

MINUTES OF THE 59th EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 6th-7th NOVEMBER 2012 IN NEW DELHI.

COAL MINING PROJECTS

The 59th meeting of the reconstituted EAC (T&C) was held on 06th - 07th November 2012 in Fazal Hall, Scope Convention Centre, Scope Complex, New Delhi to consider the projects of coal mining sector. The list of participants of EAC and the proponents are given at Annexure-1 and 2 respectively.

Confirmation of the minutes of the 57th Expert Appraisal Committee (EAC) (Thermal & Coal Mining) meeting held on 17th-18th September 2012 was confirmed.

TUESDAY, 6th NOVEMBER, 2012

1. Dhuptala Open Cast Mining Project (1.7 MTPA production capacity in an area of 1300.91 ha) M/s Western Coalfields Ltd., located in Wardha Valley, district Chandrapur, Maharashtra (EC based on TOR granted on 09.02.2009)

1.1 The proponent made the presentation and informed that:

1.1.1 **Details of the project:**

- (i) The proposal is for conversion of Sasti underground mine to opencast mine (OCP) and to amalgamate it with the existing Dhuptala OCP. The main consumer of coal is MAHAGENCO. Of the total lease area of 1300.91 ha, 1264.31 ha consist of agricultural land (land to be acquired – 879.14 ha and 385.17 ha is under possession) and 36.60 ha Govt. land (to be acquired) and 5 ha outside ML area for colony.
- (ii) The land use pattern of the of the open cast area (total 1300.91 ha) would be 385.68 ha for excavation area, 396 ha for external OB dump, 30 ha for infrastructure / approach road, 3 ha for colony, 15 ha for nala diversion, 381.23 ha for rationalization of mine boundary, 90 ha is for embankment.
- (iii) River Wardha flows adjacent to the ML boundary.
- (iv) The mineable reserve is 54.60. The depth of initial mining is 25 m and final depth would be 150 m. The gradient of seam is 1 in 10 to 1 in 18. The average thickness of seam is 15.68 m and the coal-F, GCV 4310/G11 Kcal/kg. The stripping ratio is 5.12 m³/t. Average Strike length at floor is 1400 m.
- (v) The open cast mining would be by Shovel & Dumper combination. Continuous miner would be introduced in future.
- (vi) The total OB (including access trench) would be 279.50 Mm³. Of the total excavated area, 200 ha excavated area would be backfilled. The backfilling will be started from 10th year of the opening of the project. It was informed that the total O.B. would be 289.16 Mm³. OB in external O.B. dump would be 203.46 Mm³ (including 6.0 mm³ OB in embankment, 34.30 Mm³ OB in external dump (unconsolidated) and 163.16 Mm³ (hard OB) in external dump. OB in internal dumping would be 85.70 mm³.
- (vii) In the post-mining stage, the land use pattern would be that the area under plantation would be 756 ha, public use will be 36 ha, undisturbed/area will be 23 ha, water body in 185.68 ha area with 150 m depth. At the end of mining total 756 ha area would be under plantation with 1890000 no of plants.
- (viii) Dhuptala nala and a local drain are flowing through the proposed quarriable area and drain into Rajur nala and further to Wardha River. The ground water level in core area is 6.75-7.40 mbgl in pre-monsoon period and 0.60 mbgl -0.70 m bgl in post-monsoon season. Of the total peak water requirement of 460 m³/day, 260 m³/day will be industrial

and 200 m³/day domestic requirement. The Proponent has proposed flood protection embankment against (HFL 271.88 m) of Wardhariver, which is 6 m above HFL with top width of 30m. Life of mine is 37 years. The coal transportation would be carried out by tarpaulin covered trucks.

- (ix) On enquiry by the committee the proponents informed that final void of 185.68 ha and 150 m depth was being left for future expansion on the dip side for which detailed exploration is yet to be done. The committee after deliberation opined that since the life of the mine is 37 years. And uncertainty about future position condition of 185.68 ha area with 150m depth void filling and rehandling of external OB dump-- will be given. The proponents can come up for revision with expansion programme in time.

1.1.2 Cost of the project: The capital investment for the mining would be Rs.194.1064 crores and there would a provision of Rs10.82 crores for the R & R cost. The environmental management & protection cost would be Rs 30 Lakh and recurring cost Rs 51.00 Lakh/annum.

1.1.3 CSR cost: The CSR cost would be Rs.6.00 lakhs / year. Neighboring coal mines in the area are Ballarpur UG, Ballarpur OC, Sasti OC, New Dhuptala OC, Gauri-I OC, Gauri-II OC, Pauni OC. Wardha River is about 150 m..

1.1.4 Forest land, National Parks: There is no forest land.No National Parks, Wildlife Sanctuaries, Biosphere Reserves is reported to be found in the 10 km buffer zone.

1.1.5 Public Hearing: The Public Hearing was held on 07.12.2011. The main issues raised during the Public Hearing were employment to local people demand for employment of handicapped people, adequate financial compensation for their land, employment to the kins of the project affected families, compensation for crop damage,concerned for express over possibility of diversion of Wardha River, decline of ground water, occurrence of flood due to overburden during monsoon period, difficulty in cultivation of crops, Rehabilitation & Resettlement. Concerns were also expressed that there are 500 PAF's in Sasti village which is located in quarriable area, 500 mt away which is proposed to be shifted to a new site. The proponent assured to take necessary action on the issues raised during public hearing.

1.2 The Committee after deliberations specified the following specific conditions:

- i. A Social Audit should be carried out annually for CSR activities. CSR activities should be carried out @ Rs 5/MT of production apart from Rs 80 Lakhs one time Capital expenditure.
- ii. The proponent should prepare restoration and reclamation plan for the degraded area. The land be used in a productive and sustainable manner.
- iii. Compensatory Ecological & Restoration of waste land, other degraded land and OB dumps in lieu of breaking open the land be carried out.
- iv. The mining should be phased out in sustainable manner. No extra over burden dumps are permitted.
- v. 100% backfilling should be carried out.
- vi. The transportation of coal should be by a combination of road and rail. The road transportation of coal from the mine to railway siding will be by road and thereafter by rail to MAHAGENCO.
- vii. Mechanically covered trucks should be introduced for coal transportation.
- viii. Wagon loading at railway siding to be by mechanized hopper/silo loading.
- ix. The proponent should implement the assurances given during the Public Hearing.

1.3 The Committee recommended the project for Environmental Clearance with the above mentioned specific conditions, in addition to the general conditions. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

2. Proposed Penganga Opencast Mining Project (3 MTP (Normative) and 4.5 MTPA (Peak) production capacity in an area of 781 ha) of M/s Western Coalfields Limited. village Wirur, Dist. Chandrapur, Maharashtra (EC based on TOR granted on 15.04.2009)

2.1 The Proponent made the presentation and informed that:

2.1.1. Details of the project:

- (i) The total ML area is 781 ha, out of which 670.61 ha is agriculture land (655.61 ha is within ML area and 15 ha is outside ML area), 110.39 ha is Government land. The land use during mining of 781 ha area, 240.10 ha for excavation area, 208.60 ha is for external dump, 22 ha is for infrastructure, 95.30 ha is for approach roads/embankment, 15.00ha for Township / Colony, 200 ha is for Blasting zone and Rationalization Area.
- (ii) The main drainage of the area is controlled by the Penganga river, which is flowing northerly and is also demarcating the western limit of the block. A few seasonal nalas are passing through the area and their flow direction is from south to north. These nalas join easterly flowing Penganga River in the north which ultimately joins Wardha River near Erai village. The entire area of the block is covered by agriculture land with black cotton soil. Penganga River is flowing between proposed mine and Mungoli mine. However a physical barrier in the form of a river separates the two mines.
- (iii) Entire OCP is under HFL of the river. A bridge over Penganga river has been proposed for approach to project and coal transportation. This bridge will connect the project from Ghughus siding, which is at a distance of about 16 km.
- (iv) The grade of coal is 'F' grade.
- (v) Mining would be by surface miner and shovel & dumper combination.
- (vi) Depth of mine will be 20-170 mt. The gradient of seam is 1 in 7.5 to 1 in 14. The mineable reserve 44.06 MT. The average stripping ratio would be 3.61 m³/t. The seam is 90 m thick.
- (vii) Total OB generated at the end of mining will be 158.97 Mm³ in an area of 240.10 ha, 108.50 Mm³ OB in external dump including embankment will be dumped in an area of 208.60ha and 50.47 Mm³. The total OB will be accommodated in de-coaled void as internal dump with 82.50 ha area. Backfilling and ext. The OB dumping would begin from 4th year and only internal dumping from the 16th year. External OB dump with projected height of dumps 90m/45m. The water level in core area would be 2.45-16.40m bgl (Pre-monsoon) and 1.65 -9.5 m bgl (Post -monsoon).
- (viii) The total peak water requirement would be 850 m³/day out of which 610 m³/day would be industrial and 240 m³/day would be for domestic use. Mine water discharge during monsoon season would be 10500 m³/day.
- (ix) At the end of the mine Life, 82.50 ha would be backfilled reclaimed area, 157.60 ha will not be reclaimed area for void.
- (x) Out of the total 208.60 ha area for external OB dump, 175 ha area would be reclaimed with plantation, 60 ha area undisturbed area (brought under plantation), 272.30 ha area around buildings and infrastructure including internal roads of the total 351.10 ha area covered with total 877750 no of plants.

