

MINUTES OF THE 2ND EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 3-4 OCTOBER, 2013 IN NEW DELHI

2.1 Gevra OCP project [Expansion from 35 MTPA (normative) to 47.25 MTPA (peak) MTPA in ML area of 904.027ha] of M/s South Eastern Coalfields Limited, dist. Korba, Chhattisgarh - EC under 7(ii) of EIA Notification 2006.

2.1.1. The proposal is of Gevra OCP project [Expansion from 35 MTPA (normative) and 47.25 MTPA (peak) in ML area of 904.027 ha] of M/s South Eastern Coalfields Limited, dist. Korba, Chhattisgarh- EC under 7(ii) of EIA Notification 2006.

2.1.2. The proponent made the presentation and informed that:

- i. It is the expansion project of M/s South Eastern Coalfields Limited. MoEF accorded EC vide letter no. J-11015/484/2007-IA.II (M) dated 03.06.2009.
- ii. Proponent is seeking expansion of the project under 7(ii) of EIA Notification 2006.
- iii. The land usage of the project will be as follows:

Pre-mining: The Expansion of the project will be undertaken in two Phases. In the first phase Enhancement of capacity upto the peak capacity of the project (47.25MTPA) by carrying out mining in the already acquired land of the project where Stage-1 Forestry clearance has been obtained i.e. 4058.146 Ha. The remaining 126.341Ha will be acquired under the second phase of mining after obtaining the Stage-1 forestry clearance, bringing the area to be a total of 4184.486Ha.

Phase-I

Sl No.	Purpose	Mining Lease Area (in Ha)				Total (in Ha)
		Government		Private		
		Forest	Others	Agriculture	Others	
1	Area to be excavated	337.287	300.196	1273.426	0.000	1910.910
2	Storage for top soil	0.000	5.000	0.000	0.000	5.000
3	Overburden / dumps	0.000	188.690	291.310	0.000	480.00
4	Mineral storage	0.000	5.000	0.000	0.000	5.000
5	Infrastructure (workshop, admin. Building)	515.434	73.169	504.509	0.000	1093.112
6	Roads	0.000	0.000	6.000	0.000	6.000
7	Green belt	0.000	5.670	0.000	0.000	5.670
8	Effluent treatment plant	0.000	0.000	0.000	0.000	0.000
9	Township area (outside mine)/ Inhabited area	0.000	0.000	134.280	0.000	134.280
10	Other (specify) Safety zone & area for future mining	59.568	47.560	311.046	0.000	418.174
	Total	912.289	625.285	2520.571	0.000	4058.146

Phase-II

Sl No.	Purpose	Mining Lease Area (in Ha)				Total (in Ha)
		Government		Private		
		Forest	Others	Agriculture	Others	
1	Area to be excavated	463.628	300.196	1273.426	0.000	2037.250
2	Storage for top soil	0.000	5.000	0.000	0.000	5.000

3	Overburden / dumps	0.000	188.690	291.310	0.000	480.00
4	Mineral storage	0.000	5.000	0.000	0.000	5.000
5	Infrastructure (workshop, admin. Building)	515.434	73.169	504.509	0.000	1093.112
6	Roads	0.000	0.000	6.000	0.000	6.000
7	Green belt	0.000	5.670	0.000	0.000	5.670
8	Effluent treatment plant	0.000	0.000	0.000	0.000	0.000
9	Township area (outside mine)/ Inhabited area	0.000	0.000	134.280	0.000	134.280
10	Other (specify) Safety zone & area for future mining	59.568	47.560	311.046	0.000	418.174
	Total	1038.63	625.285	2520.571	0.000	4184.486

ii. Post- Mining:

Stages of Mining	Activity	Forest	Agriculture	Govt.	Total (in Ha)
Post-Mining	Void / water body	Nil	Nil	659.250	659.250
	Reclaimed internal OB dump	1378.00	Nil	Nil	1378.00
	Reclaimed external OB dump	480.00	Nil	Nil	480.00
	Green Belt	5.67	Nil	Nil	5.67
	Infrastructures	515.434	504.509	73.169	1093.112
	Road diversion	Nil	6.00	Nil	6.00
	Rehabilitation site	Nil	134.28	Nil	134.28
	Safety zone	59.568	311.046	57.56	428.174
	Total	2438.672	955.835	789.979	4184.486

- iv. The total geological reserve is 1026.32 MT. The mineable reserve is 746.62 MT (as on 01.04.2013), extractable reserve is 746.62 MT (as on 01.04.2013) MT. The per cent of extraction would be 90 %.
- v. The coal grades is F having stripping ratio of 0.72 Te/Cum and 1.43 cum / Te of coal . The average Gradient is 4.8 to 9.50 degree. There will be total four seams with thickness ranging from 1.10m to 45.23m.
- vi. Hasdeo river & Ahiran river, Kholar nalla& other 1st order streamlets flowing adjacent to the proposed mine.
- vii. The total estimated water requirement is (Average demand 18255 m³/day & Peak demand 21918 m³/day. The level of ground water ranges from 2.31 m to 9.90m.
- viii. The Method of mining would be opencast mining with shovel- dumper & Surface miner.
- ix. There are seven external OB dump covering an area of 480 ha having a height upto 30 m (max) with the quantity of 147.60 mm³. The final mine voids will have an area of 659.250 Ha (surface dump having volume -1119.40 mm³. There are eight internal dumps having an area of 1378 ha and height 30 m and depth 380 m with a quantity of 1119.40 mm³ which is proposed to be converted into a water body. Out of total quarry area 2037.250 Ha backfilled quarry area will be 1378.00 Ha which shall be reclaimed with plantation. A void of 659.250 ha with depth of about 318 mtrs, which is proposed to be converted into water body. There will be no external OB dump at the end of mining. Backfilling has already starts & total backfilling will start from 2018-19.
- x. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- xi. The **life of mine** is 21 Years (as on 1.4.2013).
- xii. **Transportation:** Transportation of coal in pit by Coal Tippers to the pit head stockpile. Surface to siding by conveyor belt, siding to loading in to Rly. wagons by SILO/ by Bunker

and chute

- xiii. There is no R & R involved. No of PAFs is 2420.
- xiv. **Cost:** Total capital cost of the project is Rs. 2675.674 Crore. The cost of production would be Rs. 243.59 at 100% operating level and Rs 210.69 at 85% operating level / Tonne. CSR Cost (Capital cost: Rs.5 / tonne of Coal + CD fund one crore. R&R Cost Rs. 95.8206 crore. Environmental Management Cost is Rs. 133.8661 crore.
- xv. **Approvals:** Ground water clearance obtained on 14.06.2004. The Mine Closure approval is under finalization. The Gevra Opencast Expansion Project from 25MTY to 35MTY was approved under Emergency Coal Production Plan (ECPP) by Govt. of India, Ministry of Coal letter no. 43011-38(4)-2005-CPAM, New Delhi dtd. 4th May'2006. The SECL Board approved the Peak Production Capacity of Gevra OC Expansion upto 1.35 times of their normative capacity i.e. from 35MTPA to 47.25MTPA in its 182nd meeting held on 17th August 2009.
- xvi. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xvii. **Forestry issues:**

Area (in Ha)	Stage-I FC issued vide letter no. & date	Stage-II FC issued vide letter no. & date
564.885	F.No.8-79/2006-FC dt.20 th October, 2006	Govt. of CG. has forwarded the FC proposals for grant of Stage-II to MoEF, New Delhi on 18.09.2013.
192.046	F.No.8-77/2006-FC dt.20 th October, 2006	
46.198	F.No.8-81/2006-FC dt.20 th October, 2006	
100.898	F-5-20/2004/10-2 dt. 15.3.2005	F.No.8-33/2005-FC dt. 5.5.2008.
904.027	SUB TOTAL	
8.262 *	Applied, pending for grant of Stage-I FC	
912.289	TOTAL	

- xviii. The proponent has further mentioned that Upper Kusmunda Seam in Laxman OCP has been mined by Laxman Project and as per approved PR & EMP of Gevra OCP (35 MTY), due to technical reasons Lower Kusmunda Seam property of Laxman OCP has to be mined by Gevra Project. Thus, 8.262 hectares forest land has been applied for Stage-I FC by Kusmunda Area as the proponent has excavated Upper Kusmunda Seam. Therefore, the proponent seeks EC for the 904.027 ha.
- xix. Total afforestation plan shall be implemented covering an area of 2438.672 ha at the end of mining where reclaimed external OB dump is 480 Ha and Internal OB Dump 1378 ha. Green Belt over an area of 5.670 ha. Density of tree plantation 2500 trees/ ha of plants.
- xx. **violation cases:** There are two court cases pending with the project proponent. The matter is subjudice. Presently, the proponent has exceeded the production limit and thus a violation cases due to excess production.
- xxi. **Public hearing:** Not applicable as application is under 7(ii) of the EIA Notification 2006.
- xxii. **Certificate of compliance** of earlier EC from MoEF, Regional office, Bhopal has been issued vide their letter no. 3-53/2009 (Env)/1313 dtd. 16/19.08.2013.

2.1.3 The Committee after deliberation recommended the project for expansion of the project with the following conditions:

- i. The coal transportation is still being continued by road. The EC letter no. J-11015/484/2007-IA.II (M) dated 03.06.2009 had stipulated that transportation of coal shall be by done by closed conveyor belt and that the loading by silo system which shall be in place within 18 months from the date of the issuance of the EC. The Committee has noted that inordinate delay has taken place in this regard and desired that the proponent should complete this

activity within 18 months. The proponent has assured to complete this activity within the stipulated time frame.

- ii. Keeping in view that Gevra is one of the large OC mines, the Committee advised the proponent to integrate the present management of OBD with the future management plan in such a way that there would be minimum area under external OBD and internal dump be backfilled upto ground level and that there would be minimum area under void with depth below 40 meter.
- iii. The Committee after deliberation and with the assurance from the proponent with regard to the compliance, has recommended and in accordance with the OM no. J-11015/30/2004-IA.II(M) dated 19 December, 2012 for expansion of production only by 2 MTPA i.e. 37 MTPA.
- iv. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.
- v. There are two court cases pending with the project proponent. The matter is subjudice. And presently, the proponent has exceeded the production limit. This construes a violation case. But since there are cases pending in the Court due to excess production, the MoEF may take a view as deemed fit.

2.1.4 The Committee also desired to make a site visit to appraise and monitor the present proposal along with other mines present in the vicinity so as to appraise the quality of its mining and its impact.

2.2 Chhatrasal Opencast Coalmine Project (5 MTPA in 1000 ha) of M/s Sasan Power Ltd. located in Singrauli Coalfields, district Singrauli, M.P. (EC based on TOR granted on 28.10.2008)

- 2.2.1 The proposal is of Chhatrasal Opencast Coal Mine Project (production capacity 5 MTPA in ML area of 1000 ha) of M/s Sasan Power Ltd., located in village Sasan in Tehsil Waidhani, district Singrauli, Madhya Pradesh.
- 2.2.2 The proponent made the presentation and informed that:
 - i. Ministry has accorded TOR vide letter no. J-11015/353/2008-IA.II (M) dated 23.10.2008.
 - ii. The land usage of the project will be as follows:

Pre-mining: Forest-965.4 ha, Non Forest – 34.6. Therefore, **Total is 1000 ha**

Post-mining: 683.1 ha (Quarry area), 135.69 ha (OB dump & Coal stock), 68.29+25.0 ha. (CHP + Infra), 5.92+10.0 ha (Safety barrier + Internal road).

Core area: 928 ha (ML area) & 72 ha. (Approach road, coal evacuation corridor etc.)

- iii. The total geological reserve is 131.86 MT. The mineable reserve is 112.5 MT, extractable reserve is 94.8 MT. The per cent of extraction would be 84 %.
- iv. The coal grades is D-G having stripping ratio of 5.86 m³/t . The average Gradient is 2 to 3 degree. There will be total eight seams with thickness ranging from 8.25 to 14.6 m.
- v. The total estimated water requirement is 1170 m³/day. The level of ground water ranges from 9 ft.to 21 ft.
- vi. The Method of mining would be Opencast mining with shovel- dumper .
- vii. There are one external OB dump covering an area of 135.7 ha having a height upto 90 m with the quantity of 88.82 mm³. The final mine voids will have an area of 28 Ha with 40 m depth. There are one internal dumps having an area of 655 ha and height 3 m agl .Out of total quarry area 683.1 Ha. Backfilled quarry area will be 655 Ha which shall be reclaimed with plantation. A void of 28 ha with depth of about 40 mtrs, which is proposed to be converted into water body.
- viii. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- ix. The **life of mine** is 21 Years.
- x. **Transportation:** Coal transportation from Mines to Power Plant by Over land Belt Conveyor/MGR.

