. The coal grades are superior grades A,to G. and the thickness of seams ranges from 0.05 to 5.30 meter.

iv. The mining area is drained by a number of small nalas which originate from the hillock present in the northern part and flow into the southerly direction. Among all the nalas, Surmah (Suardhar) Nala located in the north-western part and the Karijhiriya nala in the central part of the block are the major ones. Besides this from Bela Dam, located north of Bela village, irrigation canal and a Nala (No name given) flow in southerly direction. Another nala is located east of village Talaidand. All these nalas flow from north to south across the block.

v. The range of ground water level mine lease is 6 - 8 m – Post Monsoon &study area: 1.7 – 9 m – Post Monsoon. Total estimated Water Requirement is 586 m^3/d. Potable water 276 m^3/d from Bore well & Industrial water 310 m^3/d from pumping installation at mine sump and surface reservoir.

iv. The Method of mining would be mechanized Opencast by shovel-dumper combination requiring drilling and blasting

vii. Approvals: Mining plan was approved on 27.10.2010, vide letter no. vide letter no. 13016/58/2008-CA-I by Ministry of Coal. The application for permission to abstract ground

water has been submitted on 21.07.201 1. The mine closure approval is under process with MOC.

viii. There is one external OB Dump covering an area of 13 Ha with the height of 60 m . The year of back filling would be from 7 years. There is one internal dump covering an area of 97.37 ha with a height upto surface level. .

ix. The seasonal data for ambient air quality has been documented for summer season (1st March 2011- 31st May 2011) and all results at all stations are within prescribed limits.

xi. Transportation: The transportation of coal in pit will be by Dumpers & Tippers and from surface to siding by Tippers and from siding to loading will be by rail. The coal will be transported by road to the nearest rail head at Korba (35 km by road) and thereafter it will be moved by rail to the plant premises in Sambalpur (Orissa). The transportation of coal will be by 30 T with covered trucks. About 1000 TPD of coal will be transported daily which will require 34 trucks of 30 tonnes capacity leading to 68 truck trips per day. The proponent mentioned that if the railway permits the use of railway siding at Saragbundia near Urga (around 35 kms), the same will be used instead of Korba.

xii. The life of mine is 7 years (revised) for opencast & 51 years for underground.

xiii. There is no R&R. 57 houses will be affected under the PAFs.

xv. Cost : The total capital cost of the project is Rs. 110 Crore. The cost of production would be Rs. 146.63 /Te. One time capital CSR cost : Rs. 50 lakhs, The annual recurring CSR cost would be Rs 5/ton. R&R Cost is Rs. 39.368 lakhs. Environmental Management Cost is Rs. 439.89 lakhs and it's recurring cost is Rs. 110.71 lakhs per year.

xvi. Wildlife issues: There are no national Parks, wildlife sanctuary, biosphere reserves within 10 km buffer zone.

xvii. Forestry issues: Total forest area involved for mining is 471.687 ha. . The extent of forest land in the project (including safety zone and all types of forest land) is 471.687 ha. The application for diversion of 471.687 ha forest has been submitted on 22.02.2011

xviii. Afforestation: Total Afforestation plan shall be implemented covering an area of 123.15 ha at the end of mining where reclaimed external OB dump of 13.18 ha and Internal OB Dump of 97.37 ha. The green belt will be over an area of 9.6 ha with the density of tree plantation of 2500 trees/ ha of plants.

xix. Violation/ Court Case: No court/violation case is pending.

xx. Public hearing: The public hearing was held on 07.12.2011.The issues raised were regarding movement of elephant, coal excavation method, migratory corridor, tree cutting, vibration due to blasting, employment, PESA act etc.

71.4.2 The EAC has received a letter from an NGO expressing its views on the proposal, which include that this is one of the few virgin forests in the country- Hasdeo- Arand Forest; the proposed mine area supports important wildlife species; the surface runoff will carry silts and 'acid mine drainage' directly into the Hasdeo.

i. The proponent has responded that:-The proponent had submitted the proposal for TOR in four quarries comprising of total area of 191.02 ha which has 112.11 ha as protected forest. However, the area was reduced which falls under dense forest land, especially in Pit Quarry no. 4. Thus, the proposal has reduced the forest area under opencast mining from 52.97 ha by excluding the forest in pit no. 4 on the basis of which, MOEF issued TOR vide letter no. J11*015/336/2009-1A*. II(M) dated 28.05.2010. As per the proponent, the total forest area within ML is 471.687 ha. After public hearing, the final EIA/EMP report was submitted and presentation was made on 24.04.2012. The MOEF, vide their letter dated 19.05.2012, communicated to leave out high density forest from open cast areas other than Quarry no. 1 & 3. Thus, the mining was reduced in the protected forest which is required for open cast mining in mining lease area to 24.07 ha.

ii. None of the three main drains passing through the mine lease area will be disturbed. Precautions

to minimise suspended solid with rainfall runoff from OB dumps have been proposed which includes Toe walls at the base of the dump; garland drains will be constructed around the dump to collect rain water leading to settling tanks where settlement of suspended sol ids wi II take place; testing facility to monitor the water quality at the exit of the settling tanks will be provided; rehandling of entire dumps at the end of open cast mining shall be done upto. The analysis of coal shows that the sulphur is low, which cannot lead to acid mine drainage. No acidification of mine water has been observed.