2.2 The coal transportation would be by road.

2.3 The R&R consists of 350 PAFs from Wirur village. The Wirur village is located centrally in the proposed mine area and is proposed to be relocated to a new site (under mutual agreement & consent

and as per CIL's R&R policies). Total budget for R&R would be Rs 52.6808 Crores. The CSR would be Rs 5/T of Coal. The life of the project is 19 year.

2.4 **Cost of the project:** The cost of Environmental Protection Measures(Capital cost) would be Rs 35 Lakh and annual recurring cost would be Rs.35 Lakh. The capital cost of project would be Rs. 339.7706 Crore.

2.5 **Forest land, National Parks:** There is no forest land involved in project. No ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries. There are no endangered or endemic species are reported in the area.

2.6 **Public Hearing:** The Public Hearing was held on 03.03.2012. The issues raised were acquisition of land, employment to local inhabitants, concern over the proposed expansion of Mungoli project as Penganga River is flowing between proposed mine and Mungoli mine as well as over the distance of OB dump from the river, recent survey regarding environmental status of the region, demand for the employment to the unemployed youths of the region, They also expressed concern over the data mentioned in EIA/EMP report, environmental and social factors of the region affected, environment management plan should be developed to protect environment of the region, increasing pollution in the region etc. The proponent has assured to take appropriate action to the concerns raised during the public hearing.

2.7 The Committee after deliberations specified the following specific conditions:

- i. The proponent should backfill the entire OB and restore the area for agriculture purpose.
- ii. The CSR to be enhanced to Rs 5/T with escalation factor each year with one time Capital Cost of CSR as 1.40 Crores . A letter in this regard should be submitted to the MoEF.
- iii. The entire OB dump at site of mining should be restored as agriculture land.
- iv. The coal transportation should be by mechanically covered trucks.
- v. Bulk loading arrangement should be provided at railway siding.
- vi. The proponent should address the issues raised during public hearing.

2.8 **The Committee recommended the project for Environmental Clearance** with the above mentioned specific conditions, in addition to the general conditions. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

3 Bicharpur underground coalmine project (0.5 MTPA normative and 0.75 MTPA Peak in an area of 500 ha) of M/s Madhya Pradesh State Mining Corp. Ltd. located in Sohagpur Coalfield dist. Shahdol, M.P. (EC based on TOR dated 23.12.2010).

3.1 The proponent made presentation and informed that:

3.1.1 Project details:

3.1.1 Coal block was allotted to the M.P. State Mining Corp. Ltd. (Lessee) who has entered into an Agreement with ACC for providing 0.5 MTPA of coal for its linked cement plant.

3.1.2 The underground coalmine project of 0.5 MTPA (normative) with a peak production of 0.75 MTPA in an ML area of 500ha will consists of 75.750 ha of protected forest, 35.061ha of revenue forest, and 319.457ha of agricultural land. The land belongs to villages of Kalyanpur, Senduri, Bicharpur and Shahdol.

- 3.1.3 The entire block is coal bearing land. The proponent proposed to acquire 15.39 ha of land of which 4.83 ha will be within lease area and 10.56 ha will be adjacent land outside lease for the colony is non-coal bearing.
- 3.1.4 The underground mining will be by mechanized Bord & Pillar method with caving. Mechanization will be done by introducing two sets of continuous miners with shuttle cars and Multi Roof Bolters.
- 3.1.5 The ultimate depth of mining will be 270 m. The strike of beds are E-W with the dip varying from 1° - 4° . There are four coal seams in Bicharpur block viz. I, II, III (III A and III B) and IV are present in ascending order and are intersected. The seam thickness ranges from 0.15 m to 6.05 m. The gross Geological Reserves has been estimated to be 56.20 MT and the net extractable reserves would be 49.58 MT. The mineable reserve has been calculated to be 29.12 MT only three seams would be worked. While the seams would be partially extracted, the upper seam would be left un-extracted so that there will be no surface subsidence. Mine entries will be through two inclines and there will be one shaft for ventilation. The incline will be driven at Gradient of 1 in 5 or 11.50. The mining will intersect seam IV at 800 m and will be continued further to intersect the lowest Seam II at 1200 m. All three seams will be developed and extracted partially one after the other. There will be no drilling and blasting activities.
- 3.1.6 The mine has been planned to have no surface subsidence. The surface subsidence will be measured as prescribed by DGMS. The proponent indicated that due to planned method of work, it is expected that there will be no surface subsidence over 99% lease area. The mine will be closed with least damage to surface and the environment.
- 3.1.7 Total water requirement will be 130 KLPD for mine and 240 KLPD for the colony. The water levels would be 4.37 m bgl to 9.02 m bgl during pre-monsoon and 1.54 m bgl to 6.48 m bgl during post-monsoon. The Lotna nalla which flows from South to North divides the block in two parts. Two nallas, viz. Bagtha and Murna, flow from West and East respectively in northern part of the property, and join Lotnanala within block.
- 3.1.8 The coal grade is C to G and average grade would be E.
- 3.1.9 It was informed that 40 mt area would be left on both sides of the nala. The drainage of the area will be controlled by Son river. Son river is in eastern part of Buffer Zone. A small part of 43.639 ha of the land will be extending over the northern part of the lease area of Shahdol which is already part of the Shahdol town.
- 3.1.10 The production will begin from the 4th year and rated capacity would be reached by the 5th year.
- 3.1.11 The transportation of coal to the siding 3 km away would be by road through mechanically covered trucks and then by belt conveyor and thereafter by rail to the linked cement plant at a distance of 90km. The transportation of coal to siding will be done by using 30 T closed dumpers. Railway siding will be brought to near the mine site.
- 3.2 **National Park / Sanctuary biosphere Reserve:** No National Park / Sanctuary biosphere Reserve etc are present within 50 km radius. Most of the degraded forests would be the in lease area. The forest in buffer zone has reasonable flora and fauna. Only one schedule-1 species i.e. Peafowl or Peacock has been reported in area. The process for diversion of the forest land has

been initiated in 2011. The State Govt., vide Letter No. F-1/636/2011/10-11/3515, dated 13.12.2011 has forwarded the Proposal for diversion of forest land to MoEF.

3.3 Public Hearing: The Public Hearing was held at site on 23.12 2011. The public raised issues such as pollution due to coal mining activities and raised concern over depletion of the level of ground water, drying up of ground water resources, location of siding, impact of mining on Shahdol town. There were apprehensions on the impacts of the vibrations due to blasting which might damage buildings and to the old temple in Shahdol. There were demands for employment to locals, supply of treated mine water for drinking purposes etc. The proponent assured to take necessary action on the issues raised during public hearing.

3.4 No R&R is involved.

3.5 CSR: The Proponent proposed CSR budget of Rs.7.5 Crores (Capital) and annual revenue budget would be Rs.1.875 crores. The environmental management plan budget would be Rs.79 Lakh (Capital) and Rs 12.50 Lakh (Revenue/annum) respectively.

3.6 The life of the mine will be 41 years. The mining plan has been approved vide Letter No. 13016/24/2011-CA-I, dated 02 August 2012.

3.7 The Committee after detailed deliberation specified the following specific conditions:

- i. The CSR expenditure (Capital) should be Rs 9.375 Crores upto 5th year and Rs 5/T of coal for revenue expenditure after completion of the project with suitable escalation factor every year.
- ii. Continuous monitoring equipment should be installed and continuous monitoring of subsidence and fire should also be carried out with mitigation measures.
- iii. Coal transport to railway siding should be by mechanically covered trucks and mechanized hopper /Silo loading in the wagon.
- iv. The proponent should address the issues raised during public hearing.

3.8 The Committee recommended the project for Environmental Clearance with the above mentioned specific conditions, in addition to the general conditions. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

4. Ara-Sarubera Group of Mines 1.44. MTPA (nominal) 1.66 MTPA (peak) in combined area of area of 1194.85 ha of M/s Central Coalfields Ltd., located in dist. Ramgarh, Jharkhand (EC based on TOR granted on 03.07.2009)-further consideration.

4.1 The proposal was considered earlier in the EAC meeting held on 23-24 January 2012.

4.2 The proponent made the presentation on the issues raised in the EAC meeting and informed that:

- 4.2.1 **Project details:** The acquisition of tenancy land is required both in Ara OCP as well as in Sarubera/Chainpur OCP. However, only in Ara OCP there will be shifting of households for implementation of the project. In the Sarubera underground project and Chainpur open cast project no PAFs would be shifted but the land would be acquired from Sarubera and Ara basti. In Ara OCP, out of the total 534 PAFs, 266 nos will be from Dumerbera, 98 from Baghlata Basti, and 160 from Ara Basti would be shifted and land will be acquired from these

villages. The affected families will be rehabilitated as per the R&R Policy of CIL (Revised in April 2012).