- xi. There is R & R involved. There are 255 PAFs for these production increase
 - xii. **Cost:** Total capital cost of the project is Rs. 1500 Crore. CSR Cost (Capital cost: Rs.5 / tonne of Coal production. R&R Cost Rs. 4.0 crore then Rs. 0.44 crore /year. Environmental Management Cost is Rs. 4.28 crore.
 - xiii. **Approvals:** Ground water clearance is yet to be obtained. The Mine Closure approval obtained on 06.09.2011. Date of approval of mine plan is 30.03.2009.
 - xiv. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
 - xv. **Forestry issues:** Total forest area involved for mining 965.4 ha. Extent of forest land in the project is 965.4 Ha.
 - xvi. Total afforestation plan shall be implemented covering an area of 865 ha at the end of mining where reclaimed external OB dump is 135.7 Ha and Internal OB Dump 655 ha. Green Belt over an area of 10 ha. Density of tree plantation 2500 trees/ ha of plants.
 - xvii. There are no court cases/violation pending with the project proponent.
 - xviii. **Public Hearing** was held on 10.06.2009 at Government Secondary School, Village Bandha, District Singrauli, Madhya Pradesh.
 - xix. The proponent had presented the issues raised during public hearing. These include; what are the benefits to the project displaced persons, livelihood of villagers dependent on forest produce, provisions in schools and hospitals of the villagers, plantation of trees around the ML area, water pollution control benefits in lieu against the acquisition and excavation of land of the villagers, the basis of employment for the unemployed educated youth, location and mitigation of pollution due to dumps, facilities such as electricity road, school, hospital to the Project affected persons, depletion of water table, provisions to mitigate sound pollution, measures to protect forest, provisions for grazing animals, R & R policy etc. The project proponent has informed the Committee that they have given assurances to address the issues raised during the public hearing.
- 2.2.3 The proposal was considered in the 59th EAC meeting 24th –25th Nov, 2009, 68th EAC meeting 28th -29th April, 2010. The proposal was last considered in the EAC meeting held during 26th -27th October, 2010 and recommended the project for EC. As per the OM dated 9th September, 2011 of the MoEF, where the Competent Authority has approved the grant of Environmental Clearance, the proponent will submit the Stage -1 Forest Clearance within 12 months, which may be extended to 18 months in exceptional circumstances. The EC will be issued only after the Stage -1 FC submitted by the proponent. As per the OM of 18th May, 2012, in the eventuality that the Stage-1 FC is not submitted by the PP within the prescribed time limit, as and when the Stage-1 FC is submitted thereafter such projects would be referred to the EAC. FC has been granted on 23rd November, 2012. Keeping the FC and these OMs in view, the proposal was referred to the EAC for taking a view.
- 2.2.4 The Committee after deliberation recommended the project for EC with the following conditions:
- i. The Committee has noted that the WL Conservation Plan indicates presence of elephants in the study area. However, the Proponent had clarified that the elephants use the area more as a passage occasionally and return to their habitat located outside the study area.
 - ii. The PP has clarified that the area does not form a part of the elephant migratory corridor.
 - iii. The proponent was advised to implement the WL Con. Plan that involves development of more plantation, eco developmental activity such as creation of water bodies such as ponds and habitat improvement of their natural habitat. In addition, the areas around quarry, colony, etc. should be fenced to avoid elephant intrusion and falling into mine pits.
 - iv. As confirmed by the proponent, the measures for improvement of Tribal population within the block, a one-time expenditure of Rs 4 crores shall be earmarked for implementation of schemes to address the livelihood issues of tribal communities in the area.
 - v. Since there are settlements on either side of the block the proponent should create a safe passageway for the elephants to move through the forest which forms their habitat-to mine and-back to forest and avoiding a man-animal conflict with the adjoining villages.

- vi. The State Govt. is implementing a Regional Conservation Plan (RCP) that address the issues of habitat improvement so that the frequency of elephants moving from their habitats is reduced considerably. The proponent, therefore, shall dovetail the project specific WL Con. Plan with the RAP.
- vii. The proponent should be involved in the implementation of a RCP through a Committee whereby the project proponents of operating coal blocks participate in its implementation so that there is greater involvement of the implementation of activities thereunder and accountability of the funds being spent on the RCP and Project specific WL Plan.
- viii. The Proponent Committee suggested involving
- ix. An NGO such as the WWF Local Chapter may be involved to monitor the implementation of the WL Plan, the cost of which would be borne by the PP.
- x. With regard to tribal livelihood issues and measures presented by the PP, the Committee desired that
- xi. In case schemes for development of Tendu and Mahua plantation, as presented by the PP are not found to be feasible, the PP must implement alternate livelihood schemes as has been presented by the PP. The Head of the CSR Cell must specifically be involved in issues of Tribal Welfare. In addition, local persons must also be given employment – skilled wherever possible and unskilled and training imparted to absorb them in various direct and indirect jobs relating to the project.
- xii. Report on implementation of the CSR and RR done so far shall be submitted for record of the MoEF as agreed during the meeting.
- xiii. The proponent needs to take other requisite clearances/approval from other appropriate agencies so as to implement the project.
- xiv. A Corpus Fund should be created for maintenance of the R&R colony. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.
- xv. The project proponent should implement the assurances given during the public hearing.

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

2.3.1 The proposal is of Talabira-II & III Opencast Coal Project (production capacity 20 MTPA normative and 23 MTPA peak in ML area of 1926 ha (revised)) of M/s Mahanadi Coalfields Limited, District- Sambalpur, Orissa.

2.3.2 The proposal was considered in the 65th EAC meeting held on 8th - 9th January, 2013. The EAC sought additional information viz.: The original topo-sheet and map of the area; Status of Stage-I Forestry Clearance; Details of in-situ ore leaching, coal gasification; examine the use of carbonaceous shale in Power generation; sequential mining should be carried out. At the end of the mining, the area should be backfilled and reclaimed the area as agriculture land; Details of reclamation of area with faster recovery of land should be addressed to.; The 1st and 2nd quarry will be in operation for 26 years. The period of 26 Years is a very long time for 1st and 2nd quarry. Therefore, the Production strategy be reworked for quarry operation to reduce the refilling time and reclamation; Land use Pattern as per Revenue records of State Revenue Department on 1:50000 scale. The topo-sheet should be provided. The details of the record of 1914.063 ha land; Cumulative Impact Assessment study should be carried out in 10 km of area as per EIA Notification, 2006. ; Air quality data which is in South West and North Eastern side of core area should be sent to Dr S. Attri, Member, EAC for his comments etc.

2.3.3 The proponent made the presentation and informed that:

- i. Applied for diversion of forest area of 1038.187 Ha, vide State letter no. 393/10 dt- 26.5.2010 and recommended by the DFOs to RCCF on 14.8.2013.
- ii. CMPDIL, Ranchi was consulted on the issue of coal bed methane, who suggested that isolated occurrence of coal seams at more than 300 m depth where coal mining may

not be taken up at present on account of techno-economic reasons. The maximum depth of occurrence of coal seams in Talabira-II&III coal block is 190m. In view these facts, it was inferred that Coal Gasification is not feasible in case of Talabira OCP.

- iii. The “in-situ ore leaching” is applicable in case of metal mining only. Leaching methodology is not used for extraction of coal. Considering the mineable reserve of 553.98 MT and production capacity of 23 MTPA, in-situ ore leaching methodology is not workable in case of Talabira-II&III OCP.
- iv. CMPDI (HQs), Ranchi was consulted on use of carbonaceous shale in power generation who were of view that while delineating the seam and making due corrections during Geological Report Preparation, the carbonaceous shale band is generally included in coal seams if the thickness of the band is one meter or less in case of open cast projects. Therefore, the coal seams having one meter or less carbonaceous shale are being mined along with coal for their downstream utilization and thus carbonaceous shale in turn is getting used for power generation as suggested by EAC.
- v. Sequential mining operation has already been adopted in the present approved mining plan.
- vi. The Present Mining Plan suggests that most optimum and possibly faster recovery of mined out land. Available land for agriculture or plantation will be more or less same in both variants. The proponent has therefore requested for adopting the mining plan which has been approved by Ministry of Coal.
- vii. As per the present approved mining plan, backfilling/refilling shall be by internal dumping in southern quarry which will start from 5th year onwards. Keeping in view the dimension of the quarry and gradient required for hauling of coal and OB material, the land restoration/reclamation process would start from 10th year and 82 ha of land will be biologically reclaimed upto ground level in 12th year. 1st quarry (southern quarry) will be exhausted in year 16/17 and can be restored for agricultural purpose if internal dumping is restricted upto ground level. In year 26, major portion of quarry-2(central quarry) will also be backfilled and this will be integrated with quarry-1(south quarry) to have a wide area restored for any agricultural or plantation activity. So, restoration of land is possible much before year-26 as per present mining plan.
- viii. Work award was given to CMPDIL for cumulative Impact Assessment study. CMPDIL defined the procedure for cumulative impact assessment study in 10-km area as per EIA, 2006. Further, CMPDIL has issued Work Order to M/s ECOMEN Laboratories pvt. Ltd., Lucknow for completion. Baseline study & finalisation of impact assessment report will be completed tentatively by April 2014.
- ix. Air quality data which is in SW & NE side of the core area was sent to Dr. S. Attri, Member, EAC for his comments.
- x. The location of the project is in the Ib valley coal field.

2.3.4 The Committee after deliberation sought the following information:

- i. The Committee has noticed certain inconsistency in air quality data including SO₂. The Proponent, subsequent to the presentation, has submitted to the EAC, vide its letter no. MCL/MNH/SBP/13 dated 3.10.2013 stated, inter alia, that “...The data is based on actual monitoring by CMPDIL, Bhubaneswar. We had also noticed that the figures in respect of SO₂ in one of the villages (i.e., Malda) were constant and upon rechecking it was revealed that the figures are factual and correct. This can be attributed to the fact that the mine was virgin and there was very little industrial activity during the relevant period.....”. The Committee after deliberation has desired that the proponent need to generate air quality data for one month so as to revalidate the data and present to the Committee for consideration.
- ii. The Project Proponent informed that they have engaged CMPDIL for undertaking a Cumulative Assessment study. The study is expected to be completed in about one and half years. The Committee has decided and recommended that the Cumulative Assessment shall

not be limited to the proponent's mine but also shall be extended to all the units in the core and buffer zone of the mine.

- iii. Stone revetment (pitching) with grassing and plantation on the top of the embankment of the reservoir shall be done.
- iv. There shall be no external OB dump. The internal dump should be brought to the ground level and the voids should be below 40 m of depth.
- v. Transport of the coal shall be by rail. It was noted that dispatch from the railway siding has been planned with pay loader loading till silo is commissioned. It was desired that no pay loader loading shall be done and that all dispatches be done through silo.
- vi. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.

2.3.4 The Committee will further consider the proposal after receipt of the required information from the proponent.

2.4. Thesgora Underground Coal Mine Project (1 MTPA in 500 ha) of M/s Thesgora Coal Pvt. Ltd., located in Tehsil Parasea, District Chindwara, M.P. (TOR)

2.4.1 The proposal was considered in the EAC earlier last in 23rd -24th January 2012 and sought information including whether the Thesgora Coal Mine falls within the Pench-Satpura tiger/wildlife Corridor.

2.4.2 The proponent during its presentation informed that:

- i. The distance of Satpura Tiger Reserve from Thesgora Coal Block is 63.4 Km; Pench Tiger Reserve from Thesgora Coal Block is 52.6 Km; Pench-Satpura Tiger corridor from Thesgora Coal Block is 46 Km.
- ii. DFO Chindwara West Forest Division, vide its letter no. Misc/2013/1294 dated 24.08.2013, mentioned that the proposed coal block is not within 10 km radius of the protected area/National Park/ Biosphere reserves/wildlife corridor/tiger reserve/elephant reserve. The coal block does not fall within the Pench-Satpura wildlife corridor. Therefore, there will be no adverse impact to the wildlife due to underground coal mining in this block.
- iii. Ministry of Coal has allotted Thesgora B/Rudra Puri Coal Block jointly to M/s Kamal Sponge Steel & Power Ltd & M/s Revati Cement Pvt. Ltd vide letter No. 13016/2009, CA-I dated 21st November, 2008 for captive consumption of coal for their sponge iron plant & cement plant.
- iv. The requirement of Coal of both the Company is 1.41 MTPA(M/s Kamal Sponge Steel & Power Ltd is 0.96 MTPA & M/s Revati Cement Pvt. Ltd is 0.45 MTPA). Therefore, the proposed production target was 1.5 MTPA when the presentation was made before the EAC(T&C) meeting held 22nd March 2010. After completion of mining Plan, the proposed production target was reduced to 1 MTPA from earlier target of 1.5 MTPA due to its geologically disturb structures and accordingly the Mine Plan was approved for 1.0 MTPA from Ministry of Coal, Government of India vide letter No. 13016/53/2008-CA-I dated 27th October, 2010.

2.4.3 The Committee after deliberation recommended the proposal for TOR as given in Annexure-5 read with Annexure 7 and with the following specific TOR conditions;

- i. Letter from the Conservator of Forests of the State Govt. confirming whether the aforesaid mine does not fall in the Pench-Satpura wildlife Corridor.
- ii. Coal transportation should be by 30-T trucks.
- iii. One season data (3 months) of AAQ & water, noise be documented and submitted.
- iv. The annual revenue budget @Rs 5/tonne of coal produced and a capital budget of Rs 2.75 crores should be provided for CSR activities the details of which (village-wise) should be furnished.

- v. The proponent should examine the option of establishing the railway siding nearer to the mine,
- vi. Subsidence Prediction Study should be carried out in the area,
- vii. Ventilation fan arrangements of adequate capacity needs to be provided in the mine.
- viii. A study be undertaken on the impact of the proposed embankment and its requirement.
- ix. The FC would be required at the time of EC.

2.5 Kapurdi Lignite Open Cast Mine project of (expansion from 3 MTPA to 3.75 MTPA in ML area of 3223.5110 ha) of M/s Barmer Lignite Mining Company Ltd., Dist. Barmer, Rajasthan - EC under 7(ii) of EIA Notification 2006 – Further consideration.

2.5.1 The proposal is of Kapurdi Lignite Open Cast Mine project of (expansion from 3 MTPA to 3.75 MTPA in ML area of 3223.5110 ha) of M/s Barmer Lignite Mining Company Ltd., Dist. Barmer, Rajasthan - EC under 7(ii) of EIA Notification 2006.

2.5.2 The proposal was considered in the 71st EAC meeting held on 8th -9th April, 2013. The EAC sought additional information viz.: certified report of the status of compliance of the conditions stipulated in the Environmental Clearance for the ongoing/existing operation of the project by the Regional Offices of the MoEF; Board's Resolution; details of CSR. Besides entailing capital CSR expenditure of Rs 3 crores, the company has envisaged a recurring CSR expenditure of Rs 2 crores annually. A social audit of CSR activities through a reputed institute ; Top soil of the OB dumps be used for grasses/plantation.; to identify the no. of PAFs based on the 2011 census data; to examine the health issues in the area particularly with respect to infant mortality.; OB dumps be reutilized/re-handled fully. A plan of action be submitted to the MoEF for record; Central Arid Zone Research Institutes(CAZRI),Jodhpur may be contacted for advice on the issues of plantation in the mining area. A detailed report within in this regard may be submitted to the MoEF for record.