iii. Water table will be intersected during mining. Korba is at a distance of nearly 15 km and specific management plan has been prepared taking into account the "Development of Comprehensive Environmental Pollution Abatement Action Plan for Critically Polluted Area Korba, Chhattisgarh" prepared by Chhattisgarh Environment Conservation Board in January 2011.

iv. The modern techniques of blasting are environment friendly due to which noise and dust generation are minimised to a great extent.

v. At the time of application for allotment of coal blocks, no coal block was available in Orissa for sponge iron units. Thus, the proponent has made application to the Ministry of Coal for the two nearest coal blocks within a distance of 300 km in state of Chhattisgarh, which is adjacent to Orissa, to minimise transportation. The nearest available coal block is Kesla, which has been allotted by the Ministry of Coal as per its procedures. The distance of the mine from the sponge iron plant is around 260 km by road. However, the proposed mode of transport from mine to sponge iron plant will be a combination of road and rail transport. In order to ensure to check pollution due to transportation, the proponent will use mechanically covered trucks and will reduce the number of truck trips and also will use higher capacity trucks of 30 T.

71.4.3 The Committee after deliberation sought the following information for further consideration:

i. The proponent to explore the possibilities of installing a siding near the mines.
ii. The transportation plan for coal and OB dumps including the time schedule for dumping be presented.
iii. The time schedule for OC and UG mining be presented.
iv. MOC approval for mine closer plan be submitted.

Item No. 71.5 Digwadih Colliery of M/s Tata Steel Ltd. for (Expansion from 0.38 MTPA to 0.6 MTPA in ML area 314.57 ha), dist. Dhanbad, Jharkhand - EC based on TOR granted on 09.02.2011

71.5.1 The proposal is for Digwadih Colliery of M/s Tata Steel Ltd. for (Expansion from 0.38 MTPA to 0.6 MTPA in ML area 314.57 ha), Village Jorapokhar, Tehsil Jharia, Dist. Dhanbad, Jharkhand. The proponent made the presentation and informed that:

i. It is an expansion proposal for underground mining from 0.38 MTPA to 0.6 MTPA for which Ministry had issued the TOR, vide letter no. J-11015/372/2010-IA.II(M) dated 9th February, 2011.

ii. The land use of the project will be as follows:

Sl No	Type of Land	Pre-mining	Post-mining	Core area
		Area (Ha.)		
1	Land under office building	8.17	0	-

2	Land under bunglow, colony, etc.	88.71	0	-
3	Land under village	148.81	148.81	-
4	Area for plantation and park	2.25	2.25	-
5	Land under tank, drain, nallah, etc.	4.99	4.99	-
6	Land under road network	1.24	1.24	-
7	Land under railways	46.76	46.76	-
8	Land under agriculture	13.65	13.65	-
	Total	314.57	217.69	314.57

iii. The total geological reserve is 51.963 MT . The mineable reserve is 46.65 MT, extractable reserve is 16.35 MT with percent of extraction of 30%. The coal grade is W and the average gradient is 1 in 7. There will be total five seams and the category of gaseousness is Degree III. Thickness of the seams ranges from 2.94 m to 7.31 m.

iv. The subsidence study was conducted by CIMFR team which suggested that the maximum subsidence over stowed panel was 2.48% of extraction thickness. The subsidence movement did not cause any damage to surface features and structures. 100% sand stowing is being done to ensure backfilling of all underground mined out areas.

v. Damodar River flows at a distance of 2 Km from lease boundary which is a main drainage of the area. Dungri jore tributary carries the water from high lands to Damodar River. Water drains through natural slope of the terrain to Dungri Jore that ultimately discharges into the Damodar River. The Project Proponent has diverted the water through pucca and kutcha drains. The permeable sandstone beds intercalated with shale and coal seams behave as individual hydro-geological units and form a multi-aquifer system.

vi. The level of ground water ranges from2.78 – 7.98 m below ground level. The total estimated water requirement is 7255 m^3/day of which 3432 m^3/day for stowing, 1035 m^3/day for colony & villages, 1100 m^3/day for water treatment plant and 1689 m^3/day for irrigation & gardening

vii. The Method of mining would be semi-mechanised Bord and Pillar system.

viii. **Approvals:** Mining plan has been approved vide letter no. 30411/(22)/2009-CPAM dated 08.03.2010. Progressive mining closure plan has been approved. The final mine closure plan is yet to be approved.

ix. There are no external/internal OB dumps as it is underground mine.

x. The seasonal data for ambient air quality has been documented for the summer season (April, 2011 to June 2011) and all results at all stations are within prescribed limits.

xi. The water from this area is coursed through kuthcha drains which finally drain into the Damodar River after passing through the BCCL areas also. The water does not reach to the Dungri Jore from the Digwadih leasehold area.