- 4.2.2 The compensation of land would be at the rate of Rs 5 Lakhs per acre of land subject to a minimum of Rs 0.5 lakh. The payment of Rs 3 Lakh will be made in lieu of alternate housing site, assistance in designing & shifting, compensation for construction of cattle shed and working shed etc. The affected landless tribal families will be provided one time financial assistance equivalent to 500 days MAWs as a compensation for loss of customary rights.
- 4.2.3 The Rehabilitation Site has been selected at Mourpa. The area of Rehabilitation Site is 64.25 ha, out of which 31.07 ha has already been acquired from tenancy land. Balance of 31.18 Ha of Govt. land is in process of acquisition. This Rehabilitation Site shall also be used for accommodating the PAFs from other Projects of Kujua Area. Minimum compensation of Rs 1572.0Lakh would be provided to homestead 534 PAF (266 from Dumerbera, 98 from Baghlata Basti, 160 from Ara Basti.). It was informed that the tentative time schedule for rehabilitation would be completed in 2017-18. Out of the total 524 PAFs, 144 PAFs are tribal families which would be provided with one time financial assistance @ Rs 180/day, total Rs 12.6 lakhs.
- 4.2.4 The proponent has examined the option of reworking the OB management to maximise backfilling and reducing external dumping. The internal dump will be in Quarry-1 & 2 in Ara OCP, the OB dump will be in an area of 73.0 Ha with 18-20m height, after rehandling of 7.25 Mm³ OB.
- 4.2.5 The Quarry -3 in void of Ara OCP will be reduced with 13.53 ha area and 60 m depth after filling of 7.25 Mm³ OB. Dump of Patch-I of Chainpur OCP (barrier overlap) will be in 72.52 Ha area and 18-20 m height after OB rehandling of 4.7 Mm³. The void of Patch-I of Chainpur OCP will be 19.13 ha area & 45m depth after rehandling of 4.7 Mm³ of OB. Similarly, the void of Patch-II of Chainpur OCP 6.32 ha area & 0m depth and Patch-III of Chainpur OCP 20.57 ha area & 35m depth - recommended for filling by OB from other OC mines of CCL.
- 4.2.6 The post-mining land use of Ara Surubera Group of mines would be that out of the total 1194.85 ha area, 245.41 ha area will be under plantation. 85.84 ha area will be for water body, 479.49 ha area for public use, 384.11 ha area will be undisturbed.
- 4.2.7 The mine closure plan envisages of a fund provisioning of Rs. 6 lakhs/ha on lease hold area for OC mines with proper escalation factor.
- 4.2.8 Fixed sprinkler are proposed at pit-top truck loading hoppers in all the three mines. Fixed sprinklers are proposed at North Ramgarh siding for dust control during coal loading. Three Mobile (2x28 KL and 1x10 KL) water sprinklers are operating on haul road / coal transportation road from Ara OCP, Chainpur OCP and Sarubera UGP to the sidings.
- 4.2.9 Plantation has already been done on OB dumps, avenue plantation has been carried out viz. 25000 saplings in Sarubera & 2,41,000 saplings in Ara colliery. Development of green belt around dust generation sources in all the three mines will be included. Further, 3-tier avenue plantation is under progress.
- 4.2.10 There is a plan that only covered trucks of higher capacity (25-tonne) will be used for coal transportation to railway siding. The loading of coal is proposed to be by pay loaders.

4.2.11 **Forestry issues:** The Stage-II forestry clearance for 166.90 Ha land has been obtained on 13.08.2008. Additional forestry clearance is not required in Ara OCP area. In Chainpur OCP area, Stage-II forestry clearance for 196.55 ha land has been obtained on 13.08.2008. Additional forestry clearance is not required in this case. A total 363.45 Ha forest land has been acquired.

4.2.12 **Public Hearing:** The Public Hearing was held on 12.06.2010. The Public raised issues pertaining to the measures to control pollution in the area, provision of education, road, water supply, dust pollution control, compensation to affected families, providing better care for children's health, provision of Dispensary, training to villagers. There were suggestions for carrying out blasting away from village/colony. The proponent has assured to address the issues raised during public hearing.

4.3 The Committee after detailed deliberation specified the following specific conditions:

- i. Although Ara-Surubera seam is reported to be not in the continuation as that of Jharia seam, lessons from Jharia coal mining fire and adequate precautions be taken to prevent any chances of fire in Ara-Surubera.
- ii. The possibility of sand stone, wherever is present in the OB as per lithology report, be explored and be provided to locals free of cost.
- iii. The mine void should be in 13.53 ha area with 20 mt depth after refilling the OB in quarry 3. There shall be no void in quarry 1&2.
- iv. In Chainpur OC mine patches, final mine void depth will not be more than 15-20m. This be achieved by rehandling of OB Dumps in the area.
- v. The void should be in 13.53 ha area with 20mt depth after refilling the OB.
- vi. Ara OCP area and depth of void of quarry no. 3 should be up to 20 mt. Details be submitted to the MoEF for record.
- vii. The area of OB dump should be reduced. The grass turfing should be done on OB dumps.
- viii. CSR Rs 5/Tonne of coal production with escalation factor be provided under the CSR apart from one time capital expenditure of Rs 1.25 Lakhs
- ix. An Action Plan for mine closure with details of area, depth, voids and the details of abandoned mines should be submitted to the Ministry. This may also be provided as mentioned in Kuju area.
- x. Extensive plantation should be done near agriculture area to avoid coal dust pollution which may affect the productivity of crop.
- xi. Adequate numbers sprinklers should be provided on both the sides of road to minimize dust pollution.
- xii. Mechanized loading should be introduced in due course of time at the Railway siding.
- xiii. Mechanically covered truck should be provided for transportation of coal.
- xiv. Extensive plantation be made to curb the fugitive coal dust emission.
- xv. Compliance of the EC conditions be monitored by the MoEF and other concerned agencies.
- xvi. CSR Audit should be carried out annually.
- xvii. A special Corpus Fund either at company level or in CIL/MOC be provided for reclamation of abandoned and degraded areas.

4.4 The Committee recommended the project for Environmental Clearance with the above mentioned specific conditions, in addition to the general conditions. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil

contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

5. Tetariakhar OCP (0.5 MTPA to 2 MTPA (normative) and 2.5 MTPA (peak) and expansion in ML area from 131 ha to 208.47 ha) of M/s Central Coalfields Ltd., North Karanpura Coalfields, Dist. Latehar, Jharkhand (EC based on TOR granted on 10.12.2009)

5.1 The proposal was considered in earlier EAC meeting held on considered in 16th-17th July 2012. The committee sought clarification from the proponent.

5.1.1 The Committee sought information from the proponent on the extent of forestland involved in the project and requiring diversion should be clarified in a letter; a toe wall should be provided and dense plantation should be developed on the lower side of OB dump; sand stone wherever is present in the OB as per lithology report, be provided to locals for further use; the depth of the final void should be no more than 30-40m and used for pisciculture; unconfined aquifer should be covered with shale with an additional estimated cost of Rs 6 Crores and the height of the external OB dump should also be reduced to 25m or less, which could support agriculture/horticulture in consultation with local villagers and the dump merged with undulation of the surrounding environment; the list of Schedule-I fauna provided in the presentation is not correct. The Committee sought copies of WL Conservation Plan for seeking comments from expert, WII, Dehradun; local youth should be motivated and provided skilled development training as it is a disturbed area; Rs 70 lakhs earmarked for CSR for 2012-13 should be spent on socio-economic schemes/measures for the poor; expressed concern that only Rs 38 lakhs have been spent during the last 5 years towards CSR and desired that the status of spending on CSR on various projects should be made part of the company's Annual Report; a Social Audit should also be carried out by an outside agency; most of 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; maximum employment in the project should be from the local communities.

5.2 The proponent made presentation and informed that:

5.2.1

- i. There is no forest land involved in the mining area. However, 0.85 ha of forest land falls in safety zone, which is not to be acquired. It was clarified that 52.04 ha land which has been demarcated as "Scrub land & plantation" is not forest land but plantation area as per the present land use plan generated through Satellite Imagery.
- ii. Of the total land of 208.47 ha, 141.74 ha is Tenancy Land, 65.88 ha is Government Land, 0.85 ha is Forest land (for safety zone not to be acquired).
- iii. The toe wall has been proposed on the south side of the OB dump and dense plantation will be developed on lower side of OB dump to consolidate the dump;
- iv. The proponent agreed that sand stone present in the OB shall be provided to locals free of cost for further use as per their requirement.
- v. At the end of mining, the height of OB dump would be 60 m and after reclamation the dump height will be reduced to 25 m. and the dump profile will be given gentle slope with respect to adjoining ground.
- vi. The void depth would be 130 m and after reclamation it will be reduced to 40 M and can be gainfully utilized by the local community for agriculture, horticulture, pisciculture, irrigation etc.

- vii. An additional approximate cost of Rs. 6 crores has been estimated for this purpose.
- viii. It was informed that necessary skill development training will be imparted for jobs such as drivers, mechanics, electricians, carpenters for local men and tailoring, laundry, weaving, silk rearing etc. for local women. Such programmes are already being implemented in other nearby areas of CCL, namely Piparwar & NK Area.
- ix. Contractors will be contractually bound to give jobs to eligible local youths on preferential basis.
- x. There is a plan for implementation of Tetariakhar Expansion OCP and consequent Rail connectivity will be followed by industrialization in and around Rajhara Area, leading to major socio-economic development in this locality, which is presently devoid of any other industrial activity other than Tetariakhar OCP.
- xi. Social Audit shall also be carried out by a reputed outside agency. This will be done through active participation of local NGOs.