2.5.3 The proponent made the presentation and informed that:

- i. The proponent has furnished the Board's Resolution for enhancement of lignite production capacity from Kapurdi Lignite Mines by 25% from 3.0 MTPA to 3.75 MTPA in accordance with the Office Memorandum dated December 19, 2012 of MOEF
- ii. **CSR:** It is proposed to spend Rs. 2.58 Cr. towards CSR activities during the current financial year. The PP stated that it has already spent Rs. 75, 47,981/- so far. The proponent has committed to spend the entire budgeted amount on CSR activities during the current financial year.
- iii. **Commissioning of Lignite Handling System (LHS):** The erection and commissioning of Lignite Handling System is in the last phase of completion and it is expected to be in operation by end November, 2013. Pursuant to the commissioning of the LHS, the entire lignite mined from Kapurdi mine is to be transported to the power plant only through the conveyor belt.
- iv. **Allocation of space for livestock grazing:** A barbed wire fencing has been erected around the active mining area and haul roads so as to prevent any inadvertent entry of people or livestock. Out of the total lease area of 7205.8 Hectare of Kapurdi-Jalipa Block, the ML area of Kapurdi is 3223.5 Hectare. The proponent has fenced off approximately 830 Hectare covering the excavation pit and haul roads in accordance with mining regulations. Another approximately 1237 Hectare contains some semi-permanent structures like workshops, canteens etc. The balance 1158 Hactare is currently available for grazing of the livestock present in the area. During the course of mining, the position of active mining area shall change, but approximately 1100-1200 Hectare of land area beyond the fencing around the active mining area shall always remain available for grazing of the livestock throughout the life of the mine against the original Gochar land area of 145 Hectare.
- v. **Management of OB dumps:** The OB dump creation & re-utilization are specified under the Mine Closure Plan for Kapurdi mine as approved by Ministry of Coal, Govt. of India.

The PP has proposed to re-utilise the OB dumps accordingly. At the end of the mining, the external OB dumps shall also be partly re-handed to reduce the depth of the final void from 120 m to 97 m.

- vi. **Issues with regard to Project Affected Families (PAFs):** There were 774 no. of Project Affected Families (PAFs) in Kapurdi Lignite Block. During acquisition for the determination of prevailing market rate of the land a high powered Committee was constituted by the Government of Rajasthan on 29.5.2009. The Committee negotiated with the land losers and a compensation of Rs. 1.5 lacs per bigha (excluding compensation for permanent structures) was finally agreed to between the government and the land losers. Approximately Rs. 63,000 per bigha out of this amount was paid towards solatium of R&R benefits. In addition to the above compensation 441 persons from PAF have been provided employment as a CSR initiate in consultation with local committee consisting of representatives of PAFs. Additional employment of the nominees of PAFs may also be considered if demanded by the Committee.
- vii. **Habitat Restoration Plan:** A detailed Habitat Restoration Plan has been prepared by Central Arid Zone Research Institute, Jodhpur after thorough study of flora in Kapurdi-Jalipa Lignite block area and the recommendations of the CAZRI report are being implemented in Kapurdi Lignite Block.
- viii. **Reasons for the enhanced production:** In the month of March, 2013, an in-seam fire was detected in the quarry bed of the Kapurdi Lignite mine. In view of the tendency of spontaneous combustibility in lignite, it was decided to excavate and remove all the lignite under fire so as to prevent any propagation of fire in the lignite seams in the area below the super incumbent strata, so that the mine is saved from any major safety hazard. In the course of such removal of lignite-in-fire, the lignite production crossed the stipulated limit of 3 MTPA during the year 2012-13. The PP has now taken adequate safety precautions like limiting the exposure of lignite by leaving a thin layer of OB/clay on the top of the lignite seams to prevent any recurrence of the fire. Thus, the violation of the stipulated mine capacity in the last financial year was solely due to unavoidable safety factors and failure to remove the additional lignite could have led to a major fire disaster in the mine. Therefore, this excess production should not be construed as violation

2.5.4 The Committee after deliberation recommended the project for EC with the following conditions:

- i. The conveyor transport of lignite from mine to the power plant may be commissioned by Nov, 2013.
- ii. The proponent shall develop grazing plan for new livestock.
- iii. The proponent shall regularly examine and mitigate the health issues in the area particularly with respect to infant mortality.
- iv. The PP has made an expenditure of Rs. 75 lakhs towards CSR so far which is much less. The PP was advised to spend Rs. 258 lakhs during 2013-14. The PP has committed to do.
- v. The Committee observed that the PP has exceeded the production by 0.05 MTPA in 2012-13. However, the PP has submitted that an in-seam fire was detected in the quarry bed of the Kapurdi Lignite mine. In view of the tendency of spontaneous combustibility in lignite, it was decided to excavate and remove all the lignite under fire so as to prevent any propagation of fire in the lignite seams in the area below the super incumbent strata, so that the mine is saved from any major safety hazard. In the course of such removal of lignite-in-fire, the lignite production crossed the stipulated limit of 3 MTPA during the year 2012-13. Keeping in view the safety of mine due to fire, the Committee did not construe it as actual excess production for commercial purpose and recommended for expansion of the 25% capacity enhancement of 5 MTPA as per the OM dated 19 December, 2012.
- vi. CSR activities need to be got done annually through a reputed institute and details be put up in the company's website
- vii. The Top soil of the OB dumps be used for grasses/plantation.
- viii. The OB dumps be reutilized/re-handed fully. A plan of action be submitted to the MoEF for

- record.
- ix. Central Arid Zone Research Institute (CAZRI), Jodhpur may be contacted for advice on the issues of Plantation be made in around the ML area in the mining area in consultation with a reputed Institute. A detailed report within in this regard may be submitted to the MoEF for record.
 - x. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.

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

2.6.1 The project was considered and recommended by the EAC in its meeting held on 8th-9th January 2013. However, in pursuance to the OM of the MoEF J-11011/618/2010-IA-II(i) dated 30th May, 2012, the proponent was requested, vide its letter no. J-11015/243/2011-IA.II (M) dated 17th April, 2013 to submit the following:

- i. Certified report of the status of compliance of the conditions stipulated in the EC for on-going/existing operations of the project by the Regional Office of the MoEF at Lucknow. The status of compliance of the conditions stipulated in the environmental clearance as highlighted in the report(s) will be subsequently discussed by the Expert Appraisal Committees.
- ii. Plan of action on issues raised by the EAC in its meeting held on 8th -9th January, 2013;
- iii. Plan of action on the issues raised during the Public Hearing.

2.6.2 The compliance report submitted by the RO, MoEF was deliberated. The Committee observed that:

- i. The Proponent has exceeded the production capacity as against the stipulated quantity in the EC. Appropriate action may be taken as per the existing procedure.
- ii. There are many inconsistency viz. health studies carried out by a certain non-medical institute (i.e. ICFRE), construction of ETP has not been completed, Coal Handling Plant (CHP) has not yet been established, etc.
- iii. The proponent should submit the revised compliance report duly verified by the RO for further consideration.
- iv. The proponent should submit the plan of action raised during the Public Hearing.

2.6.3 The Committee after deliberation desired to reconsider the project after the receipt of the information.

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

2.7.1 The proposal was considered in the 65th Expert Appraisal Committee held on 8th - 9th January, 2013 and recommended for grant of Environmental Clearance. However, in pursuance to the circular of the MoEF J-11011/618/2010-IA-II(i) dated 30th May, 2012, the proponent was requested to submit the following:

- i. Certified report of the status of compliance of the conditions stipulated in the EC for on-going/existing operations of the project by the Regional Office of the MoEF. The status of compliance of the conditions stipulated in the environmental clearance as highlighted in the report(s) will be subsequently discussed by the Expert Appraisal Committees.
- ii. Plan of action on issues raised by the EAC in its meeting held on 8th -9th January, 2013;

2.7.2 The compliance report submitted by the RO, MoEF was deliberated. The Committee observed that:

- i. The Proponent has exceeded the production capacity as against the stipulated quantity in the EC. Appropriate action may be taken as per the existing procedure.
- ii. There are many inconsistencies such as health studies carried out by a certain non-medical institute, construction of ETP has not been completed, Coal Handling Plant (CHP) not operational, Occupational health issues are not addressed properly, etc.
- iii. The proponent should submit the revised compliance report duly verified by the RO for further consideration.
- iv. Plan of action on issues raised by the EAC in its meeting held on 8th -9th January, 2013

2.7.3 The Committee after deliberation desired to reconsider the project after the receipt of the information.

2.8 Bithnok Lignite Mine Project 2.25 MTPA in an ML area of 2150 ha of M/s Neyveli Lignite Corporation Ltd. to be located at Bithnok, District Bikaner, Rajasthan - EC based on TOR 13.04.2007 - Further consideration.

2.8.1 The proposal is opencast mining project of Bithnok Lignite Mine Project (2.25 MTPA in an ML area of **2150** ha) of M/s Neyveli Lignite Corporation Ltd. to be located at Bithnok, District Bikaner, Rajasthan - EC based on TOR 13.04.2007

2.8.2 Neyveli Lignite Corporation Limited has made presentations to the EAC during the meetings held on 24.02.2010, 22.11.2010, 18.07.2011, 17.10.2011, 29.11.2011 & 19.06.2012 for Environmental clearance.

2.8.3 In the EAC meeting held on 19.06.2012, the Committee desired that the proponent:

- i. To examine backfilling the final void upto 57m below ground level
- ii. Submit photographs of the khejri forest
- iii. Decommissioning in the Final Mine Closure should include costs of re-handling
- iv. Proponent also examine whether minerals such as shale, sandstone, limestone, clay etc encountered with OB could be sold to generate revenue
- v. Sought the details of lithologs of the block along with geological sections
- vi. Proponent should carry out a Social Cost Benefit Analysis. The Committee suggested that proponent should use UNIDO Method and Little & Mirrlees (1968) analysis technique developed for understanding the economic viability of project.

2.8.4 The proponent made the presentation and informed that:

- i. It is the expansion project of M/s NCL to which Ministry accorded TOR vide letter no. J-11015/32/20107-IA.II (M) dated 13.4.2007. The rated capacity was further increased as stated in the MoEF's letter no. J-11015/32/2007-IA-II dated 17.09.2008. The proponent has therefore requested appropriate correction in the agenda and also in the minutes as 2.25 MTPA in an ML area of 2150 ha.
- ii. Mining Lease area as per approved Mining Plan - 2444 ha. Now Proposed Mining Lease area after excluding the Southern Forest Patch and adjoining areas - 2150 ha.
- iii. The land usage of the project will be as follows:
 - a. **Pre-mining:** The study area of 98806 ha comprising, 64.6% un-irrigated land; 20.0% Culturable waste land; 8.5% irrigated land; 6.7% area not available for cultivation and 0.3% forest land.
 - b. **Post Mining:** In the post-mining, 1409 ha will be reclaimed afforested; 25 ha will be final void proposed to be a water body
 - c. **Core area:** Core area of 2530.09 ha comprising, 31.78% un-irrigated private land; 66.16% government land and 2.06% forest land.

- iv. The total geological reserve is 98.24 MT. The mineable reserve is 79.62 MT, extractable reserve is 71.66 MT. The per cent of extraction would be 90 %.
- v. The coal grades is 2552 kcal/kg having stripping ratio of 1:14.33 m³/t. The average Gradient is 1 in 11 to 1 in 7. There will be total 5 to 8 seams with thickness ranging from 0.5 m and above.
- vi. The total estimated water requirement is 0.46 MGD. The level of ground water ranges from 64 to 75 m bgl.
- vii. The Method of mining would be opencast mining with shovel- dumper technology.
 - a. 60 m high dump with four decks (4x15m)
 - b. Two Dumps namely D1 & D2. The D1:328 ha + D2:298 ha = 626 ha 60m
 - c. Dump D1 - 142.62 Mcum; Dump D2 - 130.04 Mcum, Total : 272.66 Mcum
 - d. 3rd year from Mine operation
- viii. There are two external OB dump covering an area of 626 ha having a height upto 60 m (max) with the quantity of 272.66 mm³. The final mine voids will have an area of 25 ha at the void floor: 230 ha at surface (for the revised pit) with 125 to 165 m before filling and 57 m after filling will be depth. There are one internal dumps having an area of 711 ha and height 165 m. Out of total quarry area 941 Ha. backfilled quarry area will be 711 Ha which shall be reclaimed with plantation. A void of 25 ha with depth of about 57 mtrs, which is proposed to be converted into water body.
- ix. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- x. The **life of mine** is 36 Years.
- xi. **Transportation:** Transportation of coal from pit to lignit handling area (LHP) at surface through Dumper and from LHP to TPS through conveyor.
- xii. There is no R & R involved. There are 62 nos of PAFs.
- xiii. **Cost:** Total capital cost of the project is Rs. 461.52 Crore. The cost of production would be Rs. 1896.98 /tones (avg). CSR Cost (Capital cost: Rs.2.15 / tonne of Coal. R&R Cost Rs. 4.88 crore. Environmental Management Cost is Rs. 31.28 crore.
- xiv. **Approvals:** Ground water clearance obtained on 28.03.2011. The Mine Closure approval obtained on 05.06.2009. Date of approval of mine plan is 05.06.2009 .Boards approval obtained on 03.09.2009.
- xv. Wildlife issues: There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xvi. **Forestry issues:** Total forest area involved for mining 50.60 ha. Extent of forest land in the project is 52.245 ha. (for revised pit).
- xvii. Total afforestation plan shall be implemented covering an area of 1409 ha at the end of mining where reclaimed external OB dump is 626 Ha and Internal OB Dump 711 ha. Green Belt over an area of 72 ha. Density of tree plantation 1500 to 2000 trees/ ha of plants.
- xviii. There are no **court cases**/violation pending with the project proponent.
- xix. **Public Hearing** was held on 23.12.2009 at Kolayat Tehsil Office near Project Site, Bikaner Rajasthan. The issues raised in the PH were regarding compensation, social care for public, priority as per eligibility and qualification etc.

