

MINUTES OF THE 65th EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 8th-9th JANUARY 2013 IN NEW DELHI.

COAL MINING PROJECTS

The 65th meeting of the reconstituted EAC (T&C) was held on 8th-9th January, 2013 in Scope Convention Centre, Scope Complex, New Delhi to consider the projects of coal mining sector. The list of participants in the EAC and the proponents is at Annexure-1 and 2 respectively.

The minutes of the 61st Expert Appraisal Committee (EAC) (Thermal & Coal Mining) meeting held on 19th -20th December 2012 was confirmed.

1. Juna-Kunada OC Expn. Project (0.6 MTPA to 1.20 MTPA and Expn. In ML area from 184.87 ha to 325.87 ha) of M/s Western Coalfields Ltd. Tehsil Bhadrawati Distt. Chandrapur, Maharashtra-(EC Based on TOR dated 23.03.2012).

1.1 The proposal is for expansion of the operating Juna-Kunada OC mine in the mine lease area from 184.87 ha to 325.87 ha along with enhancement of production capacity from 0.60 MTPA to 1.20 MTPA. The project was accorded Environment Clearance for 0.60 MTPA vide letter dt. 10/01/2005. The main consumer of its coal is MAHAGENCO.

1.2. The proponent made the presentation and informed that:

- i. Of the total 325.87 ha, 170.25 ha is agricultural land, 15.75 ha is wasteland/ Govt. land, 139.87 ha is Others (worked out quarry void of erstwhile Chargaon OC).
- ii. The land use during mining is that of the total 325.87 ha, 60 ha is for excavation, 3.00 ha is for infrastructure, 139.87 ha is for worked out area of Chargaon OCP, 34 ha is forebankment, 89 ha is for blasting zone, boundary adjustment and raitonalization.
- iii. The mining is being done by shovel and dumper combination. The seam thickness (m) is 14.67 – 17.77. The average depth of Quarry at in crop side is 28.00 m and at dip side limit is 135m. The average quality of coal grade (including Parting) is Grade-E, 4640. The mineable coal reserves (MT) (including parting) is 5.7MT. The average stripping ratio is 6.7 m³/t. The average depth of quarry initial is 36m and at floor is 150m. The gradient of coal seam is minimum of 1 in 3.5 and maximum of 1 in 1.9m. As per the EC granted dated 10.01.2005, out of total OB Excavation of 38.54 Mm³, 23.80 Mm³ will remain in external OB dump, 2.23 million cubic meter in embankment & balance 12.51 million cubic meter in the already de-coaled void of Chargaon OCP.
- iv. The proposal in the expansion proposal would be that of the total OB excavation of 38.54 Mm³, 2.43 Mm³ will be used in embankment. Total OB in decoaled void of Chargaon OC 35.59 Mm³. Total OB to be used in Juna – Kunada OC for link haul road is 0.52 Mm³. In the expansion proposal, total OB will be generated to the tune of 34.52 Mm³. The void of Juna – Kunada OCP covering an area of 60 ha with 150m depth will remain as void. Hence, to minimize the degradation of land, it is proposed to annex the already worked-out quarry of adjacent Chargaon OCP. This void of Charagon OCP is now readily available and can be used for direct dumping of OB from Juna – Kunada OCP. As of date, Juna – Kunada OC has just started and Chargaon OC has been completely exhausted. As such, the decoaled void of Chargaon OCP is available for taking the full load of OB right from the very beginning of excavation at Juna – Kunada OC. The proponent informed that the

present proposal does not envisage any external dumping (except for construction of flood protection embankment during the first year – same as earlier sanctioned proposal with minor increase in quantity due to change in alignment and dimension as suggested by DGMS). Therefore, in order to accommodate the excavated OB from Juna – Kunada by avoiding external OB Dumping, the void and surrounding area of additional land measuring of 139.87 ha has been proposed to be annexed. Thus the present proposal will not only avoid land degradation by the way of external dumping to the extent of 15.60 ha but also plans to reclaim already degraded land. The topsoil of 4.02 Mm³, 2.43Mm³ would be used for construction for flood protection embankment. 36.11Mm³OB will be backfilled.

- v. The coal transportation will be by trucks covered with tarpaulin up to new Majri siding which is 7 Km by road and then by rail.
- vi. The ground water level in the core area is 17.1-17.9m bgl in pre-monsoon season and 16.2 -17mbgl in post-monsoon season.
- vii. 124.50ha area will be covered under plantation in post mining stage.
- viii. There will be no resettlement of house for oustees involved in expansion project. The rehabilitation of land oustees has already been completed.
- ix. The CSR would be Rs 5/T of coal as per CIL policy.
 - x. The Life of the mine is 8 years. Capital Cost is Rs. 23.7570Crores.
 - xi. The project has been approved by the WCL Board.
 - xii. The report on the compliance of existing Environment Clearance dated 10th January, 2005 was presented.
- xiii. **Forestry Issues:** There is no forest land involved. There is no endangered/endemic species of Flora & Fauna.
- xiv. **Public Hearing:** The Public Hearing was held on 13/07/2012. The issues raised during the PH were concerning the contract of different works be given to co-operative society of village, plan to control the pollution from mine, employments to affected persons, labour demanded for posting at opencast mine, decrease of water level of the river due to vicinity of mine, pollution of river water, since most of WCL are near the river water that is being supplied to Bhadrawati town from Chargaon and WCL, the water quality of water supply system of Bhadrawati town and to take necessary action for filtration of water should be checked. The closed mines should be filled by soil and land should be returned to the farmers. All the civic amenities should be provided at the rehabilitation site of Navin Kunada village. Provision of proper land for community latrine at rehabilitation site and at Vijasan village rehabilitation site, employment to the dependent of farmers be made.

1.3 The committee after detailed deliberations, recommended the project for grant of Environment Clearance with the following specific conditions:

- i. The area of Chargaon should be reclaimed with plantation of native species, as the Proponent has proposed to acquire 60 ha area of Chargaon which will be backfilled and reclaimed with OB of Jund-Kunda OCP.
- ii. The Chargaon area after reclamation should be given back to original land owners. However, the proponent informed that in the State Policy of Ministry of Coal, the land should be handed over to the State Govt. after reclamation. The proponent further informed that they will take necessary measure after consultation with Authority concerned.
- iii. Remaining void of all the OCP should be backfilled upto the ground level over the period of life. The details of total land proposed to be backfilled and reclaimed to be given to the Ministry.

- iv. All previous EC conditions will continue with no external OB dump and no void in the mine. The proponents informed that O.B. from adjacent mines will be filled into this mine void.
- v. Coal transport will be by covered trucks/tippers till the railway siding .
- vi. The CSR Action Plan be prepared in tabular form by providing details of CSR activities along with budgetary provision from CSR fund.
- vii. The details of R&R and CSR should be provided in a booklet form.

2. Chincholi OC Project (0.30 MTPA (Normative) and 0.45 MTPA (Peak) over an ML area of 255.56 ha) M/s Western Coalfields Ltd. Village Subai, Tehsil Rajura, Distt. Chandrapur, Maharashtra- (EC Based on TOR dated 30.04.2009)

2.1 The Chincholi opencast mine (0.30 MTPA (normative) & 0.45 MTPA (peak) with 255.56 ha land area is a new mine. The mine is 30 Km away from Ballarpur area. The TOR was granted on 30-04-2009. The main consumer of the coal is MAHAGENCO.

2.2 The Proponent made the presentation and informed that:

- i. Of the total 255.56 ha land, 232.50 ha is agricultural land, 23.06 ha is Waste land (Govt. Land). Land use during mining 56.12 ha is for excavation, 34.50 ha is for external OB dump area, 10 ha is for infrastructure, 63.44 ha is for rationalization and blasting zone, 22.50 ha is for Embankment, 69.0 ha land already acquired (includes land for residential colony (7.5 ha) and some of the infrastructure (5.0 ha). This land was acquired under Chincholi Underground mine.
- ii. Chincholi R.F., Rajur R.F., Tohogaon R.F., Garlapet R.F within 3 to 10 Km of mining area. The area is rain fed area with single crop e.g. paddy, Chilli, tomato, vegetables are growing in the area.
- iii. The total coal reserve is 5.538 MT and the net mineable reserve is 4.984 MT. The blocked mineable reserve is 2.87 MT and the mineable reserve is 2.11 MT. There are two seams i.e., Seam – III with seam gradient 1 in 8 to 1 in 10 in sub-quarry – I and 1 in 10 to 1 in 11 in quarry – II; and Seam - IV with seam gradient 1 in 8 to 1 in 12.5 in sub-quarry – I and 1 in 10 to 1 in 11 in quarry – II. The average stripping ratio is 7.83 m³/t. The coal grade is E. The depth of mining is 18-60m. The safety distance of 225 m from Indiranagar will be maintained.
- iv. The mining method is Shovel Dumper Combination. At post mining stage, the 10 Mm³ OB would be in one external dump with 50m height including embankment in 34.50 ha area and 5.76 Mm³ OB in internal dump area of 25 ha. The area of 137 ha will be under plantation with 342500 trees at end of mining. A void of 31.12 ha with 60m depth will be left at the end of mining.
- v. Wardha River is at the distance of 4.0 km. Diversion of Subainala flowing over the quarry is proposed. Production will be started from 3rd year onward. Ground water level in the core area is in the range of 4.4 m bgl -6.2m bgl in pre monsoon and 2.1 -3.4 m bgl in post monsoon. Total water requirement is 210 m³/day, 130 m³/day is industrial and 80 m³/day domestic water requirement. Mine water discharge is 1600 m³/day. Flood protection embankment against HFL (182.90 m) of Subai Nala with top RL of embankment as 188.90 m, a distance of 100m has been kept between quarry surface and river.

- vi. The Proponent informed controlled blasting is being proposed because of Subai village, Indiranagar Basti and Subai – Chincholi road.
- vii. The coal transportation is by trucks covered with tarpaulin upto railway siding. The PWD roads connecting Subai to Chincholi village is proposed to be diverted beyond quarriable area (length- 2.5 km).
- viii. There is no R&R. The EMP Cost is Rs. 41Lakhs and the capital cost of the project isRs.24.6410Crores.The Project is approved by WCL Board.
- ix. **Forestry issues:** There is no forest land involved. There are no ecologically sensitive area such as national park/sanctuary/biosphere reserves within 15 km radius of the project. Tadoba-Andheri Tiger Reserve is more than 90 km from ML area.
- x. **Public Hearing:** **The public hearing** was held on 18.07.2012.The issues are cultivation of land difficult due to dumping of overburden and farmers will be unemployed in such circumstances, pollution problems and groundwater level decline due to mine, employment to affected person, Subai PHC condition needs improvement, coal transportation, employment to educated unemployed youths of village, tree plantation programme and impact of blasting activities is not mentioned in detail in the EIA Report, acquisition of remaining land and rehabilitation of houses which are close to mine, water scarcity, No Grampanchayat land for developmental activities, employment tree plantation should be carried out near village, Indiranagar colony of Subai village is under threat due to proposed mine, Electricity, acquisition of remaining land and construction of approach road for the villagers.

2.3The committee after detailed deliberations has recommended the project for granting Environment Clearance with the following specific conditions:

- (i) The detail of total Reserve present in the area should be provided.
- (ii) Subai nala should be protected and strengthened the embankment. An area of 100m should be left against both side of nala.
- (iii) There should be no external OB dump at the end of mining. OB should be backfilled in the existing void in post mining stage. Grass should be planted on temporary OB dump. The temporary OB dump should be rehandled and backfilled up to ground level. The land should be used as Agriculture Land.
- (iv) A check list should be provided for void depth, OB management, latitude and longitude etc.
- (v) The Coal transportation in 20 T trucks by road upto 30 Km. distance at Ballarpur railway siding. The trucks should be properly covered.