5.2.2 Public Hearing: The Public Hearing was held on 17.04.2012. The issues raised during Public hearing were concern over dust generation due to road transportation coal, adequate plantation, road construction. There were suggestions that the mine water which is presently discharged into nala should be diverted to Nagara Village, provision of medical facilities & School and employment to local people etc. Concerns were also expressed on the depletion of ground water level. The proponent informed that a total number 51 employment has been given till date. All the beneficiaries were local youths from Bahera Village including its tola, Tetariakhar. Additional employment shall also be given to local youths. It has been estimated that employment to about 124 local youths can further be given in this Project. The proponent assured to take necessary action on the issues raised during public hearing.

5.2.3 Forestry issues: The Conservation Plan has been prepared by IFP for Wolf, Hyaena & Vulture and submitted to the MOEF in August 2008. The Conservation plan was discussed with Dean, Wild Life Institute (WLI) who desired confirmation on the presence of Wolves, Vulture & Hyenas through fresh survey in August 2012. The fauna survey was conducted by Dr D. S. Srivastava, Rtd. WL Biologist, Daltonganj College. The Schedule- II fauna like Jackal, Jungle cat, Ruddy Mongoose, Rhesus Monkey, Common Palm Civet, Black faced Langoor reported in area Wildlife habitat in and around Tetariakhar mine has been completely degraded. There is no schedule-I species either recorded or reported in the study area. The proponent involved Panchayats for plantation of native plant species in their operational areas (core & buffer). The WL Biologist, Dalton ganj recommended steps/measures for protection of fauna and its habitat e.g. generation of awareness amongst community on conservation of forests & wildlife through Panchayats, Forest Dept, Schools and other institution, provision of anti-venom in local hospitals against snake bites; provision may be made for alternate energy sources for reduction of fuel wood consumption; initiation of breed improvement programs for cattles to promote stall feeding

5.3 The Committee after detailed deliberation specified the following specific conditions

- i. The nala should not be choked due to untreated mining water discharge.
- ii. The sand stone present in the OB should be provided to local people free of cost for further use.
- iii. The depth of final void should be 40 mt in 108.57 ha area and should be used for pisciculture. Final External dump of 60 ha and 25 m height.

- iv. The CSR budget should be Rs. 70 Lakhs for 2012-13 and the same should be continued till the end of the mine with proper escalation factor every year.
- v. Plantation should be provided near the dust generation points.
- vi. The road should be maintained properly.
- vii. The comments of Dr.Mathur, Dean, WLI on the revised Conservation Plan to be provided to the MoEF.
- viii. A budgetary provision of Rs 1Crore /annum should be provided for conservation of fauna.

5.4 The Committee recommended the project for Environmental Clearance with the above mentioned specific conditions, in addition to the general conditions. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

6. Rubodh Open Cast coal mining project (2.5 MTPA in an area of 458 ha.) of M/s Jharkhand State Mineral Development Corpn. Ltd. Village Rubodh, Dist.Ramgarh, Jharkhand (TOR).

6.1 General Manager (Mines) of M/s Jharkhand State Mineral Development Corp. Ltd., vide letter no 1919 dated 02.11.2012, informed that the land use pattern of the core zone based on revenue records submitted to State Revenue Department for authentication. The authentication is likely to be completed by State Govt. by the end of Nov. 2012.

The Proponent has not appeared before the Committee. The proposal was deferred to future meeting.

7. Orient underground mining project No.3 (expansion in production capacity from 0.49 MTPA to 0.69 MTPA(i.e. 0.20 Mty incremental in an area of 1504.559 ha) of M/s Mahanadi Coal Field Ltd., in dist. Jharsuguda, Orissa (EC based on TOR granted on 14.07.2008)-further consideration.

7.1 The proposal was earlier considered by the Committee on 23rd and 24th May, 2011. The Committee sought clarification from the proponent that : (i) a time-bound programme for the implementation of commitments made during Public Hearing; (ii) the data generated on baseline environmental quality of air, water and noise is old (2005-06) and the same data has been shown for two different seasons - pre-monsoon and post monsoon which is not realistic; (iii) no monitoring station was provided in the southern direction (down wind direction; (iv) one season data which includes PM₁₀ and PM_{2.5} should be collected; (v) the coal being transported by road be also dispatched by conveyor system to be established within 2-3 years to a common CHP and loading should be by bulk loaders; (vi) a Plan with time bound commitment for implementation of issues raised in the Public Hearing be submitted; (vii) Information with regard to the forest clearance of project.

7.2 The Proponent made the presentation and informed that:

- i. The Public Hearing was held on 23.04.2010. The proponent has also submitted information on issues raised during Public Hearing in tabular form along with the commitment made by proponent. The issues raised during public hearing were with regard to provision of adequate measures for dust suppression during coal transportation by road; provision of medical facilities, proper treatment of mine drainage water and supply to nearby villages, precautionary measures to be adopted to avoid lowering of groundwater table in the area due to UG mine, adequate dust suppression measures at the

Orient Railway siding and this should be operated all the time and at the same time the mine authority should take initiation for shifting of this siding, sand stowing in the underground mined out area, reasons of sealing the bore well in Sanjob village etc.

- ii. A fresh baseline environmental quality data for air, water, noise and soil has been generated for pre-monsoon season March, April and May 2012. The baseline data has been generated by M/s Richardson & Cruddas (1972) Ltd. and were presented before the Committee. The ambient air quality was monitored at 8 locations i.e. two in core zone and the remaining six in buffer zone. A total number of 24 samples (24 –hourly) for PM₁₀, PM_{2.5}, SO₂, NO_x, CO, O₃, NH₃ were taken. All the values are found to be within the stipulated standards except PM₁₀. The wind rose made from these data shows that the predominant wind direction is from South West to North East. Eight air quality monitoring stations have been fixed covering Orient Group of Mines. Lajkura village (A8) falls directly south of the Orient Mine No.3.
- iii. The quality of ground water and surface water were found to be safe so also the mine water. These are within the norms of IS: 10500-1991 and IS : 2296 – 1982 respectively. Therefore, the proponent has informed that the mixing of mine effluent will not have any adverse effect on surface and ground water.
- iv. The village Gandghara (A4) falls in the down wind direction (NE) of the Orient Mine No.3. It was informed that Railway siding is situated only 1200 m away from Orient U/G Mine No.3. Maximum coal production is 1600 te/day and coal transportation by Tippers having capacity of 16 te which are plying to railway siding.
- v. A dedicated coal transportation road having 9.0 m width consisting greenbelt plantation for dust suppression has already existing.
- vi. The existing year wise greenbelt plantation along both side of the road is provided and 47,600 nos of plants/trees planted from 2009 to 2012.
- vii. Two nos. of fixed sprinklers are functioning at railway siding for dust suppression. Further 10 sprinklers are proposed to be installed by March 2013. Mobile tankers having capacity is sprinkling water 10 trips a day on coal transportation road and 5 trips/day in Railway siding are being provided.
- viii. It was informed that providing belt conveying system has not been found feasible for such meager quantity of coal transport but a new siding at the extension of existing Lajkura siding is under construction which may replace the orient siding in future.
- ix. The total forest land area within the mining lease hold area of Orient Mine No.3 is 865.464 ha.
- x. The Proponent has already applied for mining permission. Govt. of Odisha, vide letter dt: 01.10.12. has forwarded the application to the Forest division of the MoEF, New Delhi. The proposal is pending for site inspection by the Addl. Chief Conservator of Forest (Central), MoEF, Bhubaneswar.
- xi. The third Party evaluation of the environment quality data for the project was done through M/s. Richardson & Cruddas (1972) Ltd., Chennai, a Govt. of India undertaking. It has an MOU with M/s Chennai Testing Laboratories Pvt. Ltd whose lab is accredited by NABL, and is valid from 08/12/10 to 07/12/12).
- xii. The Capital investment upto March/2010 was Rs.886.71lakhs. Addl. capital investment would be Rs 120.36Lakh. The Environment Management Plan (EMP) capital investment would be Rs 472.71Lakh,
- xiii. Corporate Social Responsibility Cost would be Rs.14.80 Crores and the mine closure cost would be Rs 32.87.41Crores.

7.3 The Committee after detailed deliberations specified the following specific conditions:

- i. The loading should be by bulk loaders at Lajkura siding.
- ii. The Stage-I Forest Clearance is required before the EC is finally accorded.
- iii. The proponent should give the details of the public Hearing to the MoEF in a tabular form along with the budgetary provision.
- iv. Coal transportation should be by covered trucks.
- v. Rs 5 /Tonne of coal production with escalation factor every year be provided under the CSR for the life of the project.

7.4 The Committee recommended the project for Environmental Clearance subject to Forest Clearance with the above mentioned specific conditions, in addition to the general conditions. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations..