xii. The mine water from the colliery is first collected in the settling tank located near the colliery pit head. It has a capacity of 675 m^3. The mine water is then utilized for underground stowing purpose and is recycled. Some of the water is utilized in the Water treatment plants and balance water is used for the colonies and supplied to the villagers for their uses. Any excess water overflows from the tank after sedimentation occurs. We regularly monitor the mine water discharge quality parameters and are found within the norms.

xiii. The progressive mine closure plan is approved in Mining Plan of Digwadih Colliery. The final mine closure plan is currently being prepared by CIMFR, Dhanbad and will be submitted for approval from MOC.

xiv. **Transportation:** The Coal transportation of coal to washery is done through a network of underground belt conveyor system and hence there is no surface transportation of coal. Material transport is done through shaft and by means of haulage in underground**.**

xv. Life of mine is 26 Years**.**

xvi. Cost: The capital cost of the project is Rs. 2500 Lakhs**.** The cost of production included in the final cost of production of steel. The CSR Cost is Rs. 5.50 crores (FY14 budget) for Jharia Division. Annual breakup of CSR spent (Rs. 5.03 cr) for the year 2012-13 to be submitted to the MoEF for record. Environmental Management Cost is Rs. 85 lakhs.

xvii. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves within 10 km buffer zone.

xviii. **Forestry issues:** There is no forest land involved.

xix. Total afforestation/green belt development takes place every year on the open surface within leasehold areas. The density of the plantation 2500 trees per ha.

xx. **Violation/ Court Case:** There are no court cases/ violation pending.

xxi. **Public hearing:** The public hearing was held on 21.09.2012. The issues raised were regarding drinking water facility for villagers, repair and cleaning of drains and roads, tree plantation, medical facilities for villagers, free coaching to small children, cleaning of parks and ponds as well as heightening of wall around sand yard, sand spillage during transportation, etc

71.5..2 The EAC has received a letter from an NGO expressing its views on the proposal, which include that Critically Endangered White Rumped Vulture (*Gyps bengalensis*) would be affected; Mine drainage to Dungri Jore would affect the water quality of the Damodar river. The proponent submitted the following:

i. The list of flora and fauna has been authenticated by NABET-accredited Ecology and Biodiversity FAE of CIMFR, Dhanbad. No White Vulture (Gyps Bengalensis) is found in the surrounding areas.
ii. The mine water from the colliery is first collected in the settling tank located near the colliery pit head. It has a capacity of 675 m^3.
iii. No water is taken from the river for use in colliery. Any excess water overflows from the settling tank only after sedimentation occurs. mine water discharge quality parameters are regularly monitored and are found within the prescribed norms. The water from this area is coursed through kuthcha drains which are finally drained into the Damodar River after passing through the BCCL areas also. The water does not reach to the Dungri Jore from the Digwadih leasehold area directly.

71.5.3 The Committee **recommended** the proposal for environmental clearance subject to following conditions:

i. The impact on the Damodar river due to mining activity through a reputed 3rd Party which is at a distance of 2 km be studied and submitted to the SPCB and the regional office of the MoEF for monitoring
ii. Details of underground transportation of coal from mine to coal yard/ rail yard be submitted to the MoEF for record.
iii. Adequate care be taken to prevent SAND spillages from the TRUCKS/TIPPERS.
iv. The test results of the study of leaching of heavy metals from bottom-ash be submitted SPCB and the regional office of the MoEF for monitoring.
v. The CSR activities shall be need based and detailed CSR plan be prepared for implementation.
vi. The detailed breakup of funds during 2012-13 be submitted to the MoEF for record. Social audit to be got done annually by a reputed institute and uploaded on the company's website.

vii. There should be no OB dumps at the end of the mining. (PL.DELET AS U/G MINE)

Item No. 71.6 Proposed Khairagura Opencast Expansion Coal Mining Project of (2.50 MPTA to 3.00 MTPA in an ML area of 12170.50 ha) of M/s The Singareni Collieries co. Ltd., Dist. Adilabad, Andhra Pradesh-(TOR)

71.6.1 The proposal is for Proposed Khairagura Opencast Expansion Coal Mining Project of (2.50 MPTA to 3.00 MTPA in an ML area of 12170.50 ha) of M/s The Singareni Collieries co. Ltd., Dist. Adilabad, Andhra Pradesh.

71.6.2 The project proponent has requested for expansion under 7.2 of the EIA Notification, 2006. Keeping in view of the MOEF's circular dated 30th May, 2012, which stipulates that it is mandatory for the project proponent to submit the certified report with regard to the status of compliance of the conditions stipulated in the Environmental Clearance for the ongoing/existing operation of the project by the Regional Offices of the MoEF.

The proponent was asked to submit the compliance report for further consideration of the proposal.