2.8.5 The proponent further informed that:

- i. Backfilling the final mine void upto 57m below ground level i.e water table level (+144m level) has been examined in due consideration of leaving the khejri trees/plants found in the southern forest patch. After leaving the entire southern forest patch and the adjoining areas, which are not amenable for mining, the now proposed mine pit boundary has been accordingly marked..
 - a. The final mine void details for the above mine pit boundary are as follows:
 - b. Maximum depth of final mine void: 165 m
 - c. Area at the floor of final mine void: 25 ha
 - d. Area of final pit at ground level :230 ha

- ii. After excluding the southern forest patch and adjoining areas, the maximum depth of the final mine void for the now proposed mine pit is reduced to 165m with a floor area of only 0.25 sq.km.
- iii. The total mine area of the proposed pit is 941 ha. Out of the 941 ha now proposed for mining, 711 ha will be progressively backfilled through internal dumping. The total volume of excavation for the now proposed mine pit is 968.13 million cubic meter (Mcum) during the life of the mine. Through internal dumping, 781.13 Mcum would be backfilled leaving a final void of 187 Mcum. The volume of void upto the static water level is 72.11 Mcum. As desired by the EAC, it is proposed to fill/level the proposed final mine void upto the static water level i.e. 57m below ground level. Cross section of final Mine void before and after backfilling will be upto static water level.
- iv. Leaving the southern forest patch and adjoining areas for maintaining the mine geometry will sterilize about 7.9 MT of mineable reserves. As suggested by EAC, it is proposed to leave the forest patch found in the southern part of the mining lease undisturbed. The mineable reserve after leaving the forest patch is estimated at 63.76 MT, which will be sufficient enough to meet the lignite requirement of Power Station for about 28 years.
- v. The proponent has submitted the photographs of the southern forest patch. The committee, khejri plantation would be developed in the vacant areas of the mine project.
- vi. The costs of re-handling will be included in the final Mine closure fund provision.
- vii. The overburden in Bithnok block mainly consists of Aeolian sand, Kankar, argillaceous fine to coarse grained sand & sandstone, clay & sandy clay. The sandstone occurring in the overburden is friable which is not having any economic importance and there is no pure limestone occurs in the OB formations, however low percentage calcium carbonate nodules i.e Kankar could be used for road materials for the project use. In certain areas, thin seams of dull white clay occurs which may be sold out for generating revenue and this may reduce the volume of OB & space requirement for storage to certain extent.
- viii. The geological succession as interpreted based on the exploration activity carried out in Bithnok block is given below :

Age	Formation	Litho units	Thickness (m) General range
Recent and Sub recent	Aeolian sand and Kankar	i) Aeolian sand ii) Kankar	3.00 - 4.00 5.00 - 6.00
Eocene to Palaeocene	Marh formation	i. Alternating sandstone and clays with thin Lignite lenses ii. Lignite with carb clays, intercalation iii. Sandstone marked with upper surface as glauconitic or oolitic deposition	40.00 – 120.00 – 34.00
Pre Cambrian		(Continuous bottom wards as Nagaur sandstone)	

- ix. **Aeolian sand and Kankar:** Bithnok block is mostly covered with Aeolian sand, except at places where Kankar is found exposed directly. The thickness of Aeolian sand is generally ranging from 3.00 to 4.00 m. and is noticed as migratory sand dunes. The Kankar column generally occurs below the Aeolian sand in the block, except at places where it is directly exposed. The thickness of Kankar zone is varying from 5.00 to 6.00 m. Kankar comprises unconsolidated concretionary lime nodules, which are generally angular to sub rounded in shape. The colour of the nodules varies from white to dirty white or greyish.

- x. **Marh Formation:** Marh Formation comprises dominantly of sandstone and clays with thin lignite lenses, lignite with carb clays, and sandstone marked with upper surface as glauconitic or oolitic deposition. The sandstones are generally grayish, medium grained.
- xi. **Clays/Sandy Clays:** Occur as alternative horizons with sandstones and generally sticky and plastic in nature. At places, within these clays, discontinuous bands of carbonaceous clays are found. The clays are ranging in colours from white, pink, grey, yellow, black and variegated etc. The number of clay horizons above the lignite seams varies from 5 to 6 in number.
- xii. **Sandstones:** The Sandstones occur as alternative horizons along with clays. These are mostly loose, unconsolidated and friable. Within the loose and friable Sandstones, the occurrence of hard sandstone bands has been noticed.
- xiii. For carrying out Social Cost Benefit Analysis and economic viability study using UNIDO Method and Little & Mirrlees (1968) analysis technique, as suggested during the EAC meeting, Dr. U. Sankar, Honorary Professor, Madras School of Economics had carried out the study and presented. The Proponent presented the similarities and differences between the two approaches. The similarities include: Both approaches were developed to deal with evaluation of projects in developing countries in the seventies; Both use discounted cash flow analysis; Both use shadow prices for foreign exchange, savings and unskilled labour; Both incorporate equity considerations. The differences include: L&M measure costs and benefits in terms of border prices; UNIDO measures costs and benefits in terms of domestic currency; L&M use uncommitted social income as basis while UNIDO uses aggregate consumption as basis; L&M provide an integrated analysis of considerations such as efficiency, redistribution, and savings. UNIDO provides a stage by stage approach consisting of five stages.
- xiv. The proponent concluded that:
 - a. Of the different production plans considered, the two production plans with 33 years of production and 85% CU are technically feasible and also profitable. Higher CU will result in a higher NPV and a higher IRR.
 - b. Even though lignite mining results initially in ecological loss and environmental pollution, the project is worth undertaking from the long-term point of view because: (i) the project area is largely desert, only 62 families are in the affected area and the existing livelihood opportunities for the locals are poor, (ii) the environmental management plan would minimize the adverse environmental effects; (iii) the provisions relating to rehabilitation and resettlement and social welfare measures would make the affected people better off, and (iv) the availability of lignite makes additional electricity generation possible in Rajasthan which has been facing excess demand for power. Therefore, the anticipated social benefits of this project would exceed the social costs.

2.8.6 The Committee after deliberation recommended the project for EC with the following conditions:

- i. Maximum depth of final mine void shall be 165 m: area at the floor of final mine void shall be 25 ha and the area of final pit at ground level shall be 230 ha
- ii. The total mine area of the proposed pit shall be 941 ha. Out of the 941 ha now proposed for mining, 711 ha will be progressively backfilled through internal dumping. The total volume of excavation for the now mine pit shall be 968.13 million cubic meter (Mcum) during the life of the mine. Through internal dumping, 781.13 Mcum would be backfilled leaving a final void of 187 Mcum. The volume of void upto the static water level shall be 72.11 Mcum. The proposed final mine void shall be filled/levelled upto the static water level i.e 57m below ground level. The cross section of final Mine void before and after backfilling will be upto static water level.
- iii. The forest patch found in the southern part of the mining lease will be left undisturbed.
- iv. Khejri plantation would be developed in the vacant areas of the mine project.
- v. The costs of re-handling will be included in the final Mine closure fund provision
- vi. Environmental management plan shall be prepared and implemented to minimize the adverse environmental effects

- vii. The final mine void shall be upto 57m bgl which would ensure that there is no mixing of rainwater with the saline groundwater.
- viii. The rainwater stored in the final mine void could be used for consumption and a source of recharge of the water shed.
- ix. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.

2.9 Bhubaneshwari Opencast project (expansion in production capacity from 20 MTPA to 25 MTPA in ML area 658.724 ha) of M/s Mahanadi Coalfields Ltd. Village: Hensmul, Dist. Anugul, Orissa - EC under 7(ii) of EIA Notification 2006.

2.9.1 The proposal is of Bhubaneshwari Opencast project (expansion in production capacity from 20 MTPA to 25 MTPA in ML area 658.724 ha) of M/s Mahanadi Coalfields Ltd. Village Hensmul, Dist. Anugul, Orissa - EC under 7(ii) of EIA Notification 2006.

2.9.2 The proponent made the presentation and informed that:

- i. EC granted vide MoEF's letter No. J-11015/128/2007-IA.II (M) dated: 30 November, 2012 for expansion in production capacity from 10 MTPA to 20 MTPA in a Mining lease area of 808.294 ha.
- ii. M/s MCL is requesting for expansion in production capacity from 20 MTPA to 25 MTPA in ML area 658.724 ha under 7(ii) of EIA Notification 2006.
- iii. The land usage of the project will be as follows:

Post Mining

Sl.	Item	Post Mining Land Use (in ha)					
		Plantation	Water body	Dip side slope and haul road	Undisturbed	Built-up area	Total
1	Quarry excavation	375.900	31.000	55.741	0.000	0.000	462.641
2	Blasting danger zone (excluding the part of OB dump)	83.150	0.000	0.000	0.000	0.000	83.150
3	OB Dumps (external)	94.000	0.000	0.000	0.000	0.000	94.000
4	Infrastructure including CHP, magazine, etc.	0.850	0.000	0.000	0.000	10.083	10.933
5	Railway siding	1.600	0.000	0.000	0.000	6.400	8.000
	Mining lease area (1 to 5)	555.500	31.000	55.741	0.000	16.483	658.724
6	Residential colony	6.400	0.000	0.000	0.000	25.600	32.000
7	Rehabilitation Site	23.520	0.000	0.000	0.000	94.050	117.570
	Outside Lease area (6 to 7)	29.920	0.000	0.000	0.000	119.650	149.570
	Total :	585.420	31.000	55.741	0.000	136.133	808.294

Pre-Mining

Sl.	Item	Pre-Mining Land Requirement (in ha)		
		Forest	Non-forest (Govt. & Tenancy)	Total
1	Quarry excavation	126.191	336.450	462.641
2	Blasting danger zone (excluding the part of OB dump)	--	83.150	83.150
3	OB Dumps (external)	--	94.000	94.000
4	Infrastructure including CHP, magazine, etc.	6.713	4.220	10.933
5	Railway siding	--	8.000	8.000

	Mining lease area (1 to 5)	132.904	525.82	658.724
6	Residential colony	--	32.000	32.000
7	Rehabilitation Site	--	117.570	117.570
	Outside Lease area (6 to 7)	0	149.570	149.570
	Total :	132.904	675.39	808.294

- iv. The total geological reserve is 741.09 MT. The mineable reserve is 374.12 MT, extractable reserve is 374.12 MT. The per cent of extraction would be 100 %.
- v. The coal grades are D to G having stripping ratio of 0.67 m³/t. The average Gradient is 4.5 degree. There will be total ten seams with thickness ranging from 0.42 to 44.99 m.
- vi. The total estimated water requirement is 4.36 MLD. The level of ground water ranges from 80 to 134 m.
- vii. The Method of mining would be Opencast mining with shovel- dumper.
- viii. There are one external OB dump covering an area of 62.40 ha having a height upto 52 m with the quantity of 26658480 m³. The final mine voids will have an area of 31 Ha with 187.5 m depth. There is one internal dumps having an area of 23.25 ha and height 54 m . Out of total quarry area 462.641 Ha. backfilled quarry area will be 375.90 Ha which shall be reclaimed with plantation. A void of 31 ha with depth of about 180 m, which is proposed to be converted into water body.
- ix. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- x. The **life of mine** is 25 Years.
- xi. **Transportation:** Transportation of coal in pit by dumper. Surface to siding by tipper/conveyor, and rakes loading by pay loaders. Provision wasby belt to washery and from washery to siding by tube conveyor and rakes loading through silo but the same is delayed.
- xii. There is **R & R** involved. There are 1012 PAFs.
- xiii. **Cost:** Total capital cost of the project is Rs. 490 Crore. The cost of production would be Rs. 153 /tones. CSR Cost (Capital cost: Rs.296 lakhs / tonne of Coal production. R&R Cost Rs. 31.22 crore. Environmental Management Cost is Rs. 71.41 crore.
- xiv. **Approvals:** Ground water clearance obtained on 09.01.2000. The Mine Closure approval obtained on 28.09.2013. Date of approval of mine plan is 23.06.2011. Board's approval obtained on 22.12.2007.
- xv. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xvi. **Forestry issues:** Total forest area involved for mining 132.904 ha. Extent of forest land in the project is 132.904 Ha.
- xvii. Total afforestation plan shall be implemented covering an area of 585.42 ha at the end of mining where reclaimed external OB dump is 94 Ha and Internal OB Dump 375.90 ha. Green Belt over an area of 83.13 ha. Density of tree plantation 2500 trees/ ha of plants.
- xviii. There are no court cases/violation pending with the project proponent.
- xix. Earlier EC was obtained on 30.11.2012 for which the Public Hearing was held on 10.02.2009 at Jagannath Kala Kendra, Talchar, Angul district of Orissa.
- xx. Certificate of compliance of earlier EC from MoEF, Regional office, Bhubaneswar has been issued vide their letter no. 106-102/EPE dtd. 16.09.2013.

2.9.3 The Committee after deliberation has observed that the proponent has not complied with the earlier conditions in the EC which include the following:

- i. Source apportionment study as stipulated in the EC has not yet been initiated.
- ii. Compliance status of Phase-2 FC is to be submitted.
- iii. The transportation of coal from the mine to washery and from washery to silo was to be done through conveyor belt. It was noted that no construction in this regard has been initiated.

Orders for washery are yet to be placed. The Committee desired that action in this regard be taken urgently and be completed within 18 months. This was agreed to by the Proponent.

- iv. Compliance of the final production capacity be submitted.
- v. Compliance of plantation in and around the ML area as stipulated in the EC be submitted.
- vi. Details of the washery and tippers be submitted.
- vii. Action plan and the commitment for change of the conveyor belt be submitted.
- viii. Proponent was advised to submit a comprehensive compliance of the conditions in the EC granted and submit the report, with duly certified by the RO, MoEF, Bhubaneswar for further consideration.

2.9.4 The Committee after deliberation desired to consider the proposal after receipt of the desired information from the proponent.

2.10 Bijahan Coal Block Mine (production capacity of 5.26 MTPA in ML area of 1100 ha) of M/s Bhushan Power & Steel Ltd. located in Dist. Sundergarh, Orissa – TOR.