8 Manoharpur Opencast Coalmine Project (8 MTPA) ofM/s Orissa Power Generation Corp. Ltd. located in Ib Valley, Dist. Sundergarh, Orissa (EC based on TOR granted on 11.07.2008)- further consideration

8.1The proposal was earlier considered in EAC meeting held on 16th-17th July, 2012. The Committee sought clarification with regard to: (i) the original topo sheet of the study area so as to ascertain the presence of large number of water bodies in area; (ii) a copy of the approved Mining Plan be submitted to Ministry; (iii) revised mining plan and details of mine closure be submitted; (iv) clarification on details of dumping of fly ash; (v) details of the environmental clearance granted to the linked TPPs and extracts of the EIA/EMP of the linked TPPs, wherein the issue of disposal of flyash has been given be furnished; (vi) all supporting documents regarding dumping of flyash in mine void including leachability study; (vii) proper appraisal is required for dumping fly ash in mine voids; (viii) letter from the Odhisa State Govt. be obtained for allotment of 324.367 ha land outside coal block for OB dumping and infrastructure, in view that the State Govt. has banned acquisition of land outside coal blocks for OB dumping, infrastructure, etc vide Dept. of Steel & Mines, Govt. of Odisha's Office Order No. 1275/SM, Bhubaneswar IV (Coal) SM-03/2011 dated 24.02.2012; (ix)the geological map, geological section of ML area be provided by proponent on whether the coal could be mined by UG mining as the project formed a part of watershed; (x) the project was originally in 'No-Go' area and was subsequently revised to 'Go Area'. The status of forestry clearance be given; (xi)The CSR expenditure is only proposed for 5 years and should be at Rs 5/T and desired that it should be extended to cover the life of the project; (xii) issues raised in Public Hearing have not been addressed properly. The issues of PH should be in tabular form viz. name of complainant along with issues raised, issues addressed by proponent along with specific budgetary provision on these activities under CSR.

8.2 The proponent made the presentation and informed that:

- i. The original topo sheet has been submitted to the MoEF.
- ii. There were small and seasonal water ponds exist in the Manoharpur village of the project area. As Manoharpur village will be totally displaced, these ponds will no more be used by the villagers.
- iii. A copy of the approved Mine Plan, Revised Mine Plan after incorporating the points of ToR , and the Mine Closure Plan have been submitted to MoEF.
- iv. The proponent informed that the conditions of the approved TOR have become the reasons for revision of Mine Plan. All the points of the TOR have been duly complied in the Revised Mine Plan. The conditions in the approved TOR for revision of Mine Plan are: (a) Relocation of External Dumps,(b) CHP & Washery to be away from the villages.(c) Dumps to be

maintained at a minimum 100 mtrs. away from the villages and Nalla; (d)Relocation of the village.

- v. The Proponent presented the details of expenditure on each Schedule and estimated Mine closure cost. The total Mine closure cost would be Rs. 99 Crores.
- vi. It was informed that dumping of fly ash in the mine void was mentioned in EIA/EMP report in the TPP of capacity 2x660 MW (Units no. 3&4). The EC of TPP also permits the back filling of ash in the mine. The same has also been covered in the Revised Mine Plan.
- vii. The leachability study has been carried out by Water Environment Division, Central Institute of Mining and Fuel Research (CIMFR), Dhanbad with ash and OB material. The CIMFR recommended that use of 30% fly ash as back fill material with OB could be used for the purpose of 100% utilization of generated fly ash. The layer-wise back filling has been recommended by the CIMFR to fill fly ash & OB material keeping fly ash in between OB material as it contains some alkaline material which increases the pH level of leachates and do not allow leaching toxic metals. In case of concurrent back filling of fly ash with OB material, The proponent informed that all the leachate parameters are found within the range and have negligible impact on leaching of chemical constituents. It was informed that the leaching will be negligible. However, proper barrier/dyke against aquifers will be provided as per recommendation of CIMFR, Dhanbad. IIT, Bombay has been engaged for Geo Technical Studies including special studies for Ash backfilling. Therefore, the proponent proposed for concurrent filling of fly ash (30%).
- viii. The proponent also informed that Govt of Odisha, took a decision on 05.07.2012 in the Steering Committee chaired by Chief Secretary which accorded approval for 324.367 ha. of land outside the Coal Block for OB dumping, infrastructure and other industrial use. The Geological Map and Cross sections have been submitted to MoEF.
- ix. The comparison of Opencast vs. Underground mine shows that mining by opencast is the most feasible and viable technology to cater the requirement of the planned OPGC power project. The Proponent has provided detailed presentation /justification of Opencast mining vrs Underground mining before committee. The cost of OCP would be Rs 700/Te with 80% production/recovery of coal whereas the cost for the UG mining would be Rs. 2900/Te with 40 -50%low production.
- x. The CSR cost has been calculated @ Rs 5/Te for 152.12 MT mineable reserves amounting to Rs. 7606 Lakh. The CSR expenditure of Rs. 84.35 Lakh till date has been made on education, health, infrastructure, water, sports & culture, Social welfare etc.

8.3 Public Hearing: The Public Hearing was conducted on 28.02.2012 and was chaired by Addl. District Magistrate, Sundergarh and Regional Officer, Odisha State Pollution Control Board, Sundergarh. The issues raised were with regard to land restoration, acquisition of land, demand for FRA Patta, reduction in the dust pollution, fixation of land price, establishment of ITC for skill training, medical college and issue of pending FRA Patta. Concerns were raised with regard to environmental issue such as air, water and noise pollution, lowering of groundwater in area. Odisha State Pollution Control Board be requested to monitor the environmental quality in the area, provision of monthly pension, employment to landless etc. The cost of the project would be Rs 697.38 Crores. The proponent assured to take necessary action on the issues raised during public hearing.

8.4 Forestry issues: Stage-I forest Clearance have been obtained vide MoEF letter no. F. No. – 8-63/2011-FC, dated 17.10.2012.

- 8.5. The Committee after deliberations specified the following specific conditions:
- i. The approved revised mining plan and the mine closure plans be submitted to the MoEF.
 - ii. There should be no OB dumps at the end of mining.
 - iii. The land for OB dumping should be made ready for original use after mine closure.
 - iv. OB should be kept in ML area.

- v. All the sand stone taken out during mining should be utilized for house construction and given free of cost to locals.
- vi. Since the mining area is total forest land, the sand stones should not be dumped as OB.
- vii. The leachability study may be carried out for chromium, arsenic and mercury that may be present in fly ash.
- viii. No dumping of fly ash is permitted in mine void.
- ix. Copy of Forest Clearance be submitted to the MoEF.
- x. The CSR amount should be Rs 4 crores in initial 3 years, and thereafter it should be Rs 5/T of coal/annum till the end of the life of project with the escalation factor every year coal production.
- xi. The CSR activity, which had already been carried out by proponent, be audited by a 3rd Party. The audit should be carried out by a Reputed agency.
- xii. The proponent shall come back to the Committee for its washery proposal for further consideration.
- xiii. This Environment Clearance is for mining only .
- xiv. Coal transportation from mine to railway siding by conveyor belt and from siding to TPP by MGR through SILO loading of the wagons.

8.6 The Committee recommended the project for Environmental Clearance with the above mentioned specific conditions, in addition to the general conditions. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

9. Gare IV/4 Coal Mine Project (0.48 MTPA to 1 MTPA) of M/s Jayeswal Neco Industries Ltd., located in Tehsil Gharghoda, Dist. Raigarh, Chhattisgarh (EC based on TOR granted on 31.05.2010)-further consideration.

9.1 The proposal was earlier considered on 27th August 2012. The committee had sought clarification with regard to: (i) The value of NO_x, as presented in the ambient air quality, appeared to be very low. The proponent was asked to check the air quality data and submit data of air quality of 3 months. The data be provided to the MoEF; a copy of which also be sent to Dr. Attri, Member, EAC for his comments /suggestions: (ii) It was observed that there are two mines viz. M/s Jindals and M/s Monnet Ispat operating in the area. It was suggested that Cumulative Impact Assessment Study be carried out as per the directions of the NGT in other cases: (iii) Details of Flora and Fauna, presented by the proponent, need to be re-checked and a fresh report be presented to the Committee: (iv) The details of total OB produced, re-handled and/sequencing of the same should be provided along with the detail of void to be left in post-mining stage: (v) It was suggested that in order to prevent leaching of heavy metals, etc. the proponent should take out the OB, keep it out side and grassing of OBD should be done: (vi) Study on rock mechanics, safety & its effectiveness should be carried out as the surrounding area around mine would be disturbed: (viii) A calendar plan for utilizing the OBD be prepared: (ix) Leaching of heavy metals to the underground water should be prevented. Continuous Monitoring of the nala water at discharge point should be carried out and reports in this regard be submitted to the Regional Office of the MoEF: (x) Presently the mode of transport of coal is by road. The proponent has informed that the mode of transportation by rail would be ready by 2017. The Committee had asked that the transportation of coal should be carried out by mechanically covered truck till the rail transportation is made available: (xi) Native plant species, including the species used by tribals in the area, should be planted under plantation programme: (xii) The Wild Life Conservation Plan should be sent to Mr. Mathur, WII, Dehradun EAC

member for his comments: (xiii) Tribal Development Action Plan, along with budget allocation, should be prepared under PESA and approval of same be obtained from the State Govt: (xiv) A detailed R&R plan for 2010-2012 along with the budgetary provisions and the CSR Social audit report should be submitted to the MoEF: (xv) The specific responses to the issues raised in the representation from Jan Chetana, along with proposed mitigative measures be submitted to Ministry.