Item No. 71.7 Proposed Ramagundam Opencast-III Expansion Phase-II Project of (Expansion of Coal Mining Project 4.30 MTPA to 6.30 MTPA normative and 5 MTPA to 6.80 MTPA in anMLarea of 1393.81 ha) M/s The Singareni Collieries co. Ltd, Distt.Karimnagar, Andhra Pradesh-(TOR)

71.7.1 The proposal is for proposed Ramagundam Opencast-III expansion phase-II Project of (Expansion Coal Mining Project 4.30 MTPA to 6.30 MTPA normative and 5 MTPA to 6.80 MTPA in an ML area of 1393.81 ha) M/s The Singareni Collieries co. Ltd, Distt. Karimnagar, Andhra Pradesh.

71.7.2 The proponent made the presentation and informed that:

i. Existing RG OC-III Extension Project was accorded Environmental Clearance vide Lr. No. J-11015/267/2007-IA (M), Dated 31.7.2008 for normative capacity of 4.30 MTPA with Peak production of 5.00 MTPA in the ML area of 1393.81 Ha.
ii. The coal reserves amenable for underground method in the neighboring GDK-8 and 8A Inclines were exhausted.
iii. It is proposed to extract the remnant coal reserves locked in above two underground mines by opencast method by annexing further to RG OC-III Extension Project under the name of *Ramagundam Opencast-III Extension Phase-II (RG OC-III EXTN PH-II).*
iv. MoEF issued the Terms of Reference (ToR) for RG OC-III EXTN PH-II for expansion of normative production capacity from 4.30 MTPA to 6.30 MTPA with peak production capacity from 5.00 MTPA to 7.00 MTPA and the Mining Lease / Project area from 1393.81 Ha to 2150 Ha vide lr. No. J-11015/178/2010-IA.II(M), dated 28.5.2010.
v. As the GDK-8 incline is continued to work up to 2013 for accommodation of existing manpower, the proposal was not taken up meanwhile validity of ToR also expired.
vi. In this connection, it is proposed to obtain revised ToR for the above proposal in which recommendations of EAC during the earlier ToR meeting was also considered
vii. Revised Terms of References for the present proposal of Ramagundam Opencast-III Extension Phase-II would be expansion of normative production capacity from 4.30 MTPA to 6.30 MTPA with peak production capacity from 5.00 MTPA to 6.80 MTPA and ML area from 1393.81 ha to 2070.10 Ha.

viii. The project proponent mentioned the public hearing could not be carried out due to the political unrest in the Telangana region of the Andhra Pradesh. No project activities could be taken up during last 2 years.

ix. **Details of Land usage**

Pre-Mining:

Sl. No	Present Land use	Area in (Ha)
1	Forest	Nil
2	Single crop land	176.56
3	Double crop land	2.70
4	Land with or without scrub	410.19
5	Sand dump	114.47
6	Plantations	479.09
7	Mining Area	795.96
8	Water body	26.07
	TOTAL	**2070.10**
* Based on satellite imagery		

Post- Mining:

Sl. No.	Description	LAND USE DETAILS (Ha.)				
		Plantation	Water body	Public use	Other uses	Total
1	Quarry Area	365.98	747.72	0.00	0.00	1113.70
2	External Dump	414.80	0.00	0.00	0.00	514.80
3	Service buildings,	96.58	0.00	0.00	10.84	107.42
4	CHP	12.37	0.00	0.00	6.10	18.47
5	Safety Clearance	370.98	22.40	0.00	44.73	415.71
	TOTAL	**1260.71**	**749.13**	**0.00**	**61.67**	**2070.10**

Core area:

Land Requirement

Purpose	Land use of RG OC - III Ext.	Land required for RG OC -III Ext. Phase - II area			Total
		SCCL Land	Private	Total	
	(1)	(2)	(3)	(4)=(2)+(3)	(5)=(1)+(4)
Quarry Area	756.71	356.99	0.00	356.99	1113.70
OB Dump Area	315.75	99.05	29.35	128.40	444.15
Service Buildings	42.70	36.40	28.32	64.72	107.42
Coal Handling Plant	8.01	10.46	0.00	10.46	18.47
Safety Clearance, Bund, Road	115.58	248.64	22.14	270.78	386.36
TOTAL	1238.75	751.54	79.81	831.35	2070.10

x. The total geological Reserve is 196.88 MT. The Mineable Reserve is 130.24 MT and the extractable per cent of extraction is 66.15%. The coal grade is G having striping ration 13.66.

Average Gradient 1 in 6.9 to 1 in 12.0. There will be total ten seams. Maximum thickness of the seam 36.06 m. There will be total 10 Seams.

xi. Jallaramvagu is only water body. The total estimated Water Requirement is 3046 m3/d.

xii. The method of mining would be by Opencast Coal Mining.

xiii. **Approvals:** The ground water clearance was obtained on 10.09.2007. The mine closure approval is under process. Mining Plan was submitted to MoC on 25.01.2013. Board's Approval obtained on 29.06.2012.