- 2.10.1 The proposal is of Bijahan Coal Block Mine (production capacity of 5.26 MTPA in ML area of 1100 ha) of M/s Bhushan Power & Steel Ltd. located in Dist. Sundergarh, Orissa – TOR.
- 2.10.2 Bijahan Coal Block has been jointly allotted to Bhushan Power & Steel Limited (formerly known as M/s Bhushan Ltd.) (Leader) and M/s Shri Mahavir Ferro Alloys Pvt. Ltd. (Associate).
- 2.10.3. The proponent made the presentation and informed that:

- i. It is a new project having OC and UG mine of M/s Bhushan Power and Steel Limited for Coal Block Mine (production capacity of 5.26 MTPA in ML area of 1100 ha).
- ii. The land usage of the project will be as follows:

Pre-mining:

Land use	Total, Ha.
1. Private Tenancy comprising Agriculture (Unirrigated) (60%), Habitation (18 %), Barren (22 %)	313.89
2. Government & Others Comprising Cultivable Land (55%), Barren Land (12%), Community Land (9%) and Gochar Land (24%)	177.47
3. Revenue Forest (Govt.)	241.87
4. Reserve Forest	366.77
Grand Total	1100.00

Post Mining:

Sl. No	Description of Area	Land use (Ha.)				Total
		Plantation	Water body	Public Use	Undisturbed	
1	Top soil dump	0.00	-	-	-	0.00
2	Surface dump	0.00	-	-	-	0.00
3	Excavation	495.54	136.00	-	-	631.54
4	Roads/facilities	10.00	-	30.00	-	40.00
5	Surface water reservoir	-	-	20.00	-	20.00
6	Green belt	14.80	-	-	-	14.80
7	Undisturbed	-	-	-	393.36	393.36
Total		520.34	136.00	50.00	393.36	1100

Core area: Same as above since core and ML area are same

- iii. The total geological reserve is 327.02 MT (189.46 OC + 137.56 UG) MT. The mineable reserve is Opencast: 161.20 MT, Underground: 68.78 MT, Total: 229.98 MT, extractable reserve is Opencast: 161.20 MT, Underground: To be planned, estimated 68.78 MT. The per cent of extraction would be 85% OC and 50% by UG.
- iv. The coal grades is E to G (O/C) having stripping ratio of 2.31:1 m³/t. The average Gradient is 3 to 5 degree. There will be total 13 seams with thickness ranging from 0.12 to 33.7 m.
- v. The total estimated water requirement is 1084 m³/day. The level of ground water ranges from 1.0 to 8.95 m. Budajholia Nala which flows from the south eastern part of the ML will have to be diverted along the eastern boundary of the ML. No river flows through or adjacent to the mine lease.
- vi. The Method of mining would be Opencast by shovel dumper combination requiring drilling and blasting. Underground planning to be done
- vii. There are two external OB dump covering an area of Over burden - 38.86 Ha , Top soil dump - 20.00 ha having a height upto OB 40 m, top soil 3 m with the quantity of OB - 44.51 MCM, Top soil – 3.16 mm³. The final mine voids will have an area of 136 Ha with 150 m bgl, it will be reduced by backfilling washery rejects, etc from nearby projects. There is one internal dump having an area of 495.54 ha and height 10 m .Out of total quarry area 631.54 Ha. backfilled quarry area will be 495.54 Ha which shall be reclaimed with plantation. A void of 136 ha with depth of about 150 m bgl, which is proposed to be converted into water body.
- viii. The **life of mine** is 32.5 Years in OC.
- ix. **Transportation:** Transportation of coal in pit by dumper. Surface to siding by truck & dumper, siding to loading by pay loaders.
- x. There is **R & R** involved. There are 414 PAFs.
- xi. **Cost:** Total capital cost of the project is Rs. 386.20 Crore. The cost of production would be Rs. 350 /tones. CSR Cost (Capital cost: Rs.6.29 / tonne of Coal production. R&R Cost Rs. 19.98. Environmental Management Cost is (Capital cost Rs. 46.21 crore, Recurring Rs. 63.36 crore)
- xii. **Approvals:** Ground water clearance not yet obtained. The Mining Plan Approved on 13.08.2008. Date of Board approval. 27.06.2012.
- xiii. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xiv. **Forestry issues:** 241.87 ha of forest land shall be used for open cast mining. Underground mining shall be taken up later on i.e. after completion of opencast operation. Total forest is 608.64 Ha. (Revenue Forest & Reserve Forest)
- xv. Total afforestation plan shall be implemented covering an area of 520.34 ha at the end of mining where reclaimed external OB dump is nil Ha and Internal OB Dump 495.54 ha. Green Belt over an area of 14.80 + 10.00 ha along roads and facilities. Density of tree plantation 2500 trees/ ha of plants.
- xvi. There is a court case with the project proponent. A Notice have been received from Ministry of Coal, vide their letter ref. No. 13016/33/2005-CA-I dt. 26.11.2012 for deduction of Bank Guarantee amount of Rs. 6.49 Cr., against which company has filed a writ petition (C) no. 7476/2012 in Delhi High Court. The matter is sub-judice and recovery has been stayed.
- xvii. There is no violation as the mine is new.
- xviii. Baseline data had been included of March-May 2008, updated 2011 for PH. However, for updating the EIA/EMP, latest data generation has been started from 1st October 2013 as per latest NAAQS FOR PM_{2.5}, PM₁₀, SO₂, NO_x twice a week for three months. One time sampling of water, soil, noise (24 hrs), traffic (24 hrs) shall be undertaken in the season. Continuous hourly recording of micro-meteorological data will be done using automatic weather station. EIA/EMP will be updated after collection of data and receipt of new TOR from MOEF

2.10.4 The Committee after deliberation recommended the proposal for TOR the following specific TOR conditions:

- i. Copy of allotment letter of MOC.

- ii. An EIA-EMP Report should be prepared for a peak capacity of 5.26 MTPA and cover the impacts and management plan 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 5.26 MTPA of coal production based on approval of project/Mining Plan. The EIA-EMP Report should also cover the combined impacts of operating two adjacent blocks and env. plan for minimising their impacts.
- iii. The Committee desired that a detailed ecological study should be carried out. 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 including the elephant. A comprehensive Conservation Plan should be prepared including for Indian Elephant and furnished along with comments from the CWLW of the State Govt. The Plan must incorporate dedicated corridors for movement of Schedule-I fauna including the Indian Elephant found within the region.
- iv. Collection of one-season (non-monsoon) primary base-line data on environmental quality – air (SPM, RPM, SO_x and NO_x), noise, water (surface and groundwater), soil.
- v. 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 will be drawn and Prediction Modelling of AAQ (ISCT-3 (Revised) or latest available modelling) will be carried out. Wind roses to determine air pollutant dispersion will be drawn and Prediction AQOIP Modelling of AAQ (ISCT-3 (Revised) or latest available modelling) will be carried out. Monitoring should be as per CPCB guidelines. Parameters for water testing for groundwater as per ISI standards and surface water as CPCB guidelines.
- vi. 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.
- vii. The Committee desired that the total water req. of 564 m³/d for colony and for the mining operations be re-examined and reworked. Although the mine is located in a area which is considered as 'safe' from groundwater exploitation, measures for groundwater recharge should be undertaken. Detailed water balance should be provided. The break-up of water requirement as per different activities in the mining operations 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.
- viii. Impact of choice of selected use of machinery and impact on air quality, mineral transportation, coal handling & storage/stockyard, etc.
- ix. Impacts of mineral transportation within and outside the lease for the 5.26 MTPA capacity. 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.
- x. 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.

- xi. Examine the number and efficiency of mobile/static water sprinkling system along the main haul roads within the mine, approach roads to the mine/stockyard/siding, and also the frequency of their use in impacting air quality.
- xii. Impacts of CHP on air and water quality. A flow chart of water use and whether the unit can be made a zero-discharge unit.
- xiii. A calendar programme of OB management into the voids as per approved Mining Plan. Details of Progressive Mine Closure Plan, reclamation programme until end of mine life.
- xiv. Conceptual mine closure plan along with the fund requirement for the detailed activities proposed there under. Impacts of change in land use of agricultural land for mining operations and whether the land can be restored for agricultural use post mining.
- xv. Occupational health issues. Baseline data on the health of the population of the study area and measures for occupational health and safety of the personnel and manpower for the mine.
- xvi. Including 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.
- xvii. Integrating in the Env. Management Plan with measures for minimising use of natural resources – water, land, energy, raw materials/mineral, etc.
- xviii. 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 made in a tabular form. If the Public Hearing is in the regional language, an authenticated English Translation of the same should be provided.
- xix. R&R - Detailed project specific R&R Plan with data on the existing socio-economic status 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 the costs along with schedule of the implementation of the R&R Plan. The Committee desired that an alternate land for grazing (gauchar) should be provided in the R&R
- xx. Status of any litigations/ court cases filed/pending on the project.

2.11 Pundi OCP (2.50 MTPA normative and 3 MTPA peak in an ML area of 851.38 ha) and pit-head Coal Washery of 3 MTPA capacity of M/s Central Coalfields Ltd., located in dist. Bokaro, Jharkhand – TOR – Further Consideration

2.11.1 The proponent made the presentation and informed that:

- i. It is the opencast project with integrated coking coal washery for TOR.
- ii. The land usage of the project will be as follows:

Pre - mining :

Sl. No.	Particulars	Total Land in Ha	Land in Possession	Additional Land
1	GMK Land	51.67	10.53	41.14
2	Tenancy Land	387.59	325.88	61.71
3	Forest Land	316.62	52.97	263.65
4	Forest Land in Safety Zone	95.50	0.00	95.50
	Total	851.38	389.38	462.00

Proposal for authentication for Stage-I clearance of 172.81 Ha of forest land under process at the level of DC, Ramgarh.

Post - mining :

Post Mining Land Use	
Particulars	Area (Ha)

Water Body	34.95
Plantation on backfilled area	222.01
Water Body	52.62
Plantation on backfilled area	172.21
Plantation	125.24
Residential buildings	6.00
Plantation on dismantled infrastructure	10.50
Plantation	26.73
Roads	9.00
Retaining wall and Drain	3.95
Plantation	188.17
Total	851.38

Core Area :

During Mining	
Particulars	Area (Ha)
Quarry1	256.96
Quarry2	224.83
External OB Dump	125.24
Residential buildings	6.00
Service buildings & infrastructures	10.50
Railway siding	26.73
Roads	9.00
Retaining wall and Drain	3.95
Safety Zone	188.17
Total	851.38

- iii. The total geological reserve is 138.94 MT. The mineable reserve is 86.64 MT, extractable reserve is 76.75 MT. The per cent of extraction would be 62.36 %.
- iv. The coal grades is W-IV having stripping ratio of 3.36 m³/t. The average Gradient is 3 to 8 degree. There will be total eight seams with thickness ranging from 0.40 to 16.60 m.
- v. The total estimated water requirement is 2251 m³/day. The level of ground water ranges is being studied..
- vi. The Method of mining would be Opencast mining with shovel- dumper combination integrated coking coal washery and railway loading system.
- vii. There are one external OB dump covering an area of 72.28 ha having a height upto 60 m with the quantity of 29.42 mm³. The final mine voids will have an area of 34.95 Ha with 30 m depth. There are three internal dumps having an area of 380.72 ha and height Dump C 80 m and Dump D 40 m. Out of total quarry area 481.79 Ha. backfilled quarry area will be 394.22 Ha which shall be reclaimed with plantation. A void of 34.95 ha and 52.62 ha with depth of about 120 m bgl and 70 m bgl. which is proposed to be converted into water body.
- viii. The **life of mine** is 40 Years.
- ix. **Transportation:** Transportation of coal in pit by dumper. Surface to siding by truck, siding to loading by Pundi Railway siding, Chainpur at 300 m from project.
- x. There is R & R involved. There are 150 PAFs.
- xi. **Cost:** Total capital cost of the project is Rs. 631.53 Crore. The cost of production would be Rs. 765.47 /tones(avg). CSR Cost (Capital cost: Rs.5 / tonne of Coal . R&R Cost Rs. 4.24

- crore. Environmental Management Cost is Rs. 62.2 crore.
- xii. **Approvals:** Applied for Ground water clearance. The Mine Closure approval obtained on 24.01.2012. Date of approval of mine plan is 24.01.2012. Board's approval obtained on 24.01.2012.
 - xiii. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
 - xiv. **Forestry issues:** Total forest area involved for mining 316.62 ha. Extent of forest land in the project is 316.62 Ha.
 - xv. Total afforestation plan shall be implemented covering an area of 734.16 ha at the end of mining where reclaimed external OB dump is 72.28 Ha and Internal OB Dump 380.72 ha. Green Belt over an area of 188.17 ha. Density of tree plantation 2500 trees/ ha of plants.
 - xvi. There are no court cases/violation pending with the project proponent.
 - xvii. **Certificate of compliance** of earlier EC from MoEF, Regional office, Bhubaneswar has been issued vide their letter no. dtd. 18.07.2013.
- 2.11.3 The proposal was last considered in the 47th EAC meeting held on 23rd -24th April, 2012. The Committee desired that proponent may re-examine the location of the proposed washery and the CHP nearer to the mine towards the southern side of the ML. The Committee also desired that the proponent examine storing the OB in a temporary external OB dump(s) in the mineralised area of the ML. The Committee also observed that the CCL colony would be between the two proposed external OB dumps and desired that the location of the external OB dumps on both sides of the colony, transport of coal, location of washery and railway siding requires re-examination. The Committee also desired that the water bodies and river and surface drainage should not be disturbed and an embankment between the water bodies and mine operations should be provided. The Committee desired that a three-stage settling tank/pond should be established for settling the suspended solids. The Committee desired that the 90m dump height with ultimate slope of 280 should be calculated from the toe of the dump to the river bed to avoid collapse of OB dump in future due to mine seepage. The height of OB dump should also be reduced to 70m. The Committee desired that the satellite map and digital map National Remote Sensing Centre (NRSC) of the whole ML area should be provided.