9.2 The proponent made the presentation and informed that:

- i. The EIA study was carried out during the period October 2010 to January 2011 covering an area of 10 Square Kms radius wherein all the Gare Blocks are located. The results generated during the study period reveals that the NO_x level was 6.1 to 13.8 µg/m³. The ambient air quality monitoring of the core zone area was also carried out by M/s Anacon Laboratories, Nagpur. The monitoring and base line data generation includes air, water, noise soil, etc. As per the report of M/s. Anacon Laboratories, the NO_x level of the core zone (source) range between 17.4-30.6 µg/m³. The last five AAQM Reports have been submitted. The Cumulative Impact Assessment study was carried out during the period October 2010 to January 2011 covering an area of 10 Square Kms radius wherein cumulative impact of all the other operating blocks is covered where in all the Gare Blocks are located. The results generated during the study period provide the air quality data for the Buffer zone. The fresh monitoring of Ambient Air Quality Data has been initiated from first week of the October 2012 for the period of 3 months. The study area covers a distance of 10 Kms and Gare IV/4 block is adjoining block overlapping the 10 Kms study area.
- ii. The Wild life conservation plan prepared by Dr M. L. Naikand approved by PCCF (Wild Life) on 22.11.2011. This has been prepared for Gare IV/8 coal block in consultation with the Wild Life Warden, Raipur Chhattisgarh. Approved copy is attached to the report as an Annexure – II. A copy of the Wildlife Conservation Plan was Sent to Mr. Mathur of WII-Dehradun.
- iii. The grade of the seam is generally E to F. North & South quarries will be opened to mine the coal by Opencast mining of Seam II. The South quarry has been opened first in April 2006 and the North quarry in the fifth year.
- iv. The life of the OC project will be 15 years.
- v. The details of OB have been provided. It was informed that In Gare IV/4 Seam II in crops within the block and lies at a depth ranging from 6 m to 40 meters upto a stripping ratio of 1: 6.4. The thickness of the seam varies from 2 m to 4 mtrs. Backfilling will be started from 2nd year of operation. External OB dump created during first year will be re-handled and backfilled in the de-coaled area. In this mine main waste is overburden in the form of weathered mantle, which lies upto 6.0 m to 40 m thickness inclusive of top soil layer. One meter average thickness of top soil has been considered for separate removal and stacking for use in mine reclamation later. As per approved mining Plan, the external OB dump of 0.67 million cubic meter will be created as reported in the Closure Plan of first year. This external dump will be re-handled and backfilled in the subsequent years. There will be no external OB dump left after the operation of the mine. Bio-logical Reclamation of all the internal dumps will be done progressively after levelling these dumps. This will provide stability and prevent soil erosion from the dumps. The total topsoil generated (1.14 m.cum B) during the development of mine will be stacked separately in a soil stack pile in between the pit and the surface dump over an area of 7.12 Ha. It will be used for growing plants along the fringes of the site roads and reclamation of external dump and backfilled area. The top soil stockpiles will be low height not exceeding 6 m and will be made use for concurrent filling without keeping the topsoil for a long period. The OB Dump for South Quarry dump will be spread over 13.75 Ha area on the south & eastern part of South Quarry while the mining operation will start from north and advance towards south & west. Part of OB excavated from the mine

from 1st year and part of 2nd year (3.91 Mm³) will be accommodated in it including top soil for afforestation. The height of the dump achieved during 1st and 2nd year will be 6m and 20m respectively. The OB Dump for North Quarry will be spread over 13.00 Ha area on the eastern part of North Quarry while the mining operation will start from east and advance towards west. Part of OB excavated from the mine from 7th year and 8th year (2.76 mil. cum) will be accommodated in it including top soil for afforestation. Backfill dump. Backfilling will start from 2nd year of the project operation with a meager quantity of 0.44 Mm³B. During 2nd to 15th year partial backfilling (33.96 Mm³B) will take place whereas part of the excavated overburden will be deposited at the external dump (2.04 Mm³B). With the advance of mining operations, the internal backfill quantities will progressively increase and full-scale backfilling will be achieved in 16th year. Topsoil shall be progressively and concurrently utilized during physical/ technical reclamation of backfilled area. However, in the initial stage top soil shall be dumped separately in the properly selected place. By grass plantation, it shall be kept biologically active. Preference will be given to endemic species and mixed culture for successful biological reclamation of the reclaimed area, The species will be selected carefully for quick reclamation such as nitrogen fixing tree species for fuel wood, timber & fodder, Fruit bearing tree species, tree species with dense foliage for shade, flowering and ornamental tree species. The O.B. left in external dump will be re handled and backfilled in the void after the extraction of coal is completed, This will make the operation of UG mining safe as no water will be logged in the quarry. The OB will be temporarily stored which primarily consist of sandstone and shale which does not contain any heavy metal. As per the reclamation plan, the entire OB will be re handled and biologically reclaimed with local grasses to minimize fugitive emission as well to control surface runoff. The 3D subsidence prediction report for underground mining was prepared by Institute of Technology, Banaras Hindu University (BHU), Department of Mining Engineering has been submitted to the MoEF. Application of modern controlled blasting techniques as stipulated by DGMS will be ensured so that there is no damage to dwellings of the people. A calendar plan for utilization of OBD has been provided. The OB mainly consists of sandstone which does not contain any heavy metal. However, regular monitoring of water at final settling pond is being carried out by M/s Anacon Laboratories, Nagpur. The study report is being regularly submitted to Regional Office of the MoEF at Bhopal & CECB, Raipur.

- vi. Presently the transportation of coal is being carried out in trucks covered with full tarpaulin to eliminate any fugitive emissions. The Proponent is in the process of exploring the possibilities of optimizing the transportation through mechanically covered trucks.
- vii. Under the plantation program JNIL has planted 85000 local saplings till Sept 2012. Plantation is done through the Forest Department. Native species will be planted under plantation program. The native varieties to be planted will be Neem, Karanj, Harra, Behara, Aonla, Arjun, Shikakai, Mahua, Ritha, Asparagus, Jamun, Mango, Imli, Sitaphal, Bel, GangaImli, Char, Tendu, Gular, Bargad, Pipal, Ficus sp. Drumstick, Teak, Shivan/Ghamar, Sisham, Safed Sirus, Bamboo, Sal, Bija, etc.
- viii. Tamnararea falls under the tribal region. The State Government has also directed the proponent to deposit the Rs. 5 /MT of coal excavated as Development Cess for the region on year by year (YOY) basis for development of the region apart from one time R & R plan.
- ix. The R & R plan was prepared and approved by the District Collector (Competent Authority) under Adarsh Chhattisgarh Punarvas Niti 2007 in the year 2010. The Budgetary provisions for R & R (Tribal – Rs 34.22 Crores and Non Tribal – Rs 10.38 Crores) are submitted along with the approved plan. The Annual budget presented to the District Collector is also submitted. Social Audit will be conducted and will be submitted to MoEF
- x. The issues raised by Jan Chetana along with mitigating measure were provided in the final EIA submitted to MOEF. This was also presented in a summarized form. Since PESA Act is

applicable in the area, the Gram Sabha under PESA Act was conducted and the consent obtained from the villagers under the PESA Act.

- xi. Water sprinkling on road and wet drilling method is adopted to prevent and control of air pollution. The proponent had adopted R&R Policy of Chhattisgarh State Adarsh Punervash Niti 2007. The R&R plan has been approved accordingly.
- xii. The education, employment, health and infrastructures are core areas where the major emphasis has been laid by the proponent. The Census 2011 has been conducted but the results are not compiled and published yet. Therefore, authenticated data of Census 2001 published by Census of India has been used in the report. In the Final EIA report the details of wild life are provided that are reported in the area.
- xiii. The Coal will be used in the existing steel plant of proponent. The mine planning is done in such a manner that underground mining is proposed below forest land and opencast mining under Government waste land/agriculture land. Hence, tree cutting from forest land is not proposed during expansion proposal. However if required plantation will be done 10 times of tree felling in the project affected area. Kelo river and Bendranalashall not be disturbed.
- xiv. NIL has constructed water treatment plant for the mines water treatment. After treatment the water is being reused in plantation, water sprinkling etc. A water reservoirs (abandoned mine pit) will be developed at Banjikhola and Bankheta site for the rain water harvesting, so as to ensure that ground water does not get depleted.
- xv. The Proponent has provided details of revised land use Forest Land is 419.887 ha, 183.334 ha is being Surrendered, the balance forest land 236.553 ha. Forest area 183.334 Ha has been surrendered from ML area of 884.846 Ha and hence the revised ML area is reduced to 701.512 Ha. It was informed that this area is neither affected by elephant nor any elephant corridor exists.
- xvi. The proponent informed that there is no matter pending with the Inter-Ministerial Group on coal block allocation issues.