xiv. There is one External OB Dump covering an area of 444.15 ha (Including existing RG OC-III Ext. Dump). The height is 120 m. Total quantity will be 352.83 mcum. The year of back filling is 1 year. There is one internal dump covering an area of 365.98 ha having a height upto 120 m. Quantity is 652.76 Mil Cum. Final Mine Voids will have an area of 747.72 ha and depth 35 m (by filling the OB generated from Phase-III Project),

xv. **Compliance:** Application for certificate of Compliance of earlier EC was made to Addl. PCCF on 5.03.2013

xvi. **Transportation:** Transportation in pit would be by Dumpers for 0.5 to 1.50 Km. In pit crusher to surface Bunker by belt conveyor-1.00 km. Surface to railway siding available up to pit head CHP and Siding to loading EOL railway loading system

xvii. **Life of Mines:** 24 Years

xviii. **R & R:** No. of PAFs 1854.

xix. **Cost:** Total capital Cost Rs. 365.01 Crore.

xx. CSR Policy is under finalization. The company have spent one time capital CSR of Rs. 1.44 cr and thereafter a minimum of Rs 5/MT of coal production as recurring CSR cost, Environmental Management Cost : (Capital – Direct Rs. 113.00 Lakhs; R&R - Rs. 9489.53 Lakhs; Indirect- Rs. 2040.88 Lakhs; revenue – Rs. 132.80 Lakh/annum @ Rs. 66.41 Rs/Tonne (Phase-II area))

xxi. **Wildlife issues:** There are no National Parks, Wildlife Sanctuary, Biosphere Reserves found in the 10 km buffer zone.

xxii. **Forestry issues:** Total forest area involved (in ha) for mining 53.55. Forest Clearance under process at state level.

xxiii. **Afforestation:** Total Afforestation plan shall be implemented covering an area of 1260.71 ha at the end of mining where reclaimed external OB dump 414.80 ha and Internal OB Dump 365.98 ha. Green Belt over an area of 166.29 ha. Density of tree plantation 2500 trees/ ha

xxiv. **Violation/ Court Case:** There is no court cases/ violation pending with the project proponent.

71.7.3 The Committee recommended the proposal for the revised TOR with the following additional TORs:

i. Extraction of coal may be made upto 35 % by UG and 65 % by OC mining.

ii. Details of land requirement by UG and OC mines be presented.

iii. Production and land requirement be re-stored to 6.80 MTPA in ML area of 1393.81 ha

iv. Letter from DGMS for mine safety be obtained and submitted to MoEF.

v. Details of the cultivation of the crop in the mining area be presented.

vi. The Committee noted that coal production as well as land requirement has been reduced. This need to be substantiated and presented in the EIA/EMP report.

vii. The company have spent one time capital CSR of Rs. 1.44 cr and thereafter a minimum of Rs 5/MT of coal production as recurring CSR cost

Item No. 71.8 : Any other matters with the permission of the Chair.

Item No. 71.9 Mohanpur OCP Expansion of (1.0 MTPA to 1.5 MTPA in ML area of 164.91 ha) M/s Eastern Coalfields Ltd., Dist. Burdwan, West Bengal - EC under 7.2 of EIA Notification 2006

71.9.1 The proposal is for Mohanpur OCP Expansion of (1.0 MTPA to 1.5 MTPA in ML area of 164.91 ha) M/s Eastern Coalfields Ltd., Dist. Burdwan, West Bengal - EC under 7.2 of EIA Notification 2006.

71.9.2 The proponent made the presentation and informed that;

71.9.3 The Committee noted that the proponent has exceeded the stipulated limit of the production. This is a violation of Environmental Clearance. Therefore, as per the existing circulars of the Ministry, the State Government may be asked to register a case in the Chief Judicial Magistrate Court for violation of the EC conditions. **The Committee after deliberation sought the following information for further consideration:**

i. A certified report of the status of compliance of the conditions stipulated in the Environmental Clearance for the ongoing/existing operation of the project by the Regional Offices of the MoEF. as per the MOEF's circular dated 30th May, 2012 be presented.
ii. Resolution of the Board of Directors be submitted so as not to repeat the violation.
iii. A reputed third Party analysis of the disease pattern of workers working in the coal field with regard to Occupational diseases be documented and presented. This may also include proper analysis of health data by the hospital of the Eastern Coal Field.
iv. A long term study on the health impact on the workers may be carried out so as to understand the extent of health impact due to mining for taking mitigative measures.
v. As per 7.2 of EIA notification 2006, an increase of only 25% is allowed. As such fresh form A has to be submitted.

Item No. 71.10 Proposed Kapurdi Lignite Mine project of expansion of (3 MTPA to 3.75 MTPA in ML area of 3223.5110 ha) of M/s Barmer Lignite Mining Company Ltd., Dist. – Barmer, Rajasthan - EC under 7.2 of EIA Notification 2006