2.11.4 The proponent has further informed that:

- i. The external OB dump and location of washery and CHP have been revised. The dumper travel distance upto CHP would be reduced to 300 m from 1400 m. The southern part of the mine lease area is coal bearing, which has been /is proposed to be included in quarry area of the adjacent coal blocks. As the coal evacuation is proposed from mine entry in the north of quarry, the coal transportation lead will be more in case the proposed washery and the CHP is located towards the southern side of the ML. Therefore it is not suitable to locate the proposed washery and the CHP nearer to the mine towards the southern side of the ML.
- ii. The OB dumping in internal dumps (demineralised/de-coaled areas) is proposed to its maximum extent. Only 11% of OB is proposed to be dumped externally preferably on non-coal bearing area. Relocating the external OB dumps in the mineralised area (in coal bearing are) of the ML (Particularly in the south –side adjoining blocks) will not only hamper their future development, but also increase the OB transport lead.
- iii. With revised layout of mine infrastructure, the minimum distances of the proposed washery, CHP and external OB dump from the existing CCL colony will be around 550 m, 600 m & 200 m respectively. It is proposed to develop 3 tier plantations all along the periphery of the colony for dust and noise attenuation. This will protect the colony from air and noise pollution.
- iv. Bakaro River flows along east of the lease boundary and no change in its drainage is proposed. An embankment of 1.7 km length along Bokaro River is proposed to be constructed. One seasonal nala, flows along North-Western side of Quarry-2 at a

distance of around 150-200m. No change in its drainage pattern is proposed, except straightening of 200m channel. It is envisaged that this will have no impact on the flow pattern of this nallah.

- v. As proposed, a three-stage settling tank/pond will be established for setting of the suspended solids. Capital provision of Rs. 103.02 lakh has been kept in the Project Report for this purpose.
- vi. The envisaged ultimate dump slope is 20° which is well below the permitted 28°. The dump height of 90m has been examined and it has been reduced to 70m. In view of gentle slope of dump at 20° and provision of garland drain around both the Quarries, the possibility of surface run-off or debris reaching the seasonal nalla or Bokaro River is negligible. Additionally, an embankment of 1.7km length along Bokaro River has been proposed to avoid collapse of OB dump in future due to mine seepage.
- vii. Satellite map sourced from National Remote Sensing Centre (NRSC) has been provided for the whole ML area.

2.11.5 The Committee after deliberation recommended the proposal for TOR with the following specific TOR conditions:

- i. Status of stage-I FC be submitted.

2.12. Kalyan Khani OCP (1.75 MTPA Normative and 2 MTPA Peak in an ML area of 945.21 ha) of M/s The Singareni Collieries co. Ltd, located in dist. Adilabad, Andhra Pradesh - EC based on TOR granted on 29.02.2012.

2.12.1 The proposal is of Kalyan Khani OCP (1.75 MTPA Normative and 2 MTPA Peak in an ML area of 945.21 ha) of M/s The Singareni Collieries co. Ltd, located in dist. Adilabad, Andhra Pradesh

2.12.2 The proponent made the presentation and informed that:

- i. It is a new project of M/s SCCL to which Ministry accorded TOR vide letter no. J-11015/21/2009-IA.II (M) dated 29.02.2012.
- ii. The land usage of the project will be as follows:

Pre-mining:

Class	Area in Ha	Area in %
Agriculture Double Crop	161.09	17.04
Agriculture Single Crop	385.12	40.74
Plantation	41.46	4.39
Built Up Land	15.16	1.60
Land with/ without Scrub	303.19	32.08
Water body / River	28.28	2.99
Road (converted)	10.91	1.15
Total Area	945.21	100.00

Post Mining:

Sl. No	Description	LAND USE DETAILS (Ha.)				
		Plantation	Water body	Public Use	Other Uses	Total
1	Excavation Area					
	(a) Backfilled area	172.80	--	--	--	172.80
	(b) Void area left	--	190.43	--	--	190.43
2	External waste dump	238.04				238.04
3	Top Soil dump	10.70				10.70
4	Afforestation other than	261.48			11.86	273.34

	dumps					
5	Road			10.91		10.91
6	Vagu Diversion				34.97	34.97
7	Built up area / Infrastructure				14.02	14.02
	TOTAL	683.02	190.43	10.91	60.85	945.21

Core area:

Particulars	Total Land Requirement			Land Under Possession of SCCL			Land to be Acquired		
	Non-Forest	Forest	Total	Non-Forest	Forest	Total	Non-Forest	Forest	Total
Quarry Area	363.23	0	363.23	103.73	0	103.73	259.50	0	259.50
OB Dumps	259.44	0	259.44	102.50	0	102.50	156.94	0	156.94
Safe Barrier, Drainage, etc.	286.46	0	286.46	38.36	0	38.36	248.10	0	248.10
Road Diversion	10.91	0	10.91	0	0	0	10.91	0	10.91
Nala Diversion	11.15	0	11.15	0	0	0	11.15	0	11.15
Service Buildings	14.02	0	14.02	1.58	0	1.58	12.44	0	12.44
Total Land Requirement	945.21		945.21	246.17		246.17	699.04		699.04

- iii. The total geological reserve is 45.318MT. The mineable reserve is 40.790 MT, extractable reserve is 30.540 MT. The per cent of extraction would be 90 %.
- iv. The coal grades is G-10 having stripping ratio of 11.97 m³/t . The average Gradient is 3.9 to 7.3 degree. There will be total eleven seams with thickness ranging from 0.08 to 5.08 m.
- v. The total estimated water requirement is 4069 m³/day. The level of ground water ranges from 1.00 to 14.6 m.
- vi. The Method of mining would be Opencast mining with shovel- dumper combination.
- vii. There are three external OB dump covering an area of 259.44 ha having a height upto 90 m with the quantity of 112.05 mm³. The final mine voids will have an area of 190.43 Ha with 230 m depth agl. There are one internal dumps having an area of 217.18 ha and height 90 m .Out of total quarry area 363.23 Ha. backfilled quarry area will be 172.80 Ha which shall be reclaimed with plantation. A void of 190.43 ha with depth of about 230 mtrs, which is proposed to be converted into water body.
- viii. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- ix. The **life of mine** is 19 Years.
- x. **Transportation:** Transportation of coal in pit to surface by dumper. Surface to siding by truck, siding to loading by truck.
- xi. There is **R & R** involved. There are 350 PAFs.
- xii. **Cost:** Total capital cost of the project is Rs. 417.33 Crore. The cost of production would be Rs. 1597.24 /tonnes. CSR Cost (Capital cost: Rs.5 / tonne of Coal . R&R Cost Rs. 22.01 crore. Environmental Management Cost is Rs. 2.32 crore.
- xiii. **Approvals:** Ground water clearance obtained on 30.04.2009. The Mine Closure approval is integral part of mine plan. Date of approval of mine plan is awaited. Board's approval obtained on 03.08.2012.
- xiv. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xv. **Forestry issues:** There is no forest area involved.
- xvi. Total afforestation plan shall be implemented covering an area of 683.02 ha at the end of

mining where reclaimed external OB dump is 238.04 Ha and Internal OB Dump 172.80 ha. Green Belt over an area of 272.18 ha. Density of tree plantation 2500 trees/ ha of plants.

- xvii. There is no court case/violation pending with the project proponent.
- xviii. Public hearing was held on 13.02.2013 at Mandamarri (Village and Mandal), Adilabad District, Andhra Pradesh..
- xix. The issues raised in the Public Hearing include: No mining activity shall be taken up in the schedule areas in contradictory to PESA Act and ROFR; Opening of underground mines in lieu of Opencast mines in view of employment opportunities; Non-payment of compensation to the land losers in SMG1 depillaring operations; Alternative land for model school as the existing school is going in OC operation; villagers opined that the proposed project will steal their livelihoods thereby affecting their agriculture prospects and cattle; Land to land compensation for land losers; medical facilities, due care for tribal people; provision of basic amenities like roads education, health and drinking water facilities in surrounding villages etc.. The proponent has assured the Committee to implement the assurances given during the Public Hearing. The proponent vide its letter No. CRP/ENV/A/478/742 dated of Oct.2013 has submitted the Action Plan on the issues raised during the Public Hearing.
- xx. Detailed action plan as submitted by the proponent is as under:

Sl. No	Description of Works	Amount Spent (Rs in Lakhs)
1	Drinking Water & Sanitation	30.50
2	Health & Medical facilities	19.00
3	Roads and Cross Drains	444.75
4	Education and Training Facilities	50.78
5	Electricity & Social Infrastructure	42.00
	Total	587.03

2.12.3 The Committee after deliberation recommended the proposal for granting EC with following specific Conditions:

- i. Mechanical covered truck should be used for transportation of coal within 5 years. Conveyor belt should be installed in the 5th year.
- ii. The internal dump shall not exceed above 90 m above the ground.
- iii. The depth of the internal void shall be 35 m from the ground level and should be adequate for fishery purpose.
- iv. The OB shall be completely rehandled at the end of the mining.
- v. Final mine void depth will not be more than 40 m. The void area will be made into fish pond. The rest of the area will be back filled upto the ground level and covered with about a meter thick top soil and put to use.
- vi. Garland drains be provided.
- vii. Appropriate embankment be provided along the side of the river/nallah flowing near or adjacent to the mine.
- viii. Requisite permission from irrigation department be obtained for diversion of river/nallah.
- ix. The land after mining shall be brought back for agriculture purpose.
- x. Mine water should be treated for discharge into the lagoon. The quality of lagoon water shall be regularly monitored and mitigation measures taken.
- xi. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.

2.13 Kasipet-2 Incline (production capacity of 0.47 MTPA in an ML area of 206 ha) of M/s The Singareni Collieries co. Ltd located in KasipetMandal, dist. Adilabad, Andhra Pradesh - EC based on TOR granted on 29.02.2012.

2.13.1 The proposal is of Kasipet-2 Incline (production capacity of 0.47 MTPA in an ML area of 206 ha) of M/s The Singareni Collieries co. Ltd located in Kasipet Mandal, dist. Adilabad, Andhra Pradesh.

2.13.2 The proponent made the presentation and informed that:

- i. It is a new underground mining project of M/s SCCL to which Ministry accorded TOR vide letter no. J-11015/291/2012-IA.II (M) dated 29.02.2012.
- ii. The land usage of the project will be as follows:

Pre-mining:

Sl. No	Pre-mining land use	Area in (Ha)
1.	Single crop land	155.82
	Double crop land	1.68
2.	Waste land	6.42
3.	Built up area	2.08
4.	Water bodies	32.80
	Total	198.80

Post Mining:

Description	Land Use Details (Ha.)	
	Plantation	Other Uses
Pit Head Establishments	10.00	1.07
Road from Devapur road to mine	Nil	0.85
Sand stowing plants	5.00	0.16
Sand stock yard & road	16.00	--
Total	31.00	2.08

Core area:

Sl. No.	Land Requirement	Govt Land	Private Land	Total
1	For inclines, surface infrastructures, etc.	0.98	10.09	11.07
2	For roads from devapur road to mine	0.00	0.85	0.85
3	For sand stowing plants	2.00	3.16	5.16
4	For sand stock yard & approach road	0.31	15.69	16.00
	Total requirement	3.29	29.79	33.08

- iii. The land require for mining is 198.80 out of the 206 ha.
- iv. The total geological reserve is 19.79 MT. The mineable reserve is 7.65 MT, extractable reserve is 7.65 MT. The per cent of extraction would be 38.65 %.
- v. The coal grades is F / G11 (I Seam) & C / G6 (III Seam). The average Gradient is 2 to 2.8 degree. There will be total three seams with thickness ranging from 2.20 to 7.20 m.
- vi. The total estimated water requirement is 1947 m3/day. The level of ground water ranges from 1.00 to 14.60 m.
- vii. The Method of mining would be underground.

- viii. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- ix. The **life of mine** is 21 Years.
- x. **Transportation:** Transportation of coal in pit to surface CHP by Lorries. Surface to railway siding by trucks 15.00 Km away, siding to loading by Rail. Central CHP with silo loading is planned.
- xi. There is no **R & R involved**. There are no PAFs for these production increase
- xii. **Cost: Total** capital cost of the project is Rs. 60.18 Crore. The cost of production would be Rs. 1563.21 /tonnes(avg). CSR Cost (Capital cost: Rs.5 / tonne of Coal . R&R Cost Rs. nil. Environmental Management Cost (Direct 120 lakhs and Revenue 18.72 lakhs).
- xiii. **Approvals:** Ground water clearance obtained on 04.10.2012. The Mine Closure approval is integral part of the mine plan. Date of approval of mine plan is awaited. Boards approval obtained on 04.07.2011.
- xiv. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xv. **Forestry issues:** There is no forest area involved in ML area.
- xvi. Total afforestation plan shall be implemented covering an area of 31.00 ha. Green Belt over an area of 31 ha. Density of tree plantation 2500 trees/ ha of plants.
- xvii. There are no court cases/violation pending with the project proponent.
- xviii. **Public Hearing** was held on 06.02.2013 at Primary School, Pallamguda Village, Kasipetmandal, district Adilabad Andhra Pradesh. Issues raised in the Public Hearing include provision of basic amenities such as education, medical facility; compensation and ground water facility etc. The proponent has assured the Committee to implement the assurances given during the Public Hearing. The proponent, vide its letter No. CRP/ENV/A/496/743 dated of Oct.2013, has submitted the Action Plan on the issues raised during the Public Hearing.

2.13.3 The Committee after deliberation recommended the proposal for granting EC with following specific Conditions:

- i. Social audit may be carried out and the results be published in the website of the Company.
- ii. Stowing of mine will be done from the crushed OBD.
- iii. A detailed action plan for the CSR and for the assurance given during the Public Hearing be submitted to the MoEF for record.
- iv. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.

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

2.14.1 The proponent made the presentation and informed that:

- i. The proposal is for ToR for the Machhakata Opencast Coal Mine Project (30 MTPA in an ML area of 3023 ha) and a Pit-Head Coal Washery (30 MTPA) of M/s Mahaguj Collieries Ltd., Talcher Coalfields, Tehsil Chhendipada, district Angul, Orissa. The proponent was granted ToR vide letter no. J-11015/95/2009-IA.II (M) dated 09.06.2009.
- ii. The proponent has requested for the extension of the validity of the ToR due to the fact that the public hearing could not be held due to law and order situation.
- iii. Machhakata coal block of Talcher Coalfields has been allotted to the Maharashtra State Power Generation Company Limited (MSPGCL) and the Gujarat State Electricity Corporation Ltd (GSECL) by the Ministry of Coal, vide letter no. 13016/13/2005-CA dated 6th February, 2006 for developing an opencast coal mine for power generation at linked

power plants at Parli, Bhusawal, Chandrapur and Koradi in Maharashtra and Ukai, Wanakbori, and Sinor in Gujarat. Mahaguj Collieries Limited (MGCL), a Joint venture of MSPGCL and GSECL signed a MOU on 30th December, 2007 to extract coal from Machhakata Coal Block, Talcher Coalfields, Machhakata village, Chhendipada tehsil, Angul district, Odisha. Mahaguj Collieries Limited (MGCL) proposes to develop Machhakata coal block with pit head coal washery, 30 MTPA capacity each. Coal produced will be shared between GSECL and MSEB in ratio of 40% and 60% respectively for their Power Plants.