3. Bhakra Underground mining (0.27 MTPA in an area of 227.141 ha) of M/s Western Coalfields Ltd District, Chindwara, M.P. (EC based on TOR granted on dated20.03.2009)

3.1 The Bhakra underground project has already been recommended for Environment Clearance subject to Forest Clearance in EAC Meeting held on 22nd –23rd March2010 subject to Forest Clearance. The Proponent, vide letter no.WCL/HQ/ENV/4-D/301 dated 17.07.2012, requested the Ministry that the total land requirement of the proposed Bhakra underground project is 227.141 ha which involves 43.41 ha of Forest Land and 183.731 ha non-forest land. Out of which 5.431 ha of non-forest land has already been acquired by the proponent under Surface Right for starting drivage of inclines and for construction of surface infrastructure. The balance land proposed to be acquired is 221.71 ha. The Proponent made presentation and informed about the break-up of balance land requirement of 221.71 ha as per the details given below:

Type of Right	Govt.	Tenancy	Forest	Total
All Right	1.00	---	--	1.00
Surface Right	----	---	---	----
Mining Right	31.61	145.68	43.41	220.71
Total	32.61	145.68	43.41	221.71

Thus, the proponent mentioned that there is no forest land required under the Surface Right. The application of Forestry Clearance of 43.41 ha land under Mining Right as per Forest Conservation Act ,1980 has already been submitted vide letter no. 5/W/CWA/MMM/2012-76 dated 25.01,2012 and is pending with state Govt..Proponent sought Environment Clearance of First Phase with same production in an area of 183.731 ha without Forest land as the Forest Clearance takes considerable time.

- i. The Public Hearing for the entire project of 227.141 ha area has already been conducted.
- ii. There is no change in mining method. The project details of Bhakra underground project has already been presented before the Committee.
- iii. As there is no forest land under surface /all right, the initial mining activities namely incline drivage can start after receipt of EC. There are two incline of 840 m each and drivage will take about 2-3 years. The Stage –I Forest Clearance may be obtained. Then fresh EC application would be made annexing additional land (Forest Land) within same capacity.

3.3 Proponent requested for issuance of Environment Clearance to Bhakra underground project for normative capacity of 0.27MTPA in an ML area of 183.73 ha without Forest Land in the first phase

3.4 The Committee after detailed deliberations has recommended the project for granting Environment Clearance with the following specific conditions:

- i. The committee noted that the approved mine plan includes forest land and since forest clearance is awaited and there is urgency to meet coal demand the proponents have divided the project in two phases—phase- 1 without forest land for opening of mine construction and development in non-forest area and phase- 2 with forest area after forest clearance. The committee recommended the phase- 1 in ML area of 183.731 ha in non -forest area only.
- ii. The proponents may come again to the **Committee for Bhakra Phase-II project after obtaining the Stage –I Forestry Clearance.**

4. Parsa Opencast Captive Coal Mine (5 MTPA in ML area of 1252.447 ha) of M/s Chhattisgarh State Power Generation Company Ltd. At Hasdeo – Arand Coalfield, Udaypur & Premnagar Tehsil, Surguja & Surajpur Districts, Chhattisgarh.(TOR).

4.1 Parsa Opencast Captive Coal Mine (5 MTPA in ML area of 1252.447 ha) of M/s Chhattisgarh State Power Generation Company Ltd. is a new project. Parsa coal block was allotted to CSEB by the Ministry of Coal vide letter no- 13016/23/2006-CA-I dated 2nd August, 2006 for coal mining. CSPGCL proposes opencast mining in Parsa Coal Block of 1252.447 ha in Hasdeo-Arand Coalfield with peak production capacity of 5 MTPA. The coal mined from the Parsa Block will be supplied to 2 X 500 MW Marwa Thermal Power Plant of CSPGCL located at Janjgir – Champa. Environmental Clearance to the power plant was granted by MoEF on 05.02.2008.

4.2 The proponent made the presentation and informed that:

- i. Total Project land 1252.447 ha includes 1129.37 ha of ML area. Of the total 1252.447 ha, the total 866.138 ha forest land, 550.894 ha is Forest Land & 315.244 CJJ +BJJ (Forest land), 343.197 ha is Tenancy land, 43.112 ha is Govt. Land. Conceptual land use at the end of mining is, 1129.370 ha is for quarry area with barrier, 76.470 ha is OB dumps (External 24.490 ha is for Infrastructure 22.117 ha is for Rationalization and Plantation. In Post mining land use 1033.068 ha area under plantation and water body in 197.549 ha area.
- ii. At the north side, there is about 100 to 550 m north of in crop of Seam –IV. In the East side there is common boundary with Parsa (East)-Kanta Basan Coal Block of Rajasthan Rajya Vidyut Utpadan Nigam Limited and West side common boundary with Tara Coal Block of Chhattisgarh Mineral Development Corporation.
- iii. The geological reserve is 230.76MT and the mineable reserves is 184.45 MT. The average Grade of coal is 'F'. There are three seams: Seam VI(2.70 m), V(7.97m), IV(9.67m). The seam gradient is 2° to 6°. The strike length (along the floor) is 3 km.
- iv. The method of mining is by shovel-dumper involves drilling and blasting and extraction of Coal by Surface Miner.
- v. The ultimate depth is 275 m. Maximum production capacity 5 MTPA from 3rd year of mine operation. Quarry Floor Area 935.45 ha. Quarry Surface Area will be 1119.53 ha. Average stripping ratio is 6.46 m³/Tonnes. Of total OB generated will be 1191.17 Mm³.
- vi. There are two external OB dumps with 60m height in an area of 70.47 ha with 26.71 Mm³ OB. Concurrent backfilling will start from 4th year of mine operation. There would be two internal dumps with 30m height in an area of 70.47 ha with 1164.47 Mm³ OB at post closure stage. The void would be in an area of 197.549 ha with 30 m depth.
- vii. Atem Nadi is 1.9 Km Away in North East Side. One seasonal nala flowing through the Parsa coal block needs to be diverted along the western boundary of the block. Peak Water requirement & Source 2650 m³/day (Initially for the 1 year or so ground water will be used. Thereafter, mine discharge for industrial purposes and ground water for domestic purpose.
- viii. The coal transportation will be by belt conveyors. Coal from the CHP will be transported by Rail. Till the time the Railway line is constructed, the coal will be transported by road to the Surajpur Railway siding. The coal loading to rail wagons will be by Rapid Loading System. The dispatch will be to Surajpur railway station and thereafter to the Marwa Power Plant.
- ix. Manpower requirement (Peak) is 787nos.30 ha has been acquired for Colony outside ML area.
- x. The life of the mine is 41 years (including 2 years of construction period). Approval of Mining Plan is awaited.
- xi. The cost of the project is Rs.1000Crores.
- xii. Proposal for diversion of 866.138 ha of forest land submitted to the State Forest Department, vide letter no. 03 05/parsa/Van Vaypariwartan/2999 dated 02-11-2012. There are Janardhanpur PF, Ghatbarra PF, Phatepur PF, Pidiya RF in core area and 10 Protected Forest(PF) in Buffer area

4.3 The committee after detailed deliberations has recommended for the TOR with the following conditions:

- i. It was observed that the proposed project is at the fringe of forest .Ecology and Biodiversity issues are very important. As it is virgin area, option of underground mining should be examined. Comparison of various option eg. Opencast mining, Underground mining and Opencast-cum Underground mining, should be done on socio economic-vis- environment issues.
- ii. Original Topo-sheet of the area is required in 50m scale as it was observed that the mining is inside the forest. 70% is forest area.

- iii. It is a tribal area, the tribal welfare should be taken care.
- iv. There are large numbers of protected and reserve forest, the same should be restored. The Committee desired that the view of Prof. C.R. Babu should be taken on this issue.
- v. It was observed that the plantation done as a forest is not transplanted but it is Natural Forest. The plantation carried out needs to be identified by Forest Department.
- vi. For fugitive dust emission should be monitored eg. Coal dust settle on leaves of the tree and affect the Photosynthesis
- vii. No extra land should be acquired outside the block area
- viii. There shall be no external O.B. dump at the end of mining and internal fill height to be to the ground level thereby reducing the mine void to the minimum.

5. Bina OCP expansion of coal mining project (6 MTPA to 7.5 MTPA (Peak) in an area of 1728 ha) of M/s Northern Coalfields Limited in village Bina/ Karbari, Tehsil Dudhi (UP)/ Singrauli (MP), Singrauli Coalfield, States Sonebhadra (U.P.)/ Singrauli (M.P.) (EC based on TOR granted on 30.11.2011).

5.1 The Bina (Extn.) Opencast Project is located in Moher Sub-basin of Singrauli Coalfield partly in Singrauli District of MP & partly in the Sonebhadra District of UP. Bina (Extn.) OCP (6.0 MTPA) is an existing operating project of M/s Northern Coalfields Limited which has got prior Environmental Clearance vide no 11015/29/2004-IA-II(M) dated 02.08.2006 of MoEF. The present proposal is for increase in production from 6.0 to 7.5 MTPA with the calendar of programme remaining the same.

5.2 The Proponent made presentation and informed that:

- i. Bina (Extn.) OCP (6.0 MTPA) is an existing operating project of M/s Northern Coalfields Limited which has got prior Environmental Clearance vide no 11015/29/2004-IA-II(M) dated 02.08.2006 of MoEF.
- ii. The present proposal is for increase in production from 6.0 to 7.5 MTPA with the calendar programme remaining same. The increase of production by 25% i.e. inclusion of peak capacity does not involve in any way increase of leasehold area, change in technology, change in product mix. It is not a case of lease renewal.
- iii. The application in Form I was submitted for consideration of increase in capacity by 25% for Peak capacity. The TOR was issued on 30.11.2011. Increase in production by inclusion of Peak Capacity (6.0 to 7.5 MTPA). The increase in production from 6.0 to 7.5 MTPA is possible due to favorable geo-mining conditions, through outsourcing and by increasing the number of working days to exploit balance reserves in existing Chandela Geological Block.
- iv. Bina Extension Opencast Project is surrounded by mechanised opencast coal projects of NCL, viz Kakri, Khadia, Dudhichua, Jayant, Jhingurdah and Krishnshila. Vindhyachal STPS, Singrauli STPS of NTPC, Anpara STPS of UPRVUNL and Renusagar TPS of HINDALCO are the power plants located in the Buffer zone of the Project. No other major industry located in the study area.
- v. The main coal linkage is with Anpara & Obra TPS. Bina Extension Project (6.0 MTPA) linked to Obra TPS (1550 MW), Anpara TPS (1630MW) and other Northern India Thermal power stations. The project is amalgamated in the future with Kakri Opencast Coalmine Project.
- vi. The Project Report has been approved by M/s NCL Board on 05.11.2011. 180 ha land has already been acquired and the Gazette notification of same is awaited.
- vii. It was informed that a lagoon has been created for arresting the silt load from the project and only the clear water is channeled out of the ML. It was stated that Bina OCP has deshellng plant.