71.10.1 The proposal is for expansion of Kapurdi Lignite Mine OC project (From 3 MTPA to 3.75 MTPA in ML area of 3223.5110 ha) of M/s Barmer Lignite Mining Company Ltd., Dist. Barmer, Rajasthan. MoEF granted environmental clearance for 3.0 MTPA vide letter no. J-11015/472/2007-IA.II(M) dated 10.12.2008 and 20.05.2010. The mine started developmental activities in April and achieved its rated capacity i.e. 3 MTPA in the year 2012-13. The proponent made the presentation and informed that

i. M/s Barmer Lignite Mining Co Ltd (BLMCL) is a Joint Venture between Rajasthan State Mines & Minerals Ltd (a Govt. of Rajasthan Company, 51%) and Raj West Power Ltd (49%) stakeholder.
ii. The application is under 7 (ii) of the EIA Notification, 2006. Environmental Clearance for 3 MTPA obtained under Section 12 of EIA Notification, 2006 and under Amendment thereof under para 2.1.1of MOEF Circular dt 13-10-2006. Expansion for 25% applied under MOEF Circular dt 19-12-2012 in supersession of Guidelines dated 15-04-2010. The expansion is from 3 MTPA to 3.75 MTPA (25% expansion).

v. Total lease are is 3223.5110 ha comprising agriculture land of 2709.53 ha, Waste Land of 283.42 ha, water bodies including dry channels of 189.26 ha and others of 41.30 ha.

Pre-Mining:

Sl. No.	Village	Forest land Gramya Jungle	Non-forest Govt. land	Private land	Total
1.	Sutharon Ki Dhani	0.00	0	16.2606	16.2606
2.	Isherpura	0.00	14.4476	214.2533	**228.7009**
3.	Prajapaton Ki Dhani	0.00	0	148.8304	148.8304
4.	Kapurdi	0.00	1.1331	1010.1659	**1011.2990**
5.	Rohilee	0.00	0.0405	202.8426	**202.8831**
6.	BothiaPurohitan	0.00	153.1202	670.5301	**823.6503**
7.	BothiaJagir	0.00	230.8863	541.3679	**772.2542**
8.	Inter Village Overlap Area	0.00			**19.6325**
Total		0.00	**399.6277**	**2804.2508**	**3223.5110**

Post- Mining:

Sl. No.	Description	End of mine 31st Year
1	Mining / Excavation	2181.35
2	Surface dump in ML area	703.01
3	Inside dump (Backfilling)	1640.08
4	Top Soil dump	0.00
5	Evaporation basins	0.00
6	Facilities including lignite stack	5.00
7	LHP and conveyor	10.00
8	Road	5.00
9	Settling pond / reservoir	10.00
10	green belt	96.66
11	Void	541.27
12	Undisturbed/Indirectly affected	212.49
	Total	**3223.51**

iii. The total geological reserve is 150.40 MT. The mineable reserve is 135.36MT, extractable reserve is 129.79 MT (out of which 1.84 MT has been extracted upto 2011-2012). Percentage of extraction 86.3%. The coal grades are 2000 Kcal/kg to 3000 Kcal/kg having striping ration of 12.48:1(Cum:t). Average gradient is 2^0 to 19^0. There will be total 12 seams in 3 horizons. Thickness of seams ranges from 0.50 - 6.0m.

iv. Due to arid climate, there is no well-developed drainage pattern in the area. The Barmer area is predominantly an area of internal drainage No surface water body is present except few small seasonal ponds.

v. The total estimated water requirementis1680 m^3/d. The potable water would be met from bore well and the rest industrial water requirement will be met from mine sump and surface water reservoir. Approval from CGB has been obtained for ground water drawl on 07.03.2011 and for mine dewatering on 26.04.2011.

vi. The method of mining would be Mechanized Opencast by shovel dumper combination requiring drilling and blasting.

viii. There are three external OB Dumps covering an area of 703.01 Ha. The height is 60 m for both the dumps. Total quantity will be **319.061** mm^3(B). The year of back filling would be 7^{th} years. There is one internal dump covering an area of 1640.08 ha having a height upto 45m above ground level. Quantity is 1289.822 mm3 (B). Final Mine Voids will have an area of 541.27 ha and depth 95 m bgl.

ix. The seasonal data for ambient air quality has been documented for the summer season (October to December, 2012) and all results at all stations are within prescribed limits.

x. Certified copies of compliance report of the environmental clearance from Regional Office of the Ministry dated 09.01.2013 has been submitted.

xi. **Transportation:** The transportation of coal from mine will be by 60T & 35 T Dumpers & 1.8 to 5 cu m Shovels. Presently lignite is transported by tippers to Pit Head Power Plant. Belt conveying system of 5 MTPA is being constructed with 1200 mm wide belt, which is likely to be commissioned by Sept 2013.

xii. The life of mine is 33 years.

xiii. R&R is involved. No of PAFs is 774 (No. of displaced families = 167, No. of project affected and displaced families = 607).

xv. **Cost:** Total capital cost is Rs. 366 Crore. The cost of production is Rs. 823.96/Te + Service Tax. The CSR recurring cost is Rs. 200 lakh. R&R cost is Rs. 1.5 lakhs per bigha. Environmental Management Cost is Rs. 2186.25 lakhs, and its recurring cost is Rs. 511.54 lakhs per year.

xvi. **Approvals:** Mining Plan was approved on 29.01.2008, vide letter no. 13016/40/2005-CA-I by Ministry of Coal. The Board's approval is awaited. The mine Closure Plan is approved on 08.12.2010 vide letter no. vide letter no 34011-27-2010-CPAM from Ministry of Coal.

xvii. Wildlife issues: There are no national parks, wildlife sanctuary, biosphere reserves within the 10 km buffer zone.

xvii. Forestry issues: No forest land is involved.

xviii. Total Afforestation plan shall be implemented covering an area of 2461.27 ha at the end of mining where reclaimed external OB dump 703.01 ha and Internal OB Dump 1640.08 ha. green belt over an area of 96.66 ha. Density of tree plantation is 1500 trees/ ha.