9.3 The Committee after deliberations specified following specific conditions:

- i. The calendar plan should be uploaded on MoEF website
- ii. The coal transportation by road is upto 270 km at Raipur by road presently with tarpaulin covered trucks and partially by rail up to Bhupdevpur . After new siding comes up which is approximately 3 km away for changing over to rail transport. The Committee desired that the transportation by road should be by mechanically covered trucks.
- iii. Karanj should be deleted from the list of native species for plantation program.
- iv. Rs 5/T of coal/annum till the end of the life of project with the escalation factor of coal production.
- v. No external OB dump will be left after mine operation and shall be backfilled in the mine mine void.
- vi. The proponent assured to take necessary action on the issues raised during public hearing.

9.4 The Committee recommended the project for Environmental Clearance with the above mentioned specific conditions, in addition to the general conditions. The proponent shall ensure to undertake and provide for the costs incurred for taking up remedial measures in case of soil contamination, contamination of groundwater and surface water, and occupational and other diseases due to the mining operations.

10.. Mahuagarhi opencast Coal Mining Project (10 MTPA in 1150 ha area) of M/s Mahuagarhi Coal Company Private Ltd located in Mahuagarhi Coal field, Tehsil Kathikund, Dist.Dumka Jharkhand for extension of TOR validity by one year issued by MoEF on 28.10.2010 vide letter MCCPL/Coal/EC/12-2013/86 dated 01.09.2012.

10.1 The proposal is a Joint Venture Company of M/s Jas Infrastructure Capital Pvt. Ltd.(JIPCL) and M/s CESC Ltd incorporated on 17th March 2010 for implementation of Coal Mining Project at Mahuagarhi Coal Block. The block was allotted by MOC vide letter no. 38011/1/2007-CA dated 09.01.2008. ToR was issued by Ministry of Environment & Forest vide letter no J-11015/281/2010-IA.II (M) dated 28.10.2010.

10.2 The proponent had made the presentation and informed that most of the information sought in TOR is yet to be completed. The preparation of EIA/EMP report is under progress. The process for approval of Mining Plan shall be taken up wherein most of the information would be included. The Forest Clearance application will be submitted after finalising the Mining Plan. Hydro-geological study has already been placed as per letter no. MCCPL/WO/Spl./Study/SUJCON/01 Dated 04.09.2012. As desired by the Committee, further exploration for coal reserve shall be done and a conceptual mine plan for underground mine within the ML area integrating it with the OC project will be prepared. The Committee agreed that an application of UG mine could be submitted subsequently. The Public hearing shall be conducted after the draft EIA is ready.

10.3 The proponent requested the Committee for extension of the validity of TOR by one year for Mahuagarhi opencast Coal Mining Project (10 MTPA in 1150 ha area) of M/s Mahuagarhi Coal Company Private Ltd located in Mahuagarhi Coal field ,Tehsil Kathikund, Dist. Dumka, Jharkhand

10.4 The Committee recommended for extension of the validity of TOR period by one year i.e. till 28th October 2011.

11. Proposed Gare Pelma –II Coal Block(1.6 MTPA from UG and 22 MTPA from OCP in an area of 2583.486 ha of M/s MahaTamil Collieries Ltd. Tehsil Tamnar Dist. Raigarh, Chhattisgarh (TOR)

11.1 The proposal is for a new opencast-cum- underground mine in Gare Pelma –II Coal Block. Ministry of Coal (MoC) has allocated Gare Pelma Sector II Coal Block (GP II Coal Block) in Raigarh district of Chhattisgarh, jointly to Tamil Nadu Electricity Board (TNEB) and Maharashtra State Mining Corporation Ltd (MSMCL) for development, end use being Power.TNEB and MSMC formed a JV Company, Maha Tamil Collieries Ltd (MTCL), for developing Gare Pelma II Coal Block along with integrated Pit head Power Project.

11.2 The Proponent made presentation and informed that:

- i. **Project details:**The total Geological reserves of the block has been estimated to be 1059.761 Million Tons. The peak production capacity of 23.6 MTPA from the Coal Block is proposed.

- ii. A pit head Power Project has been proposed based on the coal produced from this block.
- iii. Of the total ML area of 2583.486 Ha, 75.94 ha is Forest land, 2108.829 ha is private land, 98.71 ha is Govt. land. The land use of the total ML area of 2583.486 ha will be 400.05 ha for excavation, 400.05 ha for void, 360.51 ha for surface dump, 20 ha for top soil dump, 35.55 ha for diverted road, 55.94 ha for west pit CHP, incline, shaft pit office lamp room, attendance office, rest room, parting, first aid room, sub station, 38.54 ha in east part for office and workshop, 12.44 ha for green belt around ML area, 23.63 ha for green belt around Kelo River 45 mt west side and 15 m east side, 15.42 ha under Kelo River, 1621.40 ha for undisturbed.
- iv. The minimum depth of coal seam 8.69 Mt sand maximum depth of seam is 465.86 Mts. The total geological reserves is 1059.761 MT. The mineable reserves is 783.805 MT (582.292 MT for OC & 201.513 MT by UG). The extractable reserves would be 653.470 MT (OC-553.177 MT + UG 100.293 MT). The coal seams are 31 correlatable Barakar Coal Seams from X LA to IB. Seams proposed by Opencast XLA to VIL at the depth 8.69 mt to 203.57 mt and Seams proposed by Underground IV to I Com at the depth of 164.40 mts to 465.86 mt. There are 31 Coal seams. The stripping Ratio is 1: 4.99 (Coal: OB). The depth to Thickness ratio of seams would be mostly less than 15 and UG mining will cause damage to surface due to subsidence. Initially it is proposed to start OC mining in the North-West portion of the coal block leaving place to facilitate entries for underground and progress towards South-East.
- v. Grade/Estimated GCV of Coal E to F/ 3900 Kcal/Kg.
- vi. The method of mining of opencast as well as underground method would be fully mechanised. For underground mining, continuous miners with shuttle cars are proposed for development and depillaring operations and opencast mining by Shovel dumper combination for excavation of Over Burden, Surface Miners for Coal winning are being considered. The production capacity for opencast mine the 22.00 MTPA (Normative) & 23.6 MTPA (Peak) and for Underground 1.6 MTPA. The transportation of coal and OB are proposed by trucks/ dumpers within mine lease area and from ML to the proposed TPP would be by conveyor belt.
- vii. The total water requirement should be 1995 m³/day after considering the reuse of 80% of water reclaimed from colony STP. The water required during initial 3 years for construction and mine development is proposed to be sourced from Kelo River or Bore wells and 3rd year onwards, Industrial water from mine sump and settling pond would be used till the end of the life of the mine. Kelo River is flowing across the coal block towards east would not be diverted and will be protected by leaving statutory barriers.
- viii. There are Protected Forest areas to the size of 75.945 Ha and Revenue Forest of 135.374 ha area which would be diverted.
- ix. The roads from Bajarmura to Ghargoda (approx 11.6 KMs) and Milupara to Tamnar (approx 3 Km) will be diverted.
- x. Over Burden excavated during the first 6 years will be accommodated on the coal bearing area of west pit. Subsequently this OB will be re-handled and backfilled in to the quarry. Later, all the OB generated would be back filled as quarry advances. The OB of the east pit will be backfilled into the void left in the west pit and the balance OB will be backfilled in the east pit itself. It was informed that it is proposed to approach coal seams

identified for underground through a pair of inclines (at NW corner of block) and one shaft (near KeloRiver). UG mining operations will lag behind the OC operations by 11 years and the 1st production year will be 12th year. The UG mine workings will lag behind the OC working faces by about 0.5-1 km for safety reasons.

- xi. There are 17 nala /surface water bodies /river in 10 km of area. There are 7 pond sand, 4 hills, 23 nos. of Reserve forest and one protected forest. Tamnar to Tatkela. There are 12 neighboring mines eg. Gare IV/1 mine of M/s JSPL, Gare IV/2 & 3 of M/s JSPL, Gare IV/ 4 mines of Jayswal Neco Ltd, Gare IV/ 5 of M/s Monnet Ispat Co Ltd., Gare IV/6 of M/s JSPL, Gare IV/7 M/s Raipur Alloys, Gare IV/ 8 mines of Jayswal Neco Ltd, Gare Pelma sector I of M/s CMDC, Gare Pelma sector III OF M/s GIDC, Operational 1000MW TPP and proposed 2400MW TPP, Jamkhani coal block and Bijhan of M/s Bhushan Ltd., 4X 150 MW of M/s DCP JSPL.
- xii. R& R Involved. 14 Villages will be affected with 1679 nos of PAF's with total PAP'S 9598. 1679 PAF's tribals.
- xiii. Life of the mine would be about 28 years. Cost of the project is Rs. 2745 Crores.
- xiv. The Proponent vide letter no MTCL/ADMIN./2012-13/955 Dated 29.09.2012 submitted an application to CCF (Land Management), Nodal officer, Chhattisgarh, Raipur for diversion of 75.945 ha forest land, 135.374 ha CBJ revenue forest land 0 Total 211.319 ha forest land.