- viii. Considering the mining and geological conditions, Bina (Extn) opencast mine was proposed to be advanced in two sections namely north and south. Project is designed to achieve peak production by existing mechanized opencast method deploying Dragline, Shovel and Dumper combination.
- ix. The proposed enhanced coal production for peak capacity of 7.5 MTPA is to meet the increased demand of power grade coal. The mining plan envisaged the increase in coal production through increasing efficiency by augmenting capacity through outsourcing and increase in planned no. of working days from 330 to 365.
- x. There will be no extra land required for mining and there is no change in calendar plan for production. No extra manpower required. No additional HEMMS/ equipments required. No extra water required from outside source. The impacts have been studied for 7.5 MTPA and the ambient air, water & noise pollution is within permissible limits. All the land has been acquired. Forest land in existing Bina 4.5 MTPA is 853 ha and Bina Extension project of 6 MTPA is 404 Ha).
- xi. No additional land is required for peak production of 7.50 MTPA. Of the total ML area of 1798 ha, 814 ha is quarry area, 65 ha is for external dump, 20 ha is for road, 163 ha is for infrastructure like workshop, office etc., 63 ha is for railway siding, 204 ha is for colony, 71 ha is for green belt, 398 ha is Vacant / waste land. OB removal is by using dragline and shovel-dumper combination.
- xii. The ultimate working depth is 250m. The grade of coal is E, Stripping Ratio is 5.04 m³/t . There are Turra Seam, Purewa Top Seam & Purewa Bottom Seam. An External OB dump in ha area with 8Mm³ OB but in Bina expansion project there would be internal dump in 283 ha area with 625.04Mm³ OB External dump already fully reclaimed. There will be no change in total OB quantity, dump area, final dump plan, dump height and dumping strategy due to increased peak production from 6MTPA to 7.50 MTPA. Modalities for Technical & Biological reclamation will be same as mentioned in approved EMP (6.00 MTPA) of Bina Extn. OCP.
- xiii. The OB dump plans of the NCL mines have been planned to accommodate maximum possible OB volume in internal OB dump and rest a small part in external OB dumps, so that land requirement for external OB dump is minimum for whole life of different projects. Detailed slope stability study has been carried out by BIT, MESRA, Ranchi. The recommended overall slope for dragline dump w.r.t. horizontal plane passing through toe of the dump should not exceed 36⁰ and height of dragline dump w.r.t mine floor should not exceed 79 m for above recommended slope angle. The final void will be left in an area of 48.97 ha with 102.03 ha batter (151 ha). Final depth of water body would be 30m.
- xiv. The drainage of Tippa Jharianallah which joins the Gobind Ballabh Sagar.NoRiver passes through mining property. Pre-monsoon Water Levels vary from 6.00 to 14.10 m below ground level and Post-monsoon Water Levels vary from 1.09 to 5.02 m below ground level. Total water requirement of expansion project is 8150 m³/day (5650 m³/day is Industrial and 2500 m³/day domestic. Mine discharge is 24300m³/day. Water is drawn from Govind Ballabh Pant Sagar Reservoir and sanction of the U.P. State Govt. was obtained on 13.03.1979. Additional water requirement for the expansion project would be met from mine pit/recycled water.
- xv. As there is no additional land requirement, there is no additional Rehabilitation & Re-settlement required. The R&R of the 38 PAPs at 6.00 MTPA stage, has already completed. There are five villages namely Bansi, Jamshila, Barwani, Chanduar and Gharsari covered under CSR activities by Bina (Extn) Project.
- xvi. The expenditure under CSR by Bina OCP for the year 2010-11 is Rs.73.40 lakhs and for the year 2011-12 is Rs.49.45 lakhs. Proposed CSR fund is Rs.41,44 Lakhs. Balance Life of the Project at 7.5 MTPA is 13-16 Years. NCL adopted a "Corporate Management Policy" .Final Mine closure cost is Rs. 20513.85 Lakhs. Environmental Control Measures, the Capital cost is Rs. 2708.65 Lakhs and Recurring cost will be Rs. 4/T of coal. Capital Cost of the Project is Rs. 535.96 Crores as on August 2009.
- xvii. Mining Plan for Peak coal production for Bina (Extn.) OCP (7.50 MTPA) was approved by NCL Board vide letter no. NCL/Board/08(146) /45 dated 19.04.2010.Copy of NOC for withdrawal of ground water by CGWB vide letter No. 21-4/CGWA/03-92 dated 19.01.2004.Forest land clearance

from MOEF vide letter No. 8-58/2005-FC dated 13.08.2007. The coal transportation is by Railway through existing CHP and Railway siding in the project.

- xviii. **Forestry issues:** There is no any ecological sensitive area such as Biosphere Reserve, National parks, Wildlife Sanctuaries, Elephant Reserve and migratory path of major wildlife species in the core area of Bina Extension OCP.
- xix. **Forestry clearance** has been obtained and copies of FC have been furnished to the Ministry. Of the total ML area of 1798, mining is being carried out in 1349 ha and the extension area is 449 ha. Of the total ML area of 1798 ha, 1257 ha is forestland (875 ha is in UP and 382 ha is in MP), 28 ha is Govt. land and 513 ha is tenancy land(Agriculture) (496 ha is in UP and 17 ha is in MP). 148 ha is waste land,3 ha is surface body,42 ha is Govt. Land.(541 Others), No Area falls outside mine lease.
- xx. **Public Hearing:** The Public Hearing was held on 18.09.2012 (MP side) & 24.09.2012 (UP side). The issues raised during the public hearing were with regard to R&R and amenities to be provided in nearby village under community development, plantation of Trees for control of air pollution and arrangement for restricting flow of silt from Dumps, Electricity, Road, play ground& drinking water.
- xxi. A representation received from all the resident of Bina regarding pollution due to transportation of coal inside residential area on Bina-Kurwai road, causing respiratory diseases among children and old people was also discussed. The copy of the representation was given to the Proponent for clarification and for providing mitigative measure.

5.3 The committee after detailed deliberations has recommended the project for granting Environment Clearance:

- i. The water body (void) should be backfilled so that at the end of the mining there would be no water body and whole area will be reclaimed.
- ii. It was observed that the soil and water is contaminated with Mercury. It was desired that decontamination measures should be taken to reduce the mercury pollution in the area. Indian Medical Association (IMA) should be engaged to ascertain the exact numbers of people/villagers are affected with mercury.
- iii. Fugitive emission is major problem. The reason for high fugitive dust emission should be provided.
- iv. Monitoring the Ambient Air Quality should be carried out by including new parameters viz. PM₁₀ and PM_{2.5} and be submitted to the MoEF after verifying with Dr. Attri, Member of the EAC.

6. Proposed Bijahan Coal Block Mine (5.26 MTPA in an area of 1100 ha) of M/s Bhushan Power & Steel Ltd. Located in Distt. Sundergarh, Orissa - (Extension of TOR validity issued on 12.06.2008)

6.1 Bijahan Coal Block has been jointly allotted to Bhushan Power & Steel Limited (formerly known as M/s Bhushan Ltd.) and M/s **Shri Mahavir Ferro Alloys Pvt. Ltd.** Application for TOR was submitted on 07.03.2008. The TOR was granted on 12.06.2008. The environmental monitoring was done during March-May 2008. On the basis of the TOR issued by the MOEF, the proponent has prepared the EIA/EMP report. The EIA/EMP was submitted for Public hearing to Orissa SPCB on 18 Nov 2010 along with requisite fees. Mining Plan was prepared and submitted to MOC on 06.12.2007. It has been examined and approved by MOC on 13.08.2008. During the meeting of 11/02/2011 decision was taken in Rehabilitation & Peripheral Development Advisory Committee (Constituted by Government of Odisha having MP's, MLA's Revenue Divisional Commissioner, Collector, DIG, Concerned Officers of the district and nominated persons of Villages as members) that:

“no major activity should be taken up till all the issue of Jamkhani Coal Block is settled in order to avoid unnecessary law & order and R&R issues on both the front.”

6.2 During another review meeting held on 22/11/2011, the decision of the 11/02/2011 meeting was not changed. Consequently, the District Collector did not sanction a date for public hearing. In the meanwhile, the proponent learnt that the ToR validity date is expiring as per the MOEF OM dt. 22.03.2012 and therefore, applied for extension of validity of TOR. Thereafter, the notification of public hearing was advertised in the newspapers on 26/11/2012 by Orissa SPCB. The public hearing was successfully completed on 28/12/2012. The Forest Clearance for land is yet to be obtained .Out of 438.53 acres of Govt. Land 363.72 acres of land has been sanctioned. Balance land under process.

6.3 The committee after detailed deliberations sought the following information for further consideration of project:

- i. The reasons for holding the Public Hearing after the expiry of TOR validity. Since the Proponent also called for Inter-Ministerial Group (IMG), the details of Inter-Ministerial Group (IMG) should be submitted to the EAC with regard to the (i) Notices from Inter-Ministerial Group (IMG); (ii) details of the deduction of the Bank Grantee; (iii) the details of the presentation done before Inter-Ministerial Group (IMG).
- ii. The proposal will be further considered after submission of above cited information.

7. Gondulpura Coalmine opencast project (4 MTPA in an area of 520 ha) of M/s Tenughat Emta Coal Mines Ltd. Hazaribagh, Jharkhand. (EC based on TOR granted on 25.08.2009). Further Consideration

7.1 The project was considered in the EAC meeting held on 19-20 November 2012. The Committee sought following clarification for further consideration of project.

- i. Representative of both the JVs i.e. TVNL and EMTA, Tenughat should be present and give presentation. Therefore, representative of Tenughat, either Chairman or Managing Director should be present in next EAC meeting; ii. The details of coal reserve as per UNCF, geological map, sections showing seam etc should be presented ;iii. The option of underground mining over open cast mining should be explored as the depth of Seam no.-I is 246mt; iv. A social cost-benefit analysis vis-à-vis choice of mining methods should be examined; v. The proponent informed about the presence of Jhama in the coal block. National Remote Sensing Agency(NRSA) should be contacted for thermal imaging techniques which is being utilized for assessing the extent of fire-affected areas; vi. The mining lease area includes Badmahi River and the mine is located 50 mt. from river located on southern side. The mining would be preceded in downward direction leaving the river at the south. Mining would be 100 mt away from river. In Phase – I river should not be disturbed but a barrier would be provided between river and Phase II mine pit; vii. River should not be diverted and complete stretch of southern bank should be strengthening by providing embankments with thick green belt; viii. Percolation study should be carried out and force of water should be calculated; x. Green belt should be provided between villages and mines as barrier in phase-I; x. No external OB dump should be kept within 100 mt distance of Badmahi River; xi. As most of the people in the area are depended on Minor Forests Produce (MFP's) including minor minerals. The people who depended on mining earlier, should be made partner in the company; xii. As it was observed that a Coal Handling Plant (CHP) is very close to Badmahi river, the CHP should be shifted away from river as discharge from CHP could pollute the river water; xiii. Details of Phase –I project along with land details, break up of land and other detail should be provided; xiv. Details of mine void

should be provided; xv. No external OB dump would be left at the end of mining; xvi. It was decided that the Phase –I project details should be presented only in next EAC meeting; xvii. Details of ground water should be provided; xviii. The R&R may be prepared in consultation with a reputed NGO working in the area; xix. The Action Plan should be project specific and the time line for the implementation of Action Plan should be provided; xx. Tentative time bound schedule should be provided for CSR; xxi. As the block is surrounded by Protected Forest area, an Action Plan for conservation of flora and fauna should be provided; The conservation plan should be duly signed by DFO of the area; xxii. The transportation issue should be relooked /checked and details be provided; xxiii. The EIA /EMP details should be in tabular form and each TOR should be addressed properly with suitable justification/information; xxiv. As the Gourangdih ABC Opencast Coalmine Project M/s Gaurandih Coal Ltd block is under GOM scanner which is a JV between two JV partners namely Himachal Emta Power Ltd. and JSW. A small presentation is required on Himachal /EMTA.