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

xx. **Public hearing:** Public hearing is not required as project proponent applied under 7 (ii) of the EIA Notification, 2006.

71.10. 2 The Committee after deliberation sought the following information for further consideration:

i. A certified report of the status of compliance of the conditions stipulated in the Environmental Clearance for the ongoing/existing operation of the project by the Regional Offices of the MoEF as per the MOEF's circular dated 30^{th} May, 2012 including the copy of justification for enhancement of production.

ii. Proponent is also required to submit the Board's Resolution.

iii. The details of CSR be presented. Besides entailing capital CSR expenditure of Rs 3 crores, the company has envisaged a recurring CSR expenditure of Rs 2 crores annually. A social audit of

CSR activities need to be got done annually through a reputed institute and details be put up in the company's website

iv. The Committee desired Top soil of the OB dumps be used for grasses/plantation.

v. The Committee desired that the proponent should identify the no. of PAFs based on the 2011 census data.

vi. The proponent may also examine the health issues in the area particularly with respect to infant mortality.

vii. The OB dumps be reutilized/re-handled fully. A plan of action be submitted to the MoEF for record.

viii. Central Arid Zone Research Institutes(CAZRI),Jodhpur may be contacted for advice on the issues of plantation in the mining area. A detailed report within in this regard may be submitted to the MoEF for record.

Item No. 71.11 Pit head captive wet washery (1.8 MTPA in an area of 21 ha) located in GarePelma IV/8 Coal Mine of M/s Jayeswal Neco Ltd., Tehsil Garghora dist. Raigarh, Chhattisgarh - EC based on TOR granted on 08.04.2010 - Internal Discussion

71.11.1 The proponent, vide its letter dated 21st March, 2013 has requested that the Pit head captive wet washery area has been wrongly mentioned as "21 ha" instead of "10.336 ha" in the minutes of the meeting and has requested for the correction. The proposal was considered in the 63rd Expert Appraisal Committee (EAC) (Thermal & Coal Mining) meeting held on 17th -18th December 2012. As per the final EIA/EMP report and as per the presentation made by the proponent before the EAC on 18.12.2012, the area Pit head captive wet washery area was mentioned as "10.336 ha". However, the minutes of the meeting has inadvertently mentioned the area for Pit head captive wet washery as of "21ha" instead of "10.336 ha". The Committee has taken a note of it and recommended for appropriate correction in the minutes.

Item No. 71.12 Proposed Koyagudem Opencast-II Expansion Coal Mining Project (2 MTPA to 3.5 MTPA in an ML area of 816.11 ha) of M/s The Singareni Collieries Company Ltd, Distt. Khammam, Andhra Pradesh – TOR

71.12.1 The project proponent has vide its letter no. CRP/ENV/A/493/232 dated 03.04.2013 has requested for deferment of proposal. The Committee has noted the request of the proponent.

Item No. 71.13 Tirap OCP Ph. II (0.60 MTPA normative, 0.80 MTPA peak over 515 ha) of northern Coalfields of M/s Coal India Ltd. Located in Dist. Tinsukia, Assam - Extension of TOR

71.13.1 The proponent made the presentation and mentioned that:

i. The proponent has drawn the attention of the EAC to sl.no. (i) at page 2 of the ToR letter no. J-11015/461/2008-IA-II(M) dated 11th December, 2008 which mentioned that the EIA/EMP report be prepared for 0.41 MTPA instead of 0.60 MTPA. The proponent has requested for the appropriate correction.

ii. Previous external OB dump of an area of 227 ha falls over Ledo Estate. The Proponent has applied to the State Govt. for the land acquisition for external OB dump. This has could not be acquired till 24.02.2012 after a long persuasion. The relocation of external OB dump was decided due to this reason.

iii. The external OB dump was relocated and the feasibility report was redone.

iv. Data generation and preparation of draft EI/EMP report was prepared by CMPDIL based ON the relocated external OB dump

v. The proponent has therefore, requested for the extension of the ToR until December, 2013.

71.13.2 The Committee took the note of the issues raised by the proponent and **recommended** for the extension of the validity of the ToR upto 31 December, 2013 with the following additional conditions:

i. The proponent should explore the possibility of cluster approach to the mining activities in the area. The mining should be planned accordingly.
ii. The proponent should impart education and awareness on technological upgradation and impacts of mining on the health on its employees and workers working in the mining. This can be got done through a well reputed institute and details be furnished to the MoEF for record.