- iv. The proponent informed that EIA report was submitted to Odisha State Pollution Control Board on 5th Jan 2011 for conducting the Public Hearing. Public Hearing for the project scheduled to be held on 8th December 2011 could not be conducted due to Law and Order situation.
- v. Public Hearing scheduled on 21st May 2013 could not be conducted again due to grant of stay by the Hon'ble Odisha High Court in its order of 17th May, 2013 in response to a Writ Petition. Member Secretary, State Pollution Control Board, Odisha vide letter no. 84-IND-II-PH-514 dated 3rd January 2012 requested Collector & District Magistrate, Angul for fixing another date for conducting Public Hearing. As an interim measure, the Court directed that operation of the impugned notice dated 16.04.2013 passed by the SPCB, Odisha shall remain stayed till 30.06.2013. The stay imposed by Hon'ble High Court of Odisha is expected to be vacated shortly.
- vi. The proponent has submitted the proposal prior to this date for extension of the validity of ToR.
- vii. Project Monitoring Group (PMG) of Cabinet Secretariat is also monitoring the project closely.
- viii. The general atmosphere of the proposed coal block has improved and is showing improvement further.
- ix. The proponent expects that the Public Hearing will be held just after vacation of stay.
- x. The Project Proponent mentioned that the name of the project has been misspelt and may be corrected to from Machhatta to "Machchakata".

2.14.2 The Committee after deliberation recommended the proposal for extension of the validity of the ToR granted on 09.06.2009 up to 8.6.2014 and the correction in the name to "Machchakata".

2.15. Kakatiya Long Wall underground coal mine expansion project (from 2.15 MTPA to 2.747 MTPA normative and 2.28 MTPA to 3.13 MTPA peak in ML area of 601.20 Ha) of M/S The Singareni Collieries Company Ltd., Village Basvarajupalli, Dist. Warangal, Andhra Pradesh - EC based on TOR granted on 05.06.2013.

2.15.1 The proposal is of Kakatiya Long Wall underground coal mine expansion project (from 2.15 MTPA to 2.747 MTPA normative and 2.28 MTPA to 3.13 MTPA peak in ML area of 601.20 Ha) of M/s The Singareni Collieries Company Ltd., Village Basvaraju palli, Dist. Warangal, Andhra Pradesh.

2.15.2. The proponent made the presentation and informed that:

- i. It is an expansion project of M/s Singareni Collieries Company Ltd., to which Ministry accorded TOR vide letter no. J-11015/464/2012-IA.II (M) dated 05.06.2013.
- ii. The land usage of the project will be as follows:

Pre-mining:

Land Use Pattern	Area in Ha.
Forest Land	Nil
Agricultural land	535.179
Waste Land	Nil
Grazing Land	24.30

Others	19.235
Water Bodies	22.416
SCCL Acquired land	Nil
Total Mine Take Area	601.20

Post - mining:

Description	Operational Stage	Mine Closure Stage	
		Plantation	Other Use
Mine entries, Service buildings			
• At Incline entries	35.10	35.10	NIL
• At shaft	2.25	2.252	NIL
Diversion of road, power line and nallah	4.43	NIL	4.43
Surface affected by subsidence	559.42	559.42	NIL
Total Mine take area	601.20	596.77	4.43

Core area:

Description	Earlier proposal	Present proposal
Mine entries, Service buildings		
• At Incline entries	35.10	35.10
• At shaft	2.25	2.25
Diversion of road, power line and nallah	4.43	4.43
Surface affected by subsidence	366.32	559.42
Area not proposed for surface rights (beyond 150 m depth line)	193.10	--
Total Mine take area	601.20	601.20

- iii. The total geological reserve is 67.453 MT. The mineable reserve is 40.03 MT, extractable reserve is 39.296 MT(Balance Reserve). The per cent of extraction would be 68.50 %.
- iv. The coal grades is G having stripping ratio of -- m³/t. The average Gradient is 2.8 to 3.3 degree. There will be total four seams with thickness ranging from 2.02 to 10.40 m.
- v. The total estimated water requirement is 1252 m³/day. The level of ground water ranges from 0.90 to 12.26 m.
- vi. The Method of mining would be underground with Longwall technology.
- vii. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- viii. The **life of mine** is 17 Years.
- ix. **Transportation:** Transportation of coal in pit by belt conveyors. Surface to siding by conveyor belt, siding to loading by G10 & G11-grade by Belt Conveyor G6-grade by Road.
- x. There is **R & R** involved. There are 286 PAFs.
- xi. **Cost:** Total capital cost of the project is Rs. 366.53 Crore. The cost of production would be Rs. 1797.23 at 100% performance; Rs. 1804.29 at 85% performance. CSR Cost (Capital cost: Rs.5/ tonne of Coal. R&R Cost Rs. 11.04 crores. Environmental Management Cost is Capital: 1Rs. 2. Crs (Including R&R) Capital (Indirect) : Rs. 39.16 Crs Revenue – Rs. 6.55 per Tonne.
- xii. **Approvals:** Ground water clearance obtained on 28.06.2006. Mining Plan is submitted to MoC and standing Committee meeting held on 27.6.2013 and recommended for approval. Approval letter is awaited. Board's approval obtained on 03.08.2012.
- xiii. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- xiv. **Forestry issues:** There is no forest area involved.
- xv. Total afforestation plan shall be implemented covering an area of 596.77 ha at the end of

- mining. Green Belt over an area of 596.77 ha. Density of tree plantation 2500 trees/ ha of plants.
- xvi. There are no court cases/violation pending with the project proponent.
 - xvii. Certificate of compliance of earlier EC from MoEF, Regional office, Bangalore has been issued vide their letter no. CRP/ENV/A/478/33 dated 18.01.2013.
 - xviii. ToR was issued, vide letter no. J-11015/464/2012. IA.II (M) dated 5th June, 2013 stating that:
 - i. The additional production will be due to high capacity longwall with Shearer Initiated Roof Support Advance. The impact on air quality, water quality and noise quality needs to be studied.
 - ii. A mitigative measures proposed to be taken up to mitigate the additional EI should be brought out clearly.
 - iii. Since PH for the project has been done earlier, the proposal was exempted for further PH for this expansion project as no additional area is involved.
 - iv. The proposal shall fulfill all the requirements of the MoEF's OM no. J-11015/30/2004-IA.II(M) dated 19.12.2012 which, inter alia, stipulates that the proposal is for one time capacity expansion of up to 25% in the existing coal mining operation. 25% expansion in production capacity is subject to a ceiling of 2 MTPA of additional production where the transportation of the additional production is proposed by road and of 5 MTPA of additional production if such transportation is proposed by means of a conveyor and /or rail transport. There shall be no additional mine lease area involved. There is no change in mining method (underground to opencast)

2.15.3 The proponent has presented the compliance status of EC Conditions vide J-11015/357/2006-IA.II (M), dated 6.8.2007 which was certified by the RO, MoEF, Bangalore. The salient features include:

- i. All the precautions were taken as required under Reg.126 of the CMR, 1957, The Gundlavagu nallah flowing within the lease boundary is proposed to be diverted over the main trunk dips with the permission of the DGMS and NoC of GoAP. Vide G.O.No.1345, dated 14.12.2012.
- ii. Air shaft of 6.5 m diameter and 224 m deep was sunk by leaving the shaft pillar of radius 200 m around the shaft as per the guidelines of DGMS.
- iii. Diversion of Land shall be done with approval of the competent authorities.
- iv. As suggested by CMRI, Dhanbad it is proposed to acquire entire land within mine lease. As on date 75.38 Ha has been acquired, out of 601.20 Ha and the remaining land is under process of acquisition. Original course of the Gundala Vagu beyond the southern limit will be maintained.
- v. Presently the mine is under development stage and no longwall operations were started. Monitoring will be carried at the time of LW operations.
- vi. Sufficient capacity sump has been provided (20 lakh gallons) and 2 x 350 HP pumps of installed.
- vii. While extracting Longwall panels in 1, 2 & 3 seams below 1A, 1 & 2 seams respectively will be drained by drilling underground bore holes.
- viii. At the time of establishing the CHP, it is proposed to establish mist spray arrangements and also enclosing the ground level bunkers up to the level of gantry.
- ix. An afforestation plan has been prepared and as on date afforestation is taken up in 38 Ha and plantation in remaining area will be taken up in phased manner after stabilization of subsidence.
- x. Conservation plan is under preparation with DFO, vide SCCL Lr. No. BHPL/ENV/46/2008/81, dated 10.12.2008 and will be implemented.
- xi. Regular monitoring of ground water level is being carried with a network of 35 observation wells.
- xii. Two settling ponds of 5X4X3 m size are provided and excess water is being sent to nearby tanks. SCCL arranged 3 tankers having capacity of 3.5 KL for supply to nearby villages.
- xiii. Ground water clearance was obtained from A.P. State Ground Water Department vide Letter No:1862/t/2003-04/755, Dated 05-11-2005.

- xiv. STP of 3.00 MLD capacity was installed in the existing colonies. The workshop not yet established. ETP will be provided during the establishment of workshop.
- xv. Presently the Mine discharge water is being treated in slow sand filter bed of 50,000 gallons capacity before discharging outside the mining lease. The mine discharge water is being monitored periodically through EPTRI.
- xvi. In addition to the PME, 10% of the workers is being subjected to health checkup through SCCL hospitals by Qualified doctors trained at Central Laboratory, Mumbai as per ILO standards.
- xvii. Land use and land cover is being monitored once in 3 years. The latest study was conducted using IRS P-6 LISS III data of 1st December 2010 through JNTU Hyderabad in the year 2011.
- xviii. The mine closure plan is integral part of Mining Plan and is being submitted to MoC for approval. A Final mine Closure Plan will be submitted to the MoEF 5 years in advance.
- xix. No change in the mining technology and scope of working envisaged in the EMP.
- xx. Calendar programme being followed.
- xxi. A network of 8 AAQ monitoring stations has been established in consultation with APPCB.
- xxii. Water spraying arrangements at loading points are provided. It is proposed to establish mist spray arrangements and enclosing the ground level bunkers up to the height of gantry.

2.15.4 The Committee after deliberation recommended the proposal for granting EC with following specific Conditions:

- i. Subsidence level is high upto 6.482 m and strain upto 51.06 mm/m continuous monitoring and mitigation measures will be done. A separate team for subsidence monitoring and surface mitigation measures will be constituted
- ii. The mine out land should be useful for agriculture purpose.
- iii. Safety measures and health issues need to be addressed for workers and surrounding villagers.
- iv. Safety equipments must be made available.
- v. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.
- vi. Transport of coal from mine to APGENCO by belt conveyor, as informed by the proponents.

2.15.5 The Committee also desired to make a site visit to appraise and monitor the high capacity longwall with Shearer Initiated Roof Support Advance system being adopted by the proponent.

2.16 Expansion of 2.4 MTPA dry type of coal washery to 3.6 MTPA Coal Washery of M/s Hind Energy & Coal Beneficiation (India) Pvt. Ltd. Dist. Bilaspur, Chhattisgarh - EC based on TOR granted on 23.09.2010 – Further consideration.

2.16.1 The proposal is of Expansion of 2.4 MTPA dry type of coal washery to 3.6 MTPA Coal Washery of M/s Hind Energy & Coal Beneficiation (India) Pvt. Ltd. Dist. Bilaspur, Chhattisgarh.

2.16.2 The proposal last considered in the 55th EAC meeting held on 27-28th August, 2012. The Committee sought information viz (i) Avenue Plantation should be provided on both sides of the roads, village roads, vacant areas etc.; (ii) The CHP should be provided at the coal handling places i.e. loading and unloading point at Gevera and Kusmunda; (iii) Loading and unloading point should be mechanized; (iv) The transportation of coal should be by mechanically covered trucks in order to reduce coal spillage and dust pollution; (v) The time limit should be provided to the Contractual vendors /contractors for providing mechanically covered trucks for coal transportation; (vi) No further extension would be given in time limit (after March 2014) for establishing the railway siding; (vii) The waste water should be discharged after proper treatment; (viii) All the conditions stipulated in the letter of Central

Ground Water Board letter no. 21-4(102)/CGWA/NCCR/2011/174 dated Nil should be adhered to and this will be stipulated in the EC letter; (ix) The details of ash percentage in raw coal, clean coal and rejects should be clearly provided in tabular form; (x) Details of existing green belts, number of trees planted, areas under plantation, name of trees, etc. along with the photographs proposed plantation be provided to the MoEF; (xi) Details of rain water harvesting measures be provided along with its design; (xii) Details of CSR of existing project and proposed expansion project, till date, be furnished; (xiii) Details of allocation & expenditure funds for the existing and proposed CSR activity also be furnished; (xiv) To furnish fly ash analysis data, and how to address the non-compliance of coal quality; (xv) The Committee sought point-wise reply in tabular forms in 3 columns on the various issues raised in Public Hearing along with the budgetary provision for each issue for which proponent has committed; (xvi) The proponent should contact the local Primary Health Clinics & hospital in the area and find out the prevalent disease in the area others ailments and provide the proposed preventive measures e.g. purification of drinking water, health education, and sanitation, details of population e.g. No of young people, old people; (xvii) Details of environmental compliance be provided.