7.2 The Proponent made point-wise presentation and informed that;

- i. The EIA/EMP Report based on EIA notification 2006 of the MOEF was prepared for Phase-I with Project area of 306.50 Ha and Mining lease area 224.00 Ha with Rated Capacity of 4.0 MTPA.
- ii. The base line data was collected for the winter season i.e. January to March, 2010.
- iii. The following project specific activities were considered viz. breakage/degradation of land for coal and OB removal / storage, extraction of water by pumping, rain water etc., effluents from workshops, colonies etc., Drilling / Blasting operations, Transportation of OB and coal (crushing, loading etc., Relocation of villages (R&R issues).The Proponent has provided the details e.g. located in the north eastern part of North Karanpura Coalfield Hazaribagh District of Jharkhand state.
- iv. The nearest Railhead is Patratu, 35 Km south of the block on Daltonganj-Barkakana-Dehri-on-Sone loop line of the South Eastern Railway. This is also 35 Km from Hazaribagh and approachable from Badam by a 3 Km long Kutcha road, Badam connected by fair weather road to Barkagaon village located on Tandwa-Hazaribagh metalled road, nearest airport Ranchi 120 km etc.
- v. The Proponent presented detail of Study area map (1:50,000) of core zone and 10km of the buffer zone shows surface drainage of rivers/streams/nalas, location of human habitations, roads etc.
- vi. Areas suitable for agriculture will be restored for agricultural use at the post mining stage. pre –mining land use is ,of the total 306.50 ha ML area, 124.52ha Forest Land, 134.37ha is Agriculture Land, 3.30ha is Homestead Land, 14.31ha Water bodies, Road & Other Govt. Land, 30ha is Non Agriculture Land for Colony (Outside coal block).
- vii. **Forestry issues:** There are no ecologically sensitive areas within the 15km of the core zone. Land use pattern in the study area has been delineated through satellite imagery LISS-III (IRS-P6) of National Remote Sensing Agency (NRSA). Area and the percentage under different land use has been calculated. Patches of dense forests at the fringe of Phase-I (46 ha approx.) left out.
- viii. Application for Forest Clearance was made on 20.09.2010 for 116.90 Ha Forest Land. Compensatory afforestation (118.38 Ha) purchased at Hazaribagh (43.10 Ha) & Garwah (75.28 Ha) approved by DFOs ,Land Acquisition (Raiyatee) 126.64 Ha applied on 26.04.2010 and pending with Govt. of Jharkhand. Govt. Land Transfer 15.50 Ha applied on 26.04.2010 pending with Govt. of Jharkhand.
- ix. Badmahi River, flowing along Northern and Western boundary and a few ephemeral streamlets descending from the catchment area form the main drainage system. Flow of river

sluggish but perennial in nature joins Damodar River 20 KM towards south. Land use during mining of the total 306.50 ha ML area , 224 is for Quarry, 14.20 ha is for Infrastructure within Block Boundary, 7ha is for Greenbelt & barrier, 31.30 ha is for external Dump within block outside quarry limit of Phase-I, 30 ha is for Colony & Rehabilitation colony. There is no diversion of canal /river. Rain water will be caught in the garland drain around the mine excavation and coursed to the River.

- x. There is no diversion of road/railway line. Kutcha roads for access to inhabited areas will be suitably realigned at the time of shifting of such inhabitations.
- xi. The post-mining land use, of the total 306.50 ha, 156.03 ha Plantation, 76.82 ha is Agriculture, 43.65ha is for Haul road entry to Phase-II, 30 ha Colony & Rehabilitation site, The detail of geological reserve provided. Net Proved Reserves - 74.88 Indicated Reserves – 101.4MT, Mineable Reserves 116.68 ,Phase-I is 62.20 MT and in Phase-II is 54.48 MT. Phase-I area fully explored. 3000m drilling, geophysical logging and magnetic survey required to properly delineate faults, precise positioning of in crops and burnt zone. The devolatilized coal due to igneous intrusion is found in Phase-II area has attained same ambient temperature. There is no igneous activity at present.
- xii. The maximum depth of Quarry is 246 m. 105.34 Mm³ OB produced at the end of 17th year. The stripping ratio is 1.85m³/t. The OB Removal proposed by Shovel Dumper Mining Technology and Coal Mining by Surface Miner Technology. Impact of blasting has been assessed. Measures to be taken are, scientifically designed blasts ensuring proper burden/space, free face availability, proper charging / stemming of holes. Maximum number of detonator / delay times possible with millisecond delays, Avoid blasting when strong winds are blowing towards residences, Stemming column greater or equal to burden. It was informed that No OB dump outside block area. Internal dumping after Year-7. 8° - 16° gradient of quarry floor limits initial internal dumping. Internal dump quantity at final stage of mining 176.18 Mm³ including 3.26 Mm³ reclaimed top soil.
- xiii. The Coal grade is C to F with 20.9 to 41.3% ash content with moisture content of 1.5 to 4.0% and UHVK. Cal/Kg 2510 to 5645. Total sulphur is 0.41-0.62.
- xiv. One-season (non-monsoon) primary baseline data on environmental quality-air (SPM, RSPM, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and ground water), soil have been collected and presented. The Primary baseline data collected during January - March 2010. Air sampling stations selected based on prevailing wind direction. Water sampling stations are located in villages and Badmahi River (upstream and downstream). The water samples was collected and analyzed as per IS: 10500 standards and as per CPCB.
- xv. **Forestry and wildlife issues:** There is no migratory corridor of any endangered fauna. The biodiversity conservation plan has been prepared. Large number of Schedule I, II&III fauna were reported eg. Leopard, Deer, Chital, Bear, Common Langur, Jackel, Indian Cobra, Python, Peacock, Elephant, Chameleon. Proponent presented strategies for management & conservation of wild life in the core/buffer zone.
- xvi. The impact of mining on hydrology has been studied as per CGWB methodology 1997. There is no diversion of river in mining lease area. Run off from the hills will be channeled, to prevent entry into the mine area, by construction of garland drain. The stage of ground water development is 9.888 %. No impact on existing users has been observed.
- xvii. Transport from Pithead by 25 T truck to Railway siding at about 48 Km. The Proponent has suggested measures to be taken are viz. distance will be reduced to about 20 km after completion of rail line under construction, widening and strengthening of existing road in consultation with State Govt. authorities, wherever necessary. The roads will be constructed to bye-pass the villages. The emission from the movement of trucks will be 2.08 g/s/m., avoid over loading, Coal will be quenched with water before transportation by mechanically closed trucks.

- xviii. The measures for occupational health and safety adopted are e.g. Pre-employment medical check-up, periodical medical checkup of employees/families, well equipped hospital at the mine, round the clock ambulance equipped with kits, medicines, hygienic living condition, safe drinking water, sanitation facility, change in perception/attitude of people towards health through education, seminars by self-help groups will be done.
- xix. The Proponent had presented detailed of measures to be adopted to prevent any disaster e.g. OB, Quarry Slope Failure, Mechanical Failure/ Human Failure in Heavy Transport Vehicle, Mechanical Failure/ Human Failure in Heavy Transport Vehicle, Dealing with emergency situation, Fire etc. Minimizing land required, by eliminating external OB dump. 46 Ha dense forest area within the coal block has been left out. Compensatory afforestation will be over 118.38 Ha. Excavated areas will be back-filled and reclaimed for agro forestry. No drawl of water from river. Surplus water from the mine will be used for agriculture in surrounding area and for recharging of ground water. At the end of mining the reclaimed area will be filled with water which will recharge the ground water.
- xx. Total area under plantation will be 310 ha with 775000 nos. of plants/trees. In built mechanism of self-monitoring has been provided.
- xxi. The R& R involved of Gondulpara, Balodar, Gali of PAF's are 495 nos. The R&R cost is Rs 74.50 Lakhs. R&R Action Plan was presented.
- xxii. The CSR expenditure for 5 years is Rs 1852.50 Lakh.
- xxiii. The cost of mine closure would be Rs 8885.44 Lakhs.
- xxiv. **Public Hearing:** The public hearing was held on 15.02.2012. Issues raised were, with regard to entitled land compensation, Employment to land oustees, Pollution control measures, like water sprinkling etc, dust control measures to be adopted, environment should be protected from pollution, land will be damaged, no agriculture will be possible, Employment, compensation etc.

7.3 The Committee after detailed deliberation sought following information for further consideration of project:

- i. A copy of Inter-Ministerial Group (IMG) be submitted to the Ministry for record.
- ii. A copy of the Himachal EMTA filed case in Himachal High court be submitted.
- iii. The Ambient Air Quality of one season (December-January, February –March and April-June in down wind direction be carried out as per new parameters PM₁₀ and PM_{2.5} and be submitted to the MoEF after verifying with Dr. Attri, Member, EAC.
- iv. It was observed that the Damodar River is not projected in the map, which is 20-30 km away from the ML area. The exact location of Damodar River should be depicted on map. Details of same be provided.
- v. Details of entire drainage pattern in and around the ML area should be provided along with the map.
- vi. It was observed that the block is surrounded by forest and river which is passing through the Mining lease area. In Phase-I & II, the Badmahi River would not be diverted. The Committee desired that the proponent should leave at least 100 mt area between mine and Badhami River.
- vii. The proposed 100 mtr area be left along the river bed which should be developed as green belt.
- viii. The total area of 306.50 ha should be backfilled up to ground level without any OB dump. The backfilled area should be reclaimed.
- ix. Selection of R&R colony should be done in consultation with oustees.

- x. The details of embankment proposed near Badmahi River should be provided so as to protect the river.
- xi. The total coal reserve should be calculated as the reserve may be lower than the estimated reserve. Coal reserve should be calculated as per United Nation Frame work Calculation (UNFC).
- xii. It was earlier observed that in mining lease area, there are igneous activities. The proponent should contact National Remote Sensing Centre (NRSC), Hyderabad. Thermal Imaging should be carried out by NRSC for present igneous activity.
- xiii. There should be no OB dump at the end of mining. Total area should be backfilled and reclaimed by planting native species.
- xiv. Signed copy of presentation should be submitted to Ministry.
- xv. The checklist attached with Agenda should be duly filled and be submitted to the Ministry.
- xvi. The temporary OB dump in an area of 104.9 ha area with 60 m height should be stabilized with grass and grass should be provided to local villagers.
- xvii. It was decided that the Phase –I part of project should be treated as independent mines and Phase-II proposal should be submitted later and the details of changes after Phase –I provided.
- xviii. The details of backfilling and OB should be provided.
- xix. Cumulative Impact Assessment study should be carried out.
- xx. Detailed composition of elements be analyzed and be submitted to the MoEF.
- xxi. Detailed Wild Life Conservation Plan should be prepared be referred to the Wild Life Institute of India, Dehradun for comments. The Conservation Plan should be submitted to Principal Chief Conservator of Forests within 2 months.
- xxii. Water Balance Study should be carried out as at the depth of 240mt, the aquifer (Confined and unconfined) may be ruptured.
- xxiii. Detailed Hydro-geological study should be carried out and report of the same should be submitted to Ministry.
- xxiv. The transportation of coal by road should be minimized to prevent dust pollution. Avenue plantation should be provided on both side of the road.
- xxv. The coal transportation by road through mechanically covered trucks is permitted till the construction of Railway siding which is proposed. If there will be any delay, the proponent should come to the EAC again.
- xxvi. Details of R&R for Phase –I project should be prepared and submitted to the Ministry.
- xxvii. Detailed Action Plan of CSR and R&R are required. The entire details of CSR provided by proponent should be reworked/ revised and detail of same should be submitted.
- xxviii. The Public Hearing issues have not been addressed properly. The issues of PH should be in tabular form i.e. name of complainant along with issues raised, issues addressed by proponent, and amount to be spent on these activities under CSR.

8. Ganeshpur Opencast Coalmine Project (5.5 MTPA in 398 ha project area) of M/s Tata Steel Ltd.,located in dist. Latehar, Jharkhand. (EC based on TOR granted on 3.12.2010)-Further Consideration

8.1 The proposal was earlier considered in EAC meeting held on 19-20 November 2012. Committee sought following clarification for further consideration of project.

i. Details of the changed location of power plant and mine should be provided; ii. The industry should involve local people and their families as part of developmental process; iii. Public hearing issues should be properly addressed in tabular form along with the proposed budgetary provision from CSR budget; iv. Presentation should be TOR –wise addressing each ToR properly; v. Stage –I forest clearance is required; vi. The height of external OB dump should be less than 30m;vii. Grass turfing should be provided upto 25 years; viii. The excavated area should be brought back to productive use eg. Agriculture and others; ix. The details of OB dumping should be submitted. As the mining is proposed to be up to the depth of 300 mt, the unconfined aquifer would be cut. Ground water will be depleted and forest destroyed. The continuous groundwater monitoring should be carried out in and around 5 km of mine area; x. Four villages would be affected. All the villages located within 5 km area should be taken care of. This would be a condition while granting EC; xi. If ground water is found to be decreasing, measures should be taken for recharging by providing ponds etc; xii. There should be no external OB dump at the end of mining; xiii. Void depth should be reduced and it should be less than 40 mt; xiv. Handicapped persons should be provided more than Rs 1500/month as pension for life as against the proposal of the proponent; xv. Provision of motor tricycle could be considered to all the handicapped persons in area; xvi. Long term annuities should be provided to the entire life of PAF's; xvii. Cow shed should be provided. Biomass can be used for cattles as fertilizer; xviii. Controlled Blasting should be practiced to reduce dust generation; xix. R&D should be carried out for better infrastructure for dust suppression in the coal extraction area; xx. Species of Karanj, Su-Babul should not be planted. The native species should be planted. All the 11 plant species as suggested e.g.Buchnania lanzan, Butea monosperma, Desmodium gangeticum, Diospyros melanoxylon, Holarrhaena pubescenc, Semicarpu sanacardium, Shorea robusta, Terminalia alata,Terminalia arjuna,Woodfordia fruticosa,Acacia catechu;xxi. R& R should be revised; xxii. The issues raised by the general public and commitments made along with some budgetary provision from CSR amount should be in a tabular form.;xxiii. Authenticated copy of presentation should be submitted to ministry.