Item No. 71.14 -Discussion & any other matters with the permission of the Chair:

71.14.1 The Committee based on its experience has deliberated on the following issues so as to develop further guidance to the EAC to take informed decisions.

i. The Committee was of the view, that the people involved in mining activities and the inhabitants around mining projects require necessary information so as to take informed decision with regard to the impact of mining activities. The Committee was also of the view that project proponent also required to understand not only the mining technology but also required to understand the implications of environmental impact of mining vis-a-vis implementation of mitiigative measures. Therefore, the Committee recommended that MoEF should engage all stakeholders in imparting training and awareness. The Ministry may engage reputed agencies/institutions and NGOs for the purpose.

ii. The EAC has visited some mining sites including the fire affected areas of Jharia Coalfield. The emissions from underground fire may contain organic and other toxic gases and may adversely impact the environment and human health. The EAC therefore, recommended that MoEF, in association with reputed agencies/institutions, may initiate studies on environmental impacts of mining activities on human health. The outcome of such study will help the EAC in appraising the environmental impact of coal mining.

iii. The EAC, as in case of BCCL in Dhanbad, has successfully demonstrated that the environmental impact of group of mines can best be understood and apprised through the "cluster approach". Therefore, the EAC recommended that this "cluster approach" may also be replicated in other mining areas having group of mines and so also for coal blocks. CIL may consider converting this cluster into one mine –thereby releasing large quantity of coal locked in barriers of present mines where ever feasible.

iv. The EAC has felt that there is a greater need of understanding the relationship of the conservation and developmental projects including coal mining. Understanding biodiversity and ecological aspects through ecological assessments and translating these impacts through economic evaluation of eco-system could serve as important tool for conservation and development. Therefore, the EAC recommended that MoEF should initiate study, to start with a pilot study, on cumulative environmental impact assessment process. MoEF, in association with reputed agencies/institutions, may initiate such studies. The experience and expertise of Wildlife Institute of India could be availed for this purpose.

v. The EAC also agreed to make a visit to first-hand look at the rat hole mining in Meghalaya and its impact on environment health and safety and the mining area around Bilaspur in the SECL,

MCL and NCL where large capacity o/c mines are in operation and the pollution load is high and NLC who have done some innovative environmental works in mines and power plants.

The Meeting ended with a vote of thanks to the Chair.

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ANNEXURE-1

PARTICIPANTS IN 71st EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD DURING 08th -09thApril, 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.	Mr. P. R. Sakhare	Deputy Director
Special Invitee :		
10.	Dr. R K Garg, Adviser, Coal India Limited	

Annexure-2

PARTICIPANTS IN 71st EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD DURING 08th -09thApril, 2013 ON COAL SECTOR PROJECTS.

1 M/s A.P. Power Generation Corporation Limited

1. Mr. T. Prabhakar Rao
2. Mr. D. Prabhakar Rao
3. Mr. K. Ratna Babu
4. Mr. M. Sujay Kumar
5. Mr. D. Babu Rao
6. Mr. B.D.Sharma
7. Ms. Marisha Sharma

2 M/s Bharat Coking Coal Limited,

1. Mr. D.C. Jha
2. Mr. V.K. Sinha
3. Dr. Raju (Env.)
4. Mr. Kumar Ranjeev
5. Mr. Amarjeet Singh
6. Mr. Amrit Roy
7. Mr. Debashish Bandhopadhya
8. Mr. P.S.Mishra

3. M/S the Singreni Collieries Company Limited

1. Mr. Surender Pandey (IFS)
2. Mr. A. Manohar Rao
3. Mr. Vasant Kumar
4. Mr. Sharat Kumar
5. Dr. Durga Varaprasad

4 M/s Tata Steel Limited

1. Mr. B. K. Tewang
2. Dr. M. Ahmed
3. Mr. Gopal Prasad
4. Mr. Mukesh Kumar Prasad
5. Dr. M. K. Gupta
6. Mr. Sanjay Kumar Singh
7. Mr.Chanakya Choudhery

5 M/s Rathi Steel & PowerLtd.

1. Mr. Udit Rathi
2. Mr. Vijay Surjan
3. Mr. B.D.Sharma
4. Ms. Marisha Sharma

6. M/s Eastren Coalfields Ltd.,

1. Mr. R.Chandra
2. Mr. G. Prasad
3. Mr. J.N.Biswal
4. Mr. Anand Shekher

7. M/S Barmer Lignite Mining Corporation Ltd.

1. Mr.Pramod Menon
2. Mr.R.P.Nangalia
3. Dr.Shasstri Vishashha
4. Mr.M.Unnikrishnan
5. Dr.V.M.Sastra
6. Mr. G.Kolley
7. Mr. Amrendra Kumar

8. M/S North East Coalfield Ltd

1. Mr. V.Das
2. Dr. D. Sarkar

9. M/S A.P.Power Generation Corporation Limited

1. Mr. K.Vijay Anand
2. Mr. K.Ratna Babu
3. Mr. T.Prabhakar Rao
4. Mr. D.Babu Rao
5. Mr. G.Srinivasan Rao
6. Mr. B.D.Sharma
7. Ms. Marisha Sharma

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 (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*

* 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									85	

	Year (Post-mining)										

* 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