11.3 The Committee after deliberation suggested following TOR in addition to **ANNEXURE-6 & ANNEXURE-7:**

- i. Cumulative Impact Assessment Study should be carried out as large numbers of mining & TPP projects are in vicinity of proposed mine.
- ii. The proponent should consider the option of underground mining.
- iii. Kelo River should not be diverted and adequate barrier should be provided.
- iv. There should be no external OB dump at the end of mining. The dump be fully rehandled, and backfilled.
- v. The CSR budget has been proposed by proponent will be capital budget for 3 years. It should be till the end of the life of mine.
- vi. The CSR cost should be Rs 5/T of coal/annum till the end of the life of project with the escalation factor of coal production.
- vii. Separate Scheme and separate Corpus funds should be provided for Tribals. Experts should be contacted/consulted on tribal issues. At least one male and one female social scientist should be appointed for handling social issues.
- viii. Tribal Development Plan should be prepared with adequate budget.
- ix. Best technology should be applied for mining e.g. machinery, equipment in the area as most of mining is being done by private companies.
- x. The mine closure, ecological restoration of excavated area should be done.
- xi. A copy of the application for the forest clearance be submitted to the MoEF.
- xii. Additional TOR, if required, would be stipulated after the Group of Ministers (GOM) meeting.
- xiii. The coal will be used for power plant through competitive bidding

11.4 The Committee recommended the project for TOR .

12. **Additional issues:** The Committee deliberated on stipulating additional conditions while granting TORs and ECs. The Committee desired that this be discussed and finalized in the next EAC

meeting. Members were requested to suggest draft conditions with regard to ecological restoration, External OB, Void, loading & unloading, compliance to environmental parameters (air, water, noise), mine detail & production etc. The Committee also desired that a meeting with the Chairman, Coal India Ltd. and other CMDs of its subsidiaries could be held. Coal India may be requested for giving a presentation, region wise, so as to apprise the Committee about current situation and difficulties for coal exploration and environmental compliance.

ANNEXURE-1

PARTICIPANTS IN 59th EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 6th-7thNOVEMBER, 2012 ON COAL SECTORPROJECTS.

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. Roonwal	...	...	...	...	Member
6.	Dr. Shiv Attri	...	...	...	...	Member
7.	Mr .M.S Puri		...	...	...	Member
8.	Dr.Manoranjan Hota	...	...	...	...	Director, MOEF & Member Secretary
9.	Dr. Rubab Jaffer	...	...	...	...	Scientist B, MOEF

Special Invitee:

Dr. R. K. Garg, Advisor, Coal India Limited

PARTICIPANTS IN 59th EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) IN THE MEETING HELD ON 6th-7th NOVEMBER, 2012 ON COAL SECTOR PROJECTS.

1. M/s Western Coalfields Ltd.,

- 1) Shri R. M.Wanare , General Manager (Env.)
- 2) Shri K Chakroborty, GM (Mining), WCL
- 3) Shri J.A. Kamalakar Senior Manager (Env.)
- 4) Dr. Debabrata Das, Assistant Manager (Hydrogeolog)-CMPD
- 5) Shri S.K Japnania RD, CMPDI

2. M/s Madhya Pradesh State Mining Corp. Ltd.

- 1) Shri S K Mandal, ED, MP SMC, Bhopal
- 2) Shri S.P. Mishra (Sr. VP Coal Business)
- 3) Shri R. N. Jha, (Sr. Ex.)
- 4) Shri Karan Singh (Head Liaison)
- 5) Shri Ravi Chand (Asst. Manager)
- 6) Shri Deeptendu Samanta (Manger Coal Business)
- 7) Shri U.W. Daikay (Consultant)
- 8) Shri Pratyusa Pawar (Head CSR)

3. M/s Central Coalfields Ltd

- 1) Shri Alok Kumar DGM, CCL
- 2) Shri Manoj Kumar Deputy Manager, (E&F)
- 3) Shri Dr Amindyas Sinha, Regional Director ,CMPDI
- 4) Shri Pushkar, Sr. Manager (env.), CMPDI

**4. M/s Jharkhand State Mineral Development Corpn. Ltd
Not attended presentation**

5. M/s Mahanadi Coalfields Ltd.,

- 1) Shri B C Tripathi, GM (Env.), MCL
- 2) Shri D. Bhattacharya GM, MCL
- 3) Shri S. Roy Chaudhary GM, MCL
- 4) Shri A K Singh, Dir (P&P)
- 5) Shri A K Samantray, Chief Manger (Env.), CMPDI
- 6) Shri K S Ganapathy, Chief Manager, CMPDI
- 7) Shri C Joydev, Sr. Mgr. (Env.), MCL
- 8) Shri Anil Kumar

6. M/s Orissa Power Generation Corp. Ltd

- 1) Shri Vankata Chalam K. M.D

- 2) Shri Saroj Kumar (Sr. Manager)
- 3) Shri Bhola Singh, Dy. Manager (Mines)
- 4) Shri Dr. R.K. Tiwari (Sr. Scientist) CIMFR
- 5) Shri Bhaguban Prasad, Asst. Mgr.
- 6) Shri S K Mohanty, Forest Advisor
- 7) Dr.Kshirod Brahma, GM (mines), OPGC
- 8) Shri Omkar Joshi, Asst. Manager
- 9) Shri Swapan Chakrawarati Ex Dir., DCPL
- 10) Shri Suman Chatterjee, DCPL

7. M/s JayeswalNeco Industries Ltd.,

- 1) Shri S.K.Moitra
- 2) Dr S.S.Garg, General Manager (Env.)
- 3) Shri Moyal JNIL
- 4) Shri Alok Kr.Rajan, JNIL
- 5) Shri S.K.Swain, JNIL
- 6) Shri Pankaj Sinha JNIL
- 7) Shri A.D. Jankhar JNIL

8. M/s Mahuagarhi Coal Company Private Ltd.

- 1) Shri A.K. Srivastava, Director
- 2) Shri Ramesh Kumar Singh (Manager Mines)
- 3) Dr. V. Thergaonkar, (Env. Consultant)
- 4) Shri A. Subhramanyam (AGM Env.)

9. M/s MahaTamil Collieries Ltd.

- 1) Shri N. Ramarao (MD, MTCL)
- 2) Shri V.S.P. Rao (LANCO)
- 3) Shri S. Valliappan (TANGEDCO)
- 4) Shri Subhasis Pahia (Kalinga Lab)
- 5) Shri Suresh Madiconda (LANCO)
- 6) Shri P. S. Chakravarthy (LANCO)
- 7) Shri Arun Kumar Singh (LANCO)
- 8) Shri R. B. Mathur (LANCO)
- 9) Shri S. Nakra (LANCO)
- 10) Shri K. Hallikarjuna (LANCO)
- 11) **Shri Manoj K. Agarwal (LANCO)**
- 12) **Shri P.R. Vijay Kumar (LANCO)**
- 13) **Shri Tarun Kumar (LANCO)**
- 14) **Shri B.D. Sharma (Min.Mec Consultant)**
- 15) Dr. Marisha Sharma (Min.Mec Consultant)

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/land use.

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

S.N.	Land Category	use	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)	Area with					
2.	Excavated Area	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.
- (xxxv) 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.
- (xxxvi) CSR Plan along with details of villages and specific budgetary provisions (capital and recurring) for specific activities over the life of the project.
- (xxxvii) 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.
- (xxxviii) In built mechanism of self-monitoring of compliance of environmental regulations.
- (xxxix) Status of any litigations/ court cases filed/pending on the project.

(xxxxxi) 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.

(xxxxxii) Copy of clearances/approvals ? such as Forestry clearances, Mining Plan Approval,

NOC from Flood and Irrigation Dept. (if req.), etc. wherever applicable.

(A) FORESTRY CLEARANCE

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

GENERIC TOR FOR AN UNDERGROUND COALMINE PROJECT

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

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

Area Under Surface Rights

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

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

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 through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (xxi) Detailed water balance should be provided. The break up of water requirement for the various mine operations should be given separately.

- (xxii) Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-à-vis the competing users.
- (xxiii) Impact of mining and water abstraction use in mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term modelling studies on. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
- (xxiv) Impact of blasting, noise and vibrations.
- (xxv) Impacts of mining on the AAQ, predictive modelling using the ISCST-3 (Revised) or latest model.
- (xxvi) Impacts of mineral transportation within and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop, management plan for maintenance of HEMM, machinery, equipment. Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities.
- (xxvii) Details of waste generation (OB, topsoil) as per the approved calendar programme, and their management shown in figures as well explanatory chapter with tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use. OB dump heights and terracing should be based on slope stability studies with a max of 28° angle as the ultimate slope. Sections of dumps (ultimate) (both longitudinal and cross section) with relation to the adjacent area should be shown.
- (xxviii) Impact and management of wastes and issues of rehandling and backfilling and progressive mine closure and reclamation.
- (xxix) Flow chart of water balance. Treatment of effluents from workshop, township, domestic wastewater, mine water discharge, etc. Details of STP in colony and ETP in mine. Recycling of water to the max. possible extent.
- (xxx) Occupational health issues. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine.
- (xxxi) Risk Assessment and Disaster Preparedness and Management Plan.
- (xxxii) Integrating in the Env. Management Plan with measures for minimising use of natural resources - water, land, energy, etc.
- (xxxiii) Progressive Green belt and afforestation plan (both in text, figures as well as in tables prepared by MOEF given below) and selection of species (local) for the afforestation/plantation programme based on original survey/land use.

Table 1: Stage-wise Land use 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	Status of appl. for diversion of Balance forestland
		If more than one, provide details of each FC			

Copies of forestry clearance letter

s (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