8.2 The Proponent made point- wise presentation and informed that;

- i. The 1st phase of 120 MW plant has been commissioned at Jojebera and the 2nd Phase of 480 MW is coming up at Tiruldih.
- ii. The local people and families are already associated in all planning, operation and monitoring of all social developmental activities in project affected area. This is planned to be further strengthened over the life of mine. Issues related to environment pollution and the impact of open cast mining in the area. The Environment Management Plan covers all issues related to Soil, Water, Air and Noise pollution and issues related to vibrations coming from blasting.
- iii. The issues raised during the Public Hearing have been categorized into three broad areas e.g. Issues related to R&R and CSR. In the area of CSR, the work is already in progress. The proponent presented details of activities undertaken by the Company under the CSR eg. Mobile medical Health Unit, Organizing special camp, Anti-Malarial Measure, Anti Venom & anti rabies support for the surrounding area at Balumath. Health Awareness Programs, Computer Training is being done at Balumath, Sports, regular repairs of the hand pumps and wells, Upgrading the infrastructure of Primary Health Centre at Seregara, Beautification of Seregara Community Hall (planned),Repair of Road of Jala village (planned),Providing solar lamps at key locations in the village(planned).

- iv. The total expenses under the project development phase prior to coal production is proposed for CSR activities is to be Rs. 227 Lakhs/annum, during mining operation Rs 3 Crores/annum and at peak production it would be Rs 3.3 Crores/annum .
- v. The final height of external O.B is to be reduced up to 30 m, in post mining phase by re-handling extra OB and filling the same in excavated area. Due to this re-handling of 43 cum of OB, the agriculture land in excavated area will increase from 23 ha to 46 ha and plantation area increases from 104 ha to 133 ha. The external OB height shall be maintained to a height of 30m.
- vi. During the mine life, green perennial grass will be grown all over the external OB dump area. Details of post-mining land usage after re-handling of OB has been provided. The excavated area is envisaged to be brought back to productive uses as detailed in the annexure. The external O.B dump has been worked out to be maintained to 30 m height in post mining phase. While doing so, 43 Mm³ of external O.B will be re-handled and will be filled back in quarry area to ensure that height of the resultant external O.B dump is kept up to 30 m only. In post –mining stage, as per revised plan, of the total 398 ha area, the 154 ha area will be under plantation,185 ha under agriculture,32 ha water body, 27 ha for public and other use. The void depth should be reduced and it would be less than 40 mt. The mine is proposed to reach up to a depth of 220 m. As per our hydro-geological studies, the radius of influence is likely to go up to 925 m.
- vii. There is a working mine and few proposed open cast mines have been proposed. However, as directed by EAC, regular ground water monitoring will be carried out upto one kilometer from the excavation area. Piezometers will be installed for regular monitoring.
- viii. Villages within impact zone of the mine will be monitored for water depletion & required care shall be taken to maintain the water level in the impact zone. Ground water monitoring will be done and rain water harvesting structures will be created in case of its depletion.
- ix. Handicapped persons in area will be provided Rs 3000 linked with present rate of wages and Tricycle.
- x. Controlled Blasting would be practiced .Based on R&D, effective system for dust control shall be put in place in the project area.
- xi. The Proponent made presentation on issues raised during Public Hearing in tabular form and addressed each issue with suitable reply. The issues included economic development, water, fugitive dust emission, water spraying ,afforestation, employment, Ambulance and health services, compensation, development, Stage I forest clearance application is with PCCF, Ranchi.
- xii. Revised budgetary provisions for R&R is **Rs. 53, 54, 60,000 Crores.**

8.3 The committee after detailed deliberation has recommended the project for granting Environment Clearance with following specific conditions:

- i. Details of total number of people provided employment in the project be provided to the Ministry for record.
- ii. Year –wise and time bound schedules should be provided for implementation of CSR.
- iii. Commitment made during public hearing, alongwith the budgetary provisions, should be provided .
- iv. Apart from the above CSR incentives, other measures such as carrying out regular repairs of the hand pumps and wells, upgrading the infrastructure of Primary Health Centre at Seregara, beautification of Seregara Community Hall (planned), repair of Road of Jala village (planned), providing solar lamps at key locations in the village(planned) be undertaken so as to improve the infrastructure of the area.

- v. The budget for operational phase should be provided for CSR activity @ Rs 6/T of coal
- vi. Budget should be provided in the CSR Action Plan so that it is committed on behalf of Company.
- vii. Stage-I Forest Clearance be obtained.
- viii. The temporary OB dump would be in 125 ha area with 75 m height which will be totally rehandled at the end of mine and, no OB dump and internal filling will be brought to the ground level. Final water body /void should be of 32 ha and 30m depth
- ix. Indigenous Social Scientist should be appointed.
- x. Local people should be involved in the skill development .employment should be created for local people eg. Irrigation purposes, Construction of well, Talab, Poultry, Dairy etc.so the indigenous people should not be marginalized.
- xi. A commitment letter on these issues be submitted to the MoEF for record.
- xii. Coal transport from mine to Railway Siding will be by closed conveyor and at Railway Siding wagon loading by Silo.

9. Gopal Prasad OCP (15 MTPA in a project area of 1289 ha) of M/s MJSJ Coal Ltd., located in Talcher Coalfields, dist. Angul, Orissa. (EC based on TOR granted on 31.12.2008) - Further Consideration.

9.1 The proposal is for EC was considered the earlier EAC meeting held on 29.03.2011.

The project is for opening a new opencast coalmine in Chhendipeda Tehsil and is allocated to a JV company consisting of M/s Mahanadi Coalfields Ltd. (9 MTPA), M/s JSW Energy Ltd. (3.3), M/s Jindal Stainless Steel Ltd.(S) (1.35 MTPA), MTPA) and M/s Shyam DRI Energy Ltd. (1.35 MTPA). It was informed that 60% of the land is agricultural land and paddy is grown in the area, and the livelihood of the people would be affected due to the project. The Committee sought details of land use of the revenue land. **The Committee sought following information for further consideration of project:**

- i. The hydrology of the area would be affected due to the proposed diversion of Singada jhor and Ghurudia nala and sought details of impacts thereof on the surface and ground water and stated that prior approval of the State Flood & Irrigation Dept. is essential.
- ii. No AAQ station has been established in the downwind of the ML area.
- iii. The Committee sought the response of PCCF, WL, Govt. of Orissa on the WL Conservation Plan and sought details of forest area under revenue forest (DLC land). The Committee sought details of reclamation measures for the external OB dump proposed for 17 years for a max. height of 90m. The Committee desired the impact of a number of existing and proposed high-capacity mines – Hingula Utkal group of mines, and Gopal Prasad coming up in the area on the groundwater regime.

9.2 The proponent made the presentation. It was informed that:

- i. Details of land involved in project, as per Revenue record, is that of the total 1025.93 ha, 94.94 ha is forest land,668.08 is agricultural land, 79.92 ha is waste land, 39.07 ha is grazing land, 56.19ha is surface water bodies, 18.49 ha is roads, 11.61ha is homestead land, 57.63ha is others. As per land classification of the total 1025.93 ha, 94.94 ha is Forest land,692.49 ha is Tenancy land, 238.50 ha is Govt. land, Out of 668.08 ha of agricultural land, paddy is grown on Kissam Sarad-1, Sarad-2 and Sarad-3 land in an area of only 218.20 ha i.e. 32.67 % of agricultural land. The balance 449.88 ha of agricultural land is used to cultivate vegetables and mangoes. The project affected families shall be provided all benefits as per the R&R

- policy, 2006 of Govt. of Orissa. Further, enhanced benefits provided as per the norms of MCL shall also be provided.
- ii. The Nala diversion for mining will act as a constant head boundary along mine boundary which in turn restricts the cone of influence of mine dewatering. The drawdown due to mine pumping will be almost zero all along nala diversion/garland channel where there will be constant water head. Positive effect on hydrology of the area in respect of rainwater harvesting, to the extent of decrease in surface runoff (25% to 17%) and increase in groundwater recharge (15% to 26%). This may be due to increase in infiltration rate during mining. There will be positive impact of generation of base flow in Singhara Jhor due to mining pumping for competing users during lean period. The proposed Nala diversion and mining activity of Gopal prasad Coal Block may not have any adverse impact on Jhor flow. The report has been submitted to the Water Resource Department, Govt. of Odisha on 06.08.2012 for final approval in the month of November, 2012. The final approval is yet to be obtained.
 - iii. As per the recommendations of EAC, fresh AAQ monitoring was carried out at 8 locations. Upwind -3 Stations, Downwind-3 Stations, Core Zone -2 Station for Monitoring during December 2011 to March 2012.
 - iv. The proponent provided the details reclamation measures to be adopted for the external OB dump. The OB will be dumped in tiers of 30 m each with 37° maximum Slope of individual tiers and overall slope 26°. Gradient of the surface, where external OB dump will be located and maintained, shall be less than 2% to prevent water accumulation.
 - v. The dumps will be properly compacted for proper stabilization. Dumping will start at farthest place from mine, i.e., along Singhada jhor. All three tiers will be formed at quickest time possible. Once final height is attained on the dump's northern side, the slopes will be pitched with boulders. This process will restrict gully formation and silting in Singhada jhor.
 - vi. Retaining wall will be constructed to arrest the siltation into the Singhada jhor. Catch drain is an open drain of appropriate size will be provided on all terraces at the foot of next bench to receive the storm water from upper bench to minimize gully formation in the slope. A foot drain of proper size will be provided around the external OB dump.
 - vii. The impact of a number of existing and proposed high-capacity mine –Hingula Utkal group of mines, and Gopal Prasad on ground water level, it was informed that the water table in the study area exists between 180 m MSL and 105 m MSL.
 - viii. The general movement of ground water is converging towards Singhara Jhor and Gurudia nala under natural condition. The water table in the area exists between 180 m MSL to 90 m MSL. During mining, temporary reversal of water table gradient may occur. There is cone of depression near mine area. Long term trend of water levels in the area shows that there is rise in groundwater level on the other side of working Hingula mine at Kusumpal. This is an indication of positive impact of mining. The Proponent carried out detailed hydro-geological study which concluded that the impact of existing and proposed high capacity mines such as Hingula, Utkal group of mine and Gopal prasad mine on groundwater will not be adversely impacted. Rather it will have positive impact to increase surface flow of Singhara Jhor. In addition, mitigation measures will be undertaken to rebound aquifer system. Mitigation measures to be undertaken by proponent are identification of suitable area for rainwater harvesting, rainwater harvesting by re-injecting water into wells and tube wells, create local impoundment of water in appropriate part of mine. The water level in area is 4 m bgl in post-monsoon and 8 m bgl in pre-monsoon period. Annual fluctuation is also 4 m. Ground water movement is from West to East converging towards Singhara Jhor and Gurudia Nala. Mine inflow in the mine to the tune of 5425 m³/day (1.98 MCM/year). In order to make the physical verification of the model in respect of hydrology and hydro geological regime it is recommended to monitor piezometric head of aquifer in and around Gopalprasad Coal block through installation of piezometers.

- ix. **Forestry and wildlife issues:** The Wildlife Conservation Plan has been prepared and submitted to Principal Chief Conservator of Forest (PCCF) / Chief Wildlife Warden, Govt. of Odisha on 04.05.2009. After compliance of queries sought by PCCF/DFO, the proponent made presentation before PCCF (WL) on 30.01.2012. Additional information sought by PCCF (WL) / DFO, dated 10-10-12 was submitted. The revenue forest land is 90.81 ha.

9.3 The Committee, after detailed deliberation, has sought following information for further consideration:

- i. Valuable agriculture land 668.08ha would be converted into irreversible change by Mining. Therefore, the underground mining option should be examined.
- ii. If the agriculture land would be acquired for mining purposed, an equal area /land should be provided by the Company in terms of mined out area.
- iii. Social Impact Assessment study of the project should be carried out.
- iv. Totally backfilled area should be restored as agriculture land simultaneously upto ground level. This land be converted to agriculture field and be handed over to the stakeholders.
- v. It was observed that there will be major impact on water table due to mining, as the entire area has low water level. Dumping of toxic material is not permitted so as to prevent contamination of the whole area.
- vi. it was decided that the Central Ground Water Board should be contacted and following information should be collected and analysed vis-à-vis the impact of mining. The EAC be apprised accordingly :
 - a. Hydro geological map of the area.
 - b. Water shed map
 - c. Atlas
- vii. The peizometer should be installed in large area and regular monitoring of ground water level be carried out
- viii. Since, earlier the area is under CEPI, Cumulative Impact Assessment study should be carried out for air pollution.
- ix. The reports and recommendations of SPCB and Action plan approved by CPCB should be implemented. This may be put as environment conditions in the EC. The Impact Assessment study should be carried out as there are large numbers of mines operating in the area.
- x. Submission of the Wild Life Conservation Plan prepared the approval of the Principal Chief Conservator of Forests & CWLW.
- xi. The mode of mining should be re-examined and sequential mining should be carried out. The proponent need to relook into the backfilling process and the detail of area refill and reclaim as agriculture land should be provided.
- xii. Mode and distances of Coal transport from mine to the end use Plant be provided.

10. Talabira-II & III Opencast Project (Prod. Capacity 20 MTPA (Normative) and 23 MTPA (Peak) in an area 1926 ha) of M/s Mahanadi Coalfields Limited, District- Sambalpur, Orissa. (EC based on TOR granted on 23.05.2007)

10.1 Talabira OCP is a new mine. Talabira-II & III block is located in the south eastern part of Ib Valley Coalfield. Coal blocks allocated jointly to M/s. Mahanadi Coalfields Limited (MCL) (70%),

M/s. HINDALCO Industries Ltd.(15%),M/s. Neyveli Lignite Corporation Ltd. (NCL) (15%).The MOU between JV Partners was signed on 23rd Nov 2006. The TOR was granted on 23.5. 2007.Jharsuguda is nearest town 18 km from the proposed project. Lapanga is the nearest railway station 14 km from the proposed project. Talabira block consists predominantly a hilly and highly undulating terrain. Surface elevation varies from 192 m to 286 m AMSL. The highest peak of the terrain 286 m AMSL is located in the eastern part of the block.

10.2 The proponent made the presentation. It was informed that:

- i. The general slope is towards Ib River in the west and towards Hirakund reservoir in the south. The proposed mine capacity 20.0 Mty (normative capacity) and 23.0 Mty (peak capacity).
- ii. Out of 1038.187ha of forest area involved in mining and infrastructure as per revised mining plan is 707.270 ha. The forest land of 326.866 ha within the lease area will not be disturbed and will be developed as green belt around mining activity. Thus, the total Green Belt Area will be developed 471.832 ha out of total lease area 1914.063 ha as per revised Mining Plan. Total area to be disturbed for mining activities and infrastructure would be 1442.231(1914.063 - 471.832) ha as per the revised mining plan. Total area required is 1815.231 ha for mining, infrastructure, colony and R&R excluding proposed green belt of area 471.832 ha. As per revised Plan2012,of the total area of 1914.063 ha, 1038.187 ha is forestland, 457.08 ha is agriculture land, 287.722 ha is waste land, 40.688 ha is grazing land, 67.669 ha is surface bodies, 6.544 ha is roads, 16.175 ha is homestead land. Land-use of total 1914.063ML area is for 972.520ha excavation, of the 495.721ha,inside Blasting Danger Zone (30.730ha is for Infrastructure (road, mine office, conveyor etc), 142.720ha is for External dump, 6.280 ha is for Embankment, 315.991ha is for Area development of green belt,.Of the total area 445.822 ha outside blasting danger zone (241.230 ha is for Infrastructure (road, conveyor, railway & silo, washery, office, workshop & other utilities etc., 28.910 ha is for embankment, 155.841ha is for development of green belt, 19.841ha is for 7.5m Safety zone inside lease boundary.
- iii. The coal reserve is 553.98 Mt, 2 Coal Seams (Namely Ib Seam & Rampur Seams), Quarry Depth is 15 m (Minimum)-190 m (Maximum),.
- iv. The average stripping ratio is 1.09m³/t. The grade of coal is mostly F & G. The life of the proposed project is 34 Years. The manpower is 427 (outsourcing variant).
- v. The major portion (75-80%) of coal production will be done through blast free technology, by deploying surface miner, electric shovel with 190T dumper & 9-10 cum. Electric Hydraulic shovel with 100T dumper will be deployed for OB removal & transportation.
- vi. A temporary CHP has also been envisaged to deal with initial coal production.
- vii. The transportation of coal will be by belt conveyor system from south quarry to coal storage bunker and dispatching through SILO on the MGR system. Series of belt conveyor system from Central and North quarry to the coal storage bunker and routing through the same SILO. Coal storage will be over ground () bunker (20,000 t).Reclamation is through the Plough feeder. Rapid loading system with pre-weigh arrangement @5500-6000tph will be provided.
- viii. Estimated OB generation in Mine Life is 558.64 Mm³.Quantity of OB in external dump-1 will be 45.13 Mm³ in an area of 156.50 ha with 63 m height. Quantity of OB in internal dump will be 531.14Mm³ in an area of 732.24 ha .
- ix. Post Mine closure backfilled up to surface (area in 547.24 ha availability of land use during post-mine closure period. Out of 457.08 ha agriculture land involved in project,

- 450.188 ha reclaimed agriculture land which is one time and Out of 1038.187ha forestry land involve in project,1203.11 ha area would be developed as forest which is 1.16 times.
- x. In post mining stage, out of total 972.520ha area, 665.880ha excavation area, 156.50ha of OB dump area, 36 ha safety zone area, 25.23 ha infrastructure,7.50ha embankment against Bheden river, 8ha in Residential Colony, 65.80ha Resettlement Colony,23.14ha avenue plantation.
 - xi. No major river/stream is traversing through this block. The main drainage of the area is controlled by Ib river following from North to South and draining to Hirakud reservoir in the south which is 500m away from the quarry boundary. Bhedan river, a tributary of Ib river flowing from east to north joins to Ib river in the northern side of the block which is 300 m away from mine lease. Water level in core area is in range of Less than 3.00 m bgl to about 9.50 m bgl(pre-monsoon) and less than 1.40 m bgl to about 5.27 m bgl (pre-monsoon).Total water requirement of mine will be4460m³/day, 3410m³/day is Industrial and 1050m³/day is domestic requirement. The permanent water supply arrangement for this project is proposed to be made from Bheden River, Ib river and Hirakund reservoir. The block is bounded by Bhedan River in the east and north and Ib River in the west and south by Hirakud reservoir. Both IB River and Bhedan river will remain undisturbed due to this project. The 2nd order drainages which are having drainage network with IB and Bhedan River will; be restored during backfilling stage. During mining operation run off from the 2nd order drainages of this block are seasonal in nature and will be realigned to discharge to undisturbed existing IB and Bhedan river. The embankment will be given all along the Bhedan river and Ib river. High flood level for Ib river is 200.5 m above mean sea level. The height of embankment will be 3.0 m above high flood level. Mine discharge will be 29344m³/day.
 - xii. The Department of Environmental Sciences and the School of Life Sciences, Sambalpur University has carried out taxonomic enumeration of flora and fauna found in the core and buffer zones of Talabira OC. Project (II & III) of Ib Valley Coalfield in July 2008.The area does not have any endangered species. Some schedule –I & II fauna are Monitor lizard (*Varanus salvator*),Python(*Python molurus*), Common peafowl(*Pavocristatus*), Wood pecker(*Brachypternus bengalensis*),Bahurupi(*Chameleon sp.*), Jackal(*Canis aureus*).It was informed that there is very rare and occasional migration of wild animals like bear from the distant forest during incidents of forest fire etc measures suggested in conservation plan are plantation of edible fruit bearing trees in buffer, natural water holes, fire protection and prevention measures, native plant species plantation etc.
 - xiii. R&R involved. The number of PAF's are1894no.FromKhindavill. 430 no. from Talabira, 393no.fromPatrapali, 264 no. from Malda, 277 no. Rampur).R&R Policy, 2006 of Govt. of Odisha shall be adopted for R&R of this project. R&R Site proposed for KhindaisKhinda (Landupali)in an area of 23.33ha,for Talabirais is at Dantamuravill in an 10.93ha area, Patrapali & is Hirma in 38.17 Ha area.
 - xiv. The CSR cost will be Rs. 2770 Lakhs. Rs.4155 Lakhs till the end of mine life. The Project Report was approved by MCL Board.
 - xv. Total mine closure cost is Rs.14485.62 lakhs.
 - xvi. **Forestry issues:** The Forest Clearance is yet to be obtained. The DFOs has agreed to carry out site inspection after the DGPS report is authenticated by ORSAC. The proposal is likely to be recommended to RCCF by February 2013.
 - xvii. **Public Hearing:** The public hearing for Talabira – II&III Opencast Project was held on 23.05.2012. The issues raised included the fixation of land price at rs.50 lakh/acre, employment, no proper compensation to Mrs. Rupabati Patra nor employment provided since 1996in lieu of her land, supply of electricity, drinking water, improvement of road condition, fixation of land price at Rs.35 lakh/acre & Rs. 20,000/- per tree, proper

compensation, nearby industries for polluting air & water so SPCB to take appropriate action. The distance of the proposed coal mine is more than 500 meter from Ib River. The water requirement of the mine and quantity of water the mine will be drawn from Bheden river also need to addressed properly. The blasting procedure, afforestation programme, corpus fund, were also discussed vis-à-vis the proposed coal mine as the Bhusan Steel industry and HINDALCO coal mine have not provided employment to the people.

10.3 The Committee, after detailed deliberation, has sought following information for further consideration:

- (i) The original topo-sheet and map of the area be shown to the EAC.
- (ii) Status of Stage-I Forestry Clearance is required.
- (iii) Details of in-situ ore leaching, coal gasification be provided.
- (iv) The proponent may examine the use of carbonaceous shale in Power generation.
- (v) Sequential mining should be carried out. At the end of the mining, the area should be backfilled and reclaimed the area as agriculture land.
- (vi) Details of reclamation of area with faster recovery of land should be addressed to.
- (vii) The 1st and 2nd quarry will be in operation for 26 years. The period of 26 Years is a very long time for 1st and 2ndquarry. Therefore, the Production strategy be reworked for quarry operation to reduce the refilling time and reclamation.
- (viii) Land use Pattern as per Revenue records of State Revenue Department on 1:50000 scale. The topo-sheet should be provided. The details of the record of 1914.063 ha land be provided.
- (ix) Cumulative Impact Assessment study should be carried out in 10 km of area as per EIA Notification, 2006.
- (x) Air quality data which is in South West and North Eastern side of core area should be sent to Dr S. Attri, Member, EAC for his comments.

11. Krishnashila OCP expansion coal mining project (4 MTPA to 5 MTPA (Peak) in an area of 851.78 ha) of M/s Northern Coalfield Ltd.in Village Marrak, Tehsil Anpara, District Sonbhadra, Uttar Pradesh(EC based on TOR granted on 12.01. 2012).

11.1 Krishnashila Project is located in Moher basin of Singrauli Coalfield in Sonbhadra District of U.P. The proposal is for expansion coal mining project (4 MTPA to 5 MTPA (Peak) in an area of 851.78 ha). Krishnashila OCP (4.0 MTPA) is an existing operating project of NCL which has got prior environmental clearance vide no J-11015/52/2005-IA.II (M) Dated 2.02.2005 of MoEF. Present proposal is for increase in production from 4.0 to 5.0 MTPA with the calendar programme remaining same.

11.2 The proponent made presentation and informed that:

- i. Krishnashila OCP (4.0 MTPA) is an existing operating project and has the prior environmental clearance. The present proposal is for increase in production from 4.0 to 5.0 MTPA(peak) with the calendar programme remaining same. The increase of production by 25% i.e. inclusion of peak capacity does not involve in any way increase of leasehold area, change in technology, change in product mix. It is not a case of lease renewal. The baseline data was generated The final EMP has been submitted on 28.12.12 for increase in production

by inclusion of Peak Capacity (4.0 to 5.0 MTPA). The increase in production from 4.0 to 5.0 MTPA is possible due to favorable geo-mining conditions through outsourcing and by increasing the number of working days to exploit balance reserves in existing Marrak Geological Block. The demand of coal is increasing rapidly to meet the requirement of various sectors. The Jhingurdah Opencast mine (3.00 MTPA) is getting exhausted and the inclusion of the peak capacity (1.00 MTPA increase in Krishnashila) will not increase any environmental impacts in the region. Considering the cluster including the 2 adjoining OC mines, the EC is available for 20 MTPA (Khadia 10.0, Krishnashila 4.0 and Bina 6.0 MTPA) and the present production is only 14.50 MTPA. By including the peak capacity of 1.0 MTPA for KRSL and 1.50 for Bina OCP the total production shall still be about 4.5+5+7.5 i.e. 17.0 MTPA which is less than the already approved EC for the 3 mines put together as a cluster which is 20.0 MTPA. Thus the environment impacts on a cluster basis shall not be increased.

- ii. There are 32 coal blocks in main Singrauli basin (this does not include Moher basin) of which 16 blocks are yet to be allotted which would yield about 15,000 MW. The NCL has applied for 11 of these new blocks. The expansion to 5 MTPA is due to favorable geo-mining condition and by increasing number of working days.
- iii. There would be no increase of lease area, no change in technology, no change in product mix, no lease renewal. Future expansion, if any, would be done by amalgamation of Krishnashila OCP and Khadia OCP which would take into account issues such as OB dumping.
- iv. The drainage of the mine is controlled by seasonal streams originating from hillocks within the block and draining towards south into the Govind Ballabh Pant Sagar.
- v. Number of Quarries is one with Surface Area 469.80 Ha. The existing quarry (Quarry-I) is bounded towards east by Govind Ballabh Pant Sagar, west by Khadia OCP, and north Bina OCP. Mineable Reserves 88.52 MT, Average striping ratio 3.38 Cum/T, Seams are Purewa Top, Purewa Bottom, Turra.
- vi. The grade of coal is D and E. The manpower requirement will be 634 nos.
- vii. Of the total land requirement for the project of 851.78 ha, 720.89 ha is forest land, 120.60 ha is Government land and 10.29 ha is tenancy land. Of the total ML area of 851.78ha, 469.80 ha is for quarry, 164.80 ha is for external dump, 12 ha is for mineral storage, 4 ha is for infrastructure, 15.75 ha is for road/railways, 25 ha green belt/afforested area, 2 ha is for ETP, 10 ha is for CHP, 8.43 ha is for water body and 140 ha for others. In post mining stage, of the total 851.78ha area, 657.98 ha will be Green belt / Afforested area, 34.05 ha area Water bodies with 30m depth, 4 ha infrastructure, 15.75 ha Roads / Railways, 140 ha others.
- viii. The production capacity is to expand from 4 MTPA to 5 MTPA (peak). Mining would be mechanized method by hydraulic excavator /shovel and dumper combination.
- ix. The ultimate working depth is 180m. The total balance OB is 288.31 Mm³ of which internal dumping is 81.65%. It was clarified that no OB dumping will not be done in and will be done only in the excavated area.. Presently volume of OB generated (as on 31.12.2012 already reclaimed (with vegetation) dumpsites) is 57.11 Mm³, Volume of internal OB dump is 16.23 Mm³, Volume of 3 external OB dump, Dump D1 with 25.30 Mm³ & 60 mt height, Dump D2 with 15.08 Mm³ & 60 mt height and Dump D3 with 0.50 M m³ & 10 mt height. Presently internal dumping in de-coaled area is in progress. Plantation has been carried out on 28.85 ha land on dump D1. Total Plantation is 1, 01,500 no. in 28.85 ha area.
- x. The mine water discharge will be 1,640 Mm³/day. Total water requirement would be - 2,069 m³/day, 1,312 m³/day is industrial and 757 m³/day domestic. ---mbgl is pre-monsoon and m bgl post monsoon ground water level in core area.
- xi. The coal handling and evacuation at present is through road transport to HINDALCO to Power Plant at Renusagar and railway to various power plants in India. It was stated that of the 5 MTPA, 3 MTPA by tube conveyors and 2 MTPA by wagons (crushed coal from CHP)

- to HINDALCO (linkage) which is about 7km from the mine. The construction of high capacity silo loading system is in process.
- xii. The approval for enhancement of coal production to 7.5 MTPA for Bina Extn project has been obtained on 13.2.2010.
 - xiii. The Public hearing of 4 MTPA of Krishnashila project was held on 06.03.2003. It was informed that Krishnashila area is a water scarce area and rain water harvesting measures have been put up.
 - xiv. The balance life of OC mine is 22 years (remaining life, which includes 18 years at peak production of 5 MTPA).
 - xv. The R&R consisting of 21 PAFs has been completed.
 - xvi. The mine closure cost would be Rs 327.25 Lakh. The capital cost of project is Rs 741.62 Crores. The EMP cost is Rs 23.01 Crores (Capital) and costs for reclamation is Rs 605.90 lakhs. CSR for 2011-12 is Rs. 30.60 lakhs and should continue for life of the project and @Rs 5/T of coal.
 - xvii. **Forestry and wildlife issues:** There are no National Parks, Wildlife Sanctuary, Biosphere Reserves in the study area.
 - xviii. Of the total forestland of 720.89ha, FC has been obtained on 06.07.2006 for 235.99 ha, on 30.06.1998 for 258 ha for Bina-II (original name of Krishnasila) and 65.5 ha diverted from Khadia Project and 161.40 ha diverted from Bina Project.
 - xix. The Forest Clearance has been obtained vide FC letter no. 8-58/2005-FC dated 13.8.2007. Stage -1 forestry clearance was obtained vide letter no 8-64/2004.FC dated 6-01.2005.
 - xx. **Public Hearing:** The Public Hearing was held on 6.10.2012. The issues raised during the hearing were that are out of 21 issues, only 09 have been provided employment. People are suffering from disease like TB and Asthma. Air and water is being polluted, problem of displaced persons should be solved as per Vanadhikar Adhiniyam and be compensated as per latest policy of 2012. CSR and R&R should be strictly implemented, Land compensation, houses has been damaged due to blasting of Sushee Hitech demanded compensation, pollution due to dust. Blasting, the opening of the project has reduced the living things i.e. animals in the area. Only thorny trees are planted and fruit bearing trees are not planted, the pollution has affected human beings and animals in the region. The explosives are carried in open trucks and the animals and birds lick the explosives and die. The water facility is from Rihand reservoir and many people die due to this, good drinking water, The project has affected the villages of Jamshila, Gadshadi, Chandwar and Kohrauliya. The gas and pollution due to blasting has affected the villages, orphan boy affected, health, training to ladies, road, drain, computer centre, pond for irrigation etc.

11.3 The committee after detailed deliberation has recommended the project for granting Environment Clearance with following specific conditions:

- i. The data has been generated after Public Hearing
- ii. The water body (void) should be backfilled so that at the end of the mining there would be no water body and whole area will be reclaimed.
- iii. It was observed that the soil and water is contaminated with Mercury. It was desired that decontamination measures should be taken to reduce the mercury pollution in the area. Indian Medical Association (IMA) should be engaged to ascertain the exact numbers of people/villagers are affected with mercury.
- iv. Fugitive emission is major problem. The reason for high fugitive dust emission should be provided.

- v. Monitoring the Ambient Air Quality should be carried out by including new parameters viz. PM₁₀ and PM_{2.5} and be submitted to the MoEF after verifying with Dr. Attri, Member of the EAC.

12. The following projects could not be considered due to paucity of time. However, these will be considered in the next EAC meeting:

- 12.1 Expansion of Coal Beneficiation Plant (2 MTPA to 4 MTPA) of M/s Global Coal & Mining Pvt. Ltd., in village Tentulei, South Balanad, Tehsil Talcher, dist. Angul, Orissa. (EC based on TOR granted on 31.12.2008) -Further Consideration
- 12.2 Choritand-Talaiya Coal Block (Production Capacity 0.8 MTPA) M/s C.T. Mining Pvt. Ltd. West Bokaro coalfields in District Bokaro, Jharkhand (EC based on TOR granted on 28.05.2010) -Further Consideration
- 12.3 Amendment to the EC granted on 10.12.2008 for expansion of 0.9 MTPA to 5.00 MTPA coal washery of M/s Monnet Daniels Coal Washeries Pvt. Ltd. at Karanpur Ranchi, Jharkhand.

ANNEXURE-1

PARTICIPANTS IN 65th EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 8th -9th JANUARY, 2013 ON COAL SECTOR PROJECTS.

1.	Shri V.P. Raja	...	...	...	...	.....	Chairman
2.	Prof. C.R.Babu	...	.....	...	...		Member
3.	Shri T.K. Dhar	...	...	...	...	...	Member
4.	Shri J.L. Mehta	...	...	...	...	...	Member
5.	Prof.J.S. Roonwal		...	...	...	...	Member
6.	Dr. Shiv Attri		...	...	...	...	Member
7.	DrM.S.Puri	...	...	...	...	...	Member
8.	Dr.Manoranjan Hota	...	...	...	...	...	Director, MOEF & Member Secretary
9.	Dr. Rubab Jaffer	...	...	...	...	...	.....Scientist B, MOEF

Special Invitee:

10. Dr R.K.Garg, Advisor, CoalIndia Limited

PARTICIPANTS IN 65th EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) IN THE MEETING HELD ON 8th-9th, JANUARY 2013 ON COAL SECTOR PROJECTS.

Western Coal Limited

1. Shri Om Prakash
2. Anand Azmi
3. R.M.Wanare
4. Dr.DebabertaDass
5. K.Chakraborty

Bhushan Power Steel Limited

1. R.K.Shosh
2. S.C.Wahi
3. Marisha Sharma

M/s N.C.Ltd.

1. Shri Ni Das
2. Ramesh Chandra
3. Manoj Kumar
4. P.Chansongh
5. VikasKr.Singh
6. AtalBihari

M/s Chhattisgarh State Power

1. Mr.Katyal
2. Satish Kumar
3. M.K.Thapar
4. B.S.Sodhi
5. S.K.Katiyar
6. K.R.Singh
7. VikramVyas
8. Janardhan
9. G.V.Ragheata
10. R.Matto

09.01.2013

M/s TenughatEmta Coal Mines

1. S.N.Verma
2. N.C.Mukherjee
3. A.K.Tooley

4. R.Ranjan
5. A.R.Sharma
6. Nirmal Sharma
7. Dr.B.K.Teway
8. Dr.Akshay Kumar Singh
9. N.Mukerjee
10. Zia Khan
1. **M/s Tata Steel**ShriChanakyaChaudhary

1. ChanakyaChowdhury
2. V.K.Singh
3. PankajSatija
4. RewatiR.Srivastava
5. Dr. M.K.Gupta
6. Uday
7. Ajay S Sahay

M/S MJSJ

1. A.K.singh
2. N.K.Prasad
3. A.N.Nayak
4. V.M.Shastri
5. Kumar
6. Debashish Roy
7. K.G.Vana
8. Dr.A.K.Samataray
9. Binod Kumar
10. ShantanuPuranik
11. B.C.Tripathi
12. C.Jayadev

M/S MCL

1. B.C. Tripathi
2. K.S.Ganapathy
3. Dr.A.K.Samantaray
4. C.Jayadev
5. Debashis Roy
6. A.K.Singh
7. R.V
8. P.R.S Mani
9. VinodK.Verma
10. Ashok Machher

M/s N.C. Ltd.

1. Shri N. Das
2. R.N.Mishra
3. Manoj Kumar
4. B.K.Sharma
5. V.K.Pandey
6. PrakashChauraiya
7. VikasKr.Singh
8. AtalBihari

M/s TenughatEmta Coal Mine

1. ShriSaukar Banerjee
2. Dr. B.K. Tiwari
3. ShriN.C.Mukherjee
4. Shri S.C. Chatterjee
5. ShriA.K. Tooley
6. Shri A.R. Sharma
7. ShriNirmal Shah

M/s Tata Steel

2. ShriChanakyaChaudhary
3. ShriPankajSatija
4. Dr. M.K. Gupta
5. ShriSubhashJeth
6. Shri Ajay Sahay
7. Shri N.C. Varma
8. Shri V.K. Singh

M/s Jindal Power Ltd.

1. Shri T.K. Prasad
2. Dr. J.K. Soni
3. Shri I.N. Rao
4. Dr. Singh
5. ShriRajanAnand
6. ShriShar
7. Shri S.K. Gupta
8. Shri A.K. Singh
9. Shri H.K. Singh
10. Shri S.C. Pal
11. Shri Sanjay Kumar Sharma
12. Dr. Marisha Sharma

13. Shri B.D. Sharma

M/s Global Coal & Mining Pvt. Ltd.

1. Shri V.K. Sehgal
2. Shri R. Bhambry
3. Dr. B.K. Pal

M/s BCCL

1. Shri D.C. Jha
2. Shri V.K. Pandey
3. Dr. E.V. R. Raju
4. Shri S. Parsja
5. Shri V.K. Sinha
6. ShriSumitDatta

M/s NDMC

1. Shri J. A. Kamalakar
2. Shri John Thomas
3. Shri M. NasimAssari
4. Shri K.K. Basu

M/s NSL Power

1. Shri B.S. Rao
2. Shri V. Vinod Kumar
3. Shri E. Shyam Sunder

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 (PM₁₀, PM_{2.5}, SO_x and NO_x), 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 alonewashery) 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.

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/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
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 (PM₁₀, PM_{2.5}, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil along with one-season met data coinciding with the same season for AAQ collection period.

- (xv) Map of the study area (1: 50, 000 scale) (core and buffer zone clearly delineating the location of various stations superimposed with location of habitats, other industries/mines, polluting sources. The number and location of the stations in both core zone and buffer zone should be selected on the basis of size of lease/project area, the proposed impacts in the downwind (air)/downstream (surface water)/groundwater regime (based on flow). One station should be in the upwind/upstream/non-impact/non-polluting area as a control station. The monitoring should be as per CPCB guidelines and parameters for water testing for both ground water and surface water as per ISI standards and CPCB classification wherever applicable. Values should be provided based on desirable limits.
- (xvi) Study on the existing flora and fauna in the study area (10km) carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna. If the study area has endangered flora and fauna, or if the area is occasionally visited or used as a habitat by Schedule-I fauna, or if the project falls within 15 km of an ecologically sensitive area, or used as a migratory corridor then a comprehensive Conservation Plan should be prepared and submitted with EIA-EMP Report and comments from the CWLW of the State Govt. also obtained and furnished.
- (xvii) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until end of mine life should be reflected on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The progressive mine development and Conceptual Final Mine Closure Plan should also be shown in figures.
- (xviii) Details of mining methods, technology, equipment to be used, etc., rationale for selection of that technology and equipment proposed to be used vis-à-vis the potential impacts.
- (xix) Impact of mining on hydrology, modification of natural drainage, diversion and channelling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (xx) Detailed water balance should be provided. The 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 term modelling studies on. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
- (xxiii) Impact of blasting, noise and vibrations.
- (xxiv) Impacts of mining on the AAQ, predictive modelling using the ISCST-3 (Revised) or latest model.
- (xxv) Impacts of mineral transportation within and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop, management plan for maintenance of HEMM, machinery, equipment. Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities.
- (xxvi) Details of waste generation (OB, topsoil) as per the approved calendar programme, and their management shown in figures as well explanatory chapter with tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use. OB dump heights and terracing should be based on slope

- stability studies with a max of 28° angle as the ultimate slope. Sections of dumps (ultimate) (both longitudinal and cross section) with relation to the adjacent area should be shown.
- (xxvii) Progressive Green belt and afforestation plan (both in text, figures as well as in tables prepared by MOEF) and selection of species (local) for the afforestation/plantation programme based on original survey/landuse.

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

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

* As a representative example

Table 2: Stage-wise Cumulative Plantation

S.N.	YEAR*	Green Belt	External Dump	Backfilled Area	Others (Undisturbed Area/etc)	TOTAL

		Area (ha)	No. of trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees	Area (ha)	No. of Trees
1.	1 st year										
2.	3 rd year										
3.	5 th year										
4.	10 th year										
5.	15 th year										
6.	20 th year										
7.	25 th year										
8.	30 th year										
9.	34 th year (end of mine life)										
10.	34-37 th Year (Post- mining)									85	

* As a representative example

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

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

S.N.	Land use during Mining	Land Use (ha)				
		Plantation	Water Body	Public Use	Undisturbed	TOTAL
1.	External OB Dump					
2.	Top soil Dump					

3.	Excavation					
4.	Roads					
4.	Built up area					
5.	Green Belt					
6.	Undisturbed Area					
	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.
- (xxxii) Risk Assessment and Disaster Preparedness and Management Plan.
- (xxxiii) Integrating in the Env. Management Plan with measures for minimising use of natural resources - water, land, energy, etc.
- (xxxiiii) Including cost of EMP (capital and recurring) in the project cost and for progressive and final mine closure plan.
- (xxxiv) Details of R&R. Detailed project specific R&R Plan with data on the existing socio-economic status of the population (including tribals, SC/ST, BPL families) found in the study area and broad plan for resettlement of the displaced population, site for the resettlement colony, alternate livelihood concerns/employment for the displaced people, civic and housing amenities being offered, etc and costs along with the schedule of the implementation of the R&R Plan.
- (xxxv) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project.
- (xxxvi) Public Hearing should cover the details of notices issued in the newspaper, proceedings/minutes of public hearing, the points raised by the general public and commitments made by the proponent should be presented in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
- (xxxvii) In built mechanism of self-monitoring of compliance of environmental regulations.
- (xxxix) 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 app of forestland
		If more than one, provide details of each FC			

GENERIC TOR FOR AN UNDERGROUND COALMINE PROJECT

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

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

Area Under Surface Rights

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

- (vii) Study on the existing flora and fauna in the study area carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna. The flora and fauna details should be furnished separately for the core zone and buffer zone. The report and the list should be authenticated by the concerned institution carrying out the study and the names of the species scientific and common names) along with the classification under the Wild Life Protection Act, 1972 should be furnished.
- (viii) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working plan/scheme until end of mine life should be reflected on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps should also be included.
- (ix) Impact of mining on hydrology, modification of natural drainage, diversion and channelling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (x) Collection of one-season (non-monsoon) primary baseline data on environmental quality ? air (PM₁₀, 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-term modelling studies on the impact of mining on the groundwater regime. Details of rainwater harvesting and measures for recharge of groundwater should be reflected wherever the areas are declared dark/grey from groundwater development.
- (xiii) Study on subsidence, measures for mitigation/prevention of subsidence, modelling subsidence prediction and its use during mine operation, safety issues.

- (xiv) Detailed water balance should be provided. The break up of water requirement as per different activities in the mining operations, including use of water for sand stowing should be given separately. Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-à-vis the competing users should be provided.
- (xv) Impact of choice of mining method, technology, selected use of machinery - and impact on air quality, mineral transportation, coal handling & storage/stockyard, etc, Impact of blasting, noise and vibrations.
- (xvi) Impacts of mineral transportation ?within and outside the lease/project. The entire sequence of mineral production, transportation, handling, transfer and storage of mineral and waste, and their impacts on air quality should be shown in a flow chart with the specific points where fugitive emissions can arise and the specific pollution control/mitigative measures proposed to be put in place. Examine the adequacy of roads existing in the area and if new roads are proposed, the impact of their construction and use particularly if forestland is used.
- (xvii) Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities. Examine whether existing roads are adequate to take care of the additional load of mineral and their impacts.
- (xviii) Examine the number and efficiency of mobile/static water sprinkling system along the main mineral transportation road within the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality.
- (xix) Impacts of CHP, if any on air and water quality. A flow chart of water use and whether the unit can be made a zero-discharge unit.
- (xx) Conceptual Final Mine Closure Plan along with the fund requirement for the detailed activities proposed there under. Impacts of change in land use for mining operations and whether the land can be restored for agricultural use post mining.

Table 1 Stage-wise Cumulative Plantation

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

7.	25 th year										
8.	30 th year										
9.	34 th year (end of mine life)										
10.	34-37 th Year (Post- mining)									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, S 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 (PM₁₀, PM_{2.5}, SO_x, NO_x and heavy metals such as Hg, Pb, Cr, As, etc), noise, water (surface and groundwater), soil along with one-season met data.
- (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 term modelling studies on. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
- (xxiv) Impact of blasting, noise and vibrations.
- (xxv) Impacts of mining on the AAQ, predictive modelling using the ISCST-3 (Revised) or latest model.
- (xxvi) Impacts of mineral transportation within and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop, management plan for maintenance of HEMM, machinery, equipment. Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities.
- (xxvii) Details of waste generation of OB, topsoil as per the approved calendar programme, and their management shown in figures as well explanatory chapter with tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use. OB dump heights and terracing should be based on slope stability studies with a max of 28° angle as the ultimate slope. Sections of dumps (ultimate) (both longitudinal and cross section) with relation to the adjacent area should be shown.
- (xxviii) Impact and management of wastes and issues of rehandling and backfilling and progressive mine closure and reclamation.
- (xxix) Flow chart of water balance. Treatment of effluents from workshop, township, domestic wastewater, mine water discharge, etc. Details of STP in colony and ETP in mine. Recycling of water to the max. possible extent.
- (xxx) Occupational health issues. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine.
- (xxxii) Risk Assessment and Disaster Preparedness and Management Plan.
- (xxxiii) Integrating in the Env. Management Plan with measures for minimising use of natural resources - water, land, energy, etc.
- (xxxiiii) Progressive Green belt and afforestation plan (both in text, figures as well as in tables prepared by MOEF given below) and selection of species (local) for the afforestation/plantation programme based on original survey/landuse.

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

S.N.	Land use Category	Present (1 st Year)	5 th Year	10 th Year	20 th year	24 th Year (end of Mine life)*
1.	Backfilled Area (Reclaimed with plantation)					
2.	Excavated Area (not					

	reclaimed)/void					
3.	External OB dump Reclaimed with plantation)					
4.	Reclaimed Top soil dump					
5.	Green Built Area					
6.	Undisturbed area (brought under plantation)					
7.	Roads (avenue plantation)					
8.	Area around buildings and Infrastructure					
	TOTAL	110	110	110	110	110

* Representative case as an example

Table 2: Stage-wise Cumulative Plantation

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

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

* Representative case as an example

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

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

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

6.	Undisturbed Area					
	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
		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.

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