2.16.3 The proponent made the presentation and informed that:

- i. It is an expansion project of coal washery of M/s Hind Energy & Coal Beneficiation (India) Pvt. Ltd to which Ministry accorded TOR vide letter no. J-11015/364/2009-IA.II (M) dated 23.09.2010..
- ii. The proposal is for expansion of washing of ROM coal from 2.4 MTPA to 3.6 MTPA.
- iii. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
- iv. **Cost:** Total capital cost of the project is Rs. 15.40 Crore.
- v. **Approvals:** Ground water clearance obtained on 15.02.2011.
- vi. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
- vii. **Forestry issues:** No forest issue involved.
- viii. There are no court cases/violation pending with the project proponent.
- ix. **Public hearing** was held on 28.02.2012 at district Bilaspur in Chhattisgarh. The issues raised in the PH were regarding land acquisition, repairing of road, social upliftment, accidents during transportation, health of people, employment to locals, and establishment of pond etc.
- x. Earlier EC for 2.4 MTPA capacity coal washery was obtained vide letter J-11015/190/20007-IA-II(M) dated 24.06.2008.
- xi. EC compliance report issued by MoEF, Regional office, Bhopal has been submitted.
- xii. Greenbelt of 9.17 acres has been developed in the existing plant premises. Proposed expansion will be taken up in the existing plant premises. Avenue plantation has already been done and around 5000 saplings have been planted in and around the existing plant. Plantation has been developed on both sides of village road used for transportation. The proponent has further assured for development of green belt in and around the coal washery.
- xiii. Gevera and Kusmunda railway siding is under the jurisdiction of SECL, hence the proponent cannot initiate any installation of any private CHP. Information from Railway authorities indicates that loading and unloading is done almost by pay loaders rather than by CHP even by SECL. The proponent has informed the Committee that they will use only 1 to 2 rakes daily.
- xiv. Siding where unloading is done is under the jurisdiction of SECR (Railway) Gatora line No-07, hence feasibility of mechanized unloading is not possible by the proponent.
- xv. The proponent stated that they were granted permission only for loading of coal from
- xvi. private railway siding. However, they will explore the feasibility of the mechanical system and will check for the viability of the same and will proceed further accordingly. Moreover in processed coal percentage of moisture is high hence chances of fugitive

- xvii. order to avoid spillage and fugitive emission, each and every truck is covered with good tarpaulin sheets and sealed with lead seal. Hence, there will not any significant fugitive dust emission during transportations. emission are very low.
- xviii. The proponent is in process to install automatic sprinkler system at the railway siding.
- xix. Mechanically covered trucks are not available in the market. However, in
- xx. A fleet of 250 – 300 fleet of vehicles are engaged for transportation of coal which cannot be discarded suddenly, as the current infrastructure doesn't support it. However, whenever such facilities are available in the market, the proponent will slowly change all vehicles to mechanically covered trucks.
- xxi. The work of railway siding is going on in full swing and very soon it will start, further any extension in this regards will not be sought.
- xxii. In the existing plant, technology used for washing of coal is dry Process, hence there is no usage of water in the process. Water required in the existing plant is only for domestic purpose. Hence only wastewater generated in the existing plant is sanitary wastewater which will be treated in septic tank followed by soak pit. No wastewater is discharged into drains / water resources.
- xxiii. In the proposed expansion, technology used for the washing of coal is wet process. Closed circuit water system will be adopted in the proposed expansion; hence no wastewater will be discharged from the proposed expansion project. Zero effluent discharge system will be maintained.
- xxiv. The proponent confirmed to adhere to all the conditions stipulated in letter of Central Ground Water Board letter no.21-4(102)/CGWA/2011/174.
- xxv. The details of ash percentage in raw coal, clean coal and rejects range in the raw coal: 41-42%, Clean Coal: 32 – 37%; rejects: 60-75%.
- xxvi. Apart from the Rain Water Harvesting structures in the existing plant, a big reservoir / pond have been developed in vicinity of the coal washery and rain water is harvested / collected in the same and after certain cleaning procedure it is used, as and when required in the coal washery.
- xxvii. Till date Rs. 38 Lakhs have been incurred for various CSR activities done in existing plant. Rs. 22.5 Lakhs is earmarked for CSR activities for the expansion project for the proposed activities such as development of village road provision of drinking water facilities, conducting medical camps etc..
- xxviii. As in coal washery, there is no burning of coal hence there is no concept of fly ash.
- xxix. Small clinics are present within the villages and dispensary is also established by the local government in nearby tehsil and same are working under the guidance of Govt. Doctor, Trained Compounder and Nurses. Hospital is situated at Sipat, about 5 Kms. from plant site, where 24 Hrs. doctor facility is available.
- xxx. No occupational diseases are found in the local villagers except only common ailments like cold, fever etc. is prevalent in the nearby villages.
- xxxi. Compliance of EC conditions have been made a which has been certified by the Ro, MoEF, Bhopal.
- xxxii. A well-established environment lab has been established within the premises of the coal washery.
- xxxiii. The Committee deliberated on the compliance report of the RO, MoEF.
- xxxiv. Various issues raised in the Public Hearing were: Existing plant emits lot of dust due to the coal crusher; dust harming agricultural land and crops; eye camp be made in the surrounding villages; the proposed expansion will increase development of infrastructure and upliftment in the social status of the villagers; many accidents happened due to the truck movement; water sprinkling on the road be done to reduce the fugitive emission; a pond be provided as promised; local primary health clinics & hospitals in the area be made; basic amenities viz. drinking water, health education, and sanitation, details of population be strengthened. The Committee deliberated on these issues alongwith the replies of the proponent and the action plan submitted by the proponent. The Committee asked the proponent to implement the assurances given during the Public Hearing and the action plan submitted be implemented.

2.16.4. The Committee after deliberation recommended the proposal for granting EC with following specific Conditions:

- i. Coal transportation shall be by mechanically covered trucks for loading and unloading.
- ii. Green belt in and around the coal washery should be further intensified.
- iii. Automatic sprinkler system at the railway siding should be installed.
- iv. No extension for the work of railway siding will be sought by the proponent.
- v. No wastewater will be discharged into drains / water resources.
- vi. In the proposed expansion, technology used for the washing of coal is wet process. Closed circuit water system will be adopted in the proposed expansion. project. Zero effluent discharge system will be maintained.
- vii. The proponent should adhere to all the conditions stipulated in letter of Central Ground Water Board letter no.21-4(102)/CGWA/2011/174.
- viii. The assurances given during the Public Hearing and as per the action plan developed by the proponent should be implemented
- ix. The CSR cost should be Rs 5 per Tonnes of Coal produced which should be adjusted as per the annual inflation.

2.17 Chhinda OCP Expansion (0.18 MTPA to 0.65 MTPA in the existing ML area of 106.68 ha) of M/s Western Coalfields Ltd., Tehsil Parasia, dist. Chindwara, Madhya Pradesh - EC based on TOR granted on 15.07.2011 - Reconsideration.

2.17.1 The compliance report submitted by the RO, MoEF was deliberated. The compliance report has indicated that several conditions are either partly complied or not complied. However, the proponent has submitted additional information and claimed that the report submitted by the Ro, MoEF could be reviewed taking into consideration the information submitted by the proponent. The Committee, therefore, asked the proponent to take up the matter with the RO, MoEF. The Committee asked the Member Secretary to request the RO, MOEF to submit a revised compliance report for further consideration of the Committee.

2.18 Ukni Deep Opencast Coalmine Project (expn. in prodn. From 2.20 MTPA to 3.50 MTPA and expn.in ML area from 940 ha to 1285.12 ha) of M/s Western Coalfields Ltd., located in dist. Yavatmal, Maharashtra - EC based on TOR granted on 28.10.2010- Reconsideration.

2.18.1 The compliance report submitted by the RO, MoEF was deliberated. The compliance report has indicated that several conditions are either partly complied or not complied. However, the proponent has submitted additional information and claimed that the report submitted by the Ro, MoEF could be reviewed taking into consideration the information submitted by the proponent. The Committee, therefore, asked the proponent to take up the matter with the RO, MoEF. The Committee asked the Member Secretary to request the RO, MOEF to submit a revised compliance report for further consideration of the Committee.

2.19 Kathara Opencast Expansion Coal Mine Project (0.96 MTPA normative and 1.90 MTPA peak in an 792.81 ha) of M/s Central Coalfields Ltd. located in Block Bermo, District Bokaro, Jharkhand - EC based on TOR granted on 31.12.2008 - Reconsideration.

2.19.1 The proposal is of Kathara Opencast Expansion Coal Mine Project (0.96 MTPA normative and 1.90 MTPA peak in an 792.81 ha) of M/s Central Coalfields Ltd. located in Block Bermo, District Bokaro, Jharkhand - EC based on TOR granted on 31.12.2008.

2.19.2 The proponent made the presentation and informed that:

- i. It is an expansion of existing old mine project of M/s CCL to which Ministry accorded TOR vide letter no. J-11015/482/2008-IA.II (M) dated 31.12.2008.

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

Pre-mining:

S No.	Present Land use	
1	Particulars	Area (Ha)
2	Active Internal OB Dump	31.25
3	Stabilised Internal OB Dump	48.34
4	Stabilised External OB Dump	112.11
5	Planted External OB Dump	42.99
6	Quarry	62.09
7	Mine Lagoon	20.58
8	Coal Stock	8.90
9	Surface Water Bodies	17.69
10	Infrastructure	39.21
11	Road	40.00
12	Rail	10.00
13	Green Belt	24.79
14	Colony	67.12
15	Washery reject	3.43
16	Vacant & Safety Zone	264.31
	Total	792.81

Post Mining :

Post-mining land use	
Particulars	Area (Ha)
Active Internal OB Dump	-
Planted Internal OB Dump	146.24
Planted External OB Dump	142.48
Void	19.43
Mine Lagoon	9.17
Plantation	8.90
Surface Water Bodies	17.69
Infrastructure	39.21
Road	40.00
Rail	10.00
Green Belt	24.79
Colony	67.12
Plantation	2.67
Vacant & Plantation	265.11
Total	792.81

Core Area:

Sl. No.	Description of land	Area in Ha
1	Quarry	184.20
2	OB Dump	85.76
3	Plantation	66.00
4	Built-up	122.87
5	Infrastructure	84.03
6	Vacant Land & Green Belt	249.95
TOTAL		792.81

- iii. The extractable reserve is 57.67 MT (Extracted 2.1 MT balance as on 01.04.2013). The per cent of extraction would be 80 %.
 - iv. The coal grades is W-III having stripping ratio of 4.02 m³/t . The average Gradient is 12-25 degree. There will be total five seams with thickness ranging from 0.91-44.81 m.
 - v. The total estimated water requirement is 1500 m³/day. The level of ground water ranges from 1.90 to 11.30 m. Konar river drains the northern side of the block and joins river Damodar. Damodar river is located south of the project flowing towards east. No nallah diversion is required for this project.
 - vi. The Method of mining would be opencast mining with shovel- dumper combination.
 - vii. There are six external OB dump covering an area of 149.99 ha having a height upto 39 m (max) with the quantity of 230.592 mm³. The final mine voids will have an area of 19.43 Ha with 145 m depth bgl. There are five internal dumps having an area of 146.24 ha and height 50 m agl . Out of total quarry area 187.43 Ha. backfilled quarry area will be 146.24 Ha which shall be reclaimed with plantation. A void of 41.19 ha with depth of about 120 m, which is proposed to be converted into water body.
 - viii. The seasonal data for ambient air quality has been documented and all results at all stations are within prescribed limits.
 - ix. The **life of mine** is 3 Years.
 - x. **Transportation:** Transportation of coal in pit by dumper. Surface to siding by truck, siding to loading by railway.
 - xi. There is no R & R involved. There are no PAFs.
 - xii. **Cost:** Total capital cost of the project is Rs. 103.06 Crore. The cost of production would be Rs. 1083.12 /tones for 100 %. CSR Cost (Capital cost: Rs.5 / tonne of Coal production . R&R Cost Rs. nil. Environmental Management Cost is Rs. 49.94 crore.
 - xiii. **Approvals:** The Mine Closure approval obtained on July, 1988. Date of approval of mine plan is July, 1988. Board's approval obtained on July, 1988.
 - xiv. **Wildlife issues:** There are no national Parks, wildlife sanctuary, biosphere reserves found in the 10 km buffer zone.
 - xv. **Forestry issues:** There is no forest area involved in mining.
 - xvi. Total afforestation plan shall be implemented covering an area of 275.68 ha at the end of mining where reclaimed external OB dump is 149.99 Ha and Internal OB Dump 146.24 ha. Green Belt over an area of 24.79 ha. Density of tree plantation 2500 trees/ ha of plants.
 - xvii. There are no court cases/violation pending with the project proponent.
- 2.19.3. The proponent has further stated that:

- i. Public hearing was held on 04.04.2011 at officers' Club, Central Coalfields Limited, District. Bokaro, State Jharkhand.. The issues raised in the PH were air, water pollution and drinking water facilities etc.
- ii. The project was considered by EAC in its meeting on 17th-18th December, 2008 for ToR.
- iii. There is no forest land in the project
- iv. No additional land is required
- v. No R&R is involved.
- vi. The ToR was issued vide no J-11015/482/2008-IA.II(M), dated 31st Dec 2008. It was recommended by EAC (ToR) that PH was not required to be conducted for the project. Accordingly, the EIA-EMP was prepared and submitted to MoEF which considered the project in its meetings on 22nd September 2009 and 28th / 29th January 2010. The project was recommended for EC by EAC in its 21st meeting on 28th – 29th March 2011. The issue of conducting PH was never raised earlier.
- vii. MoEF vide letter no J-11015/482/2008-IA.II(M), dated 17th May 2011 asked for conducting PH for the project as per the provisions of EIA 2006. The same was conducted on 4th November 2011 and the proceedings were sent to MoEF on 3rd August 2012.
- viii. The minutes were discussed by EAC in its meeting on 3rd – 4th Oct, 2013.
- ix. From the above it appears that the decision to conduct PH after consideration and recommendation of the project for EC was taken subsequently and it was duly complied by CCL.
- xx. The issues raised during the public hearing were regarding air pollution due to coal-fly ash transportation, air and water problem, damages due to heavy blasting etc. The project proponent has informed the Committee that they have given assurances to address the issues raised during the public hearing.

2.19.3 The proposal was considered in the 55th EAC meeting held on 22-23 September, 2009, 4th EAC meeting held on 30-31 August, 2010. The proposal was last considered in 21st EAC meeting held on 28-29th March, 2011 to discuss the site visit report.

2.19.4 The Committee deliberated the issue and recommended for granting EC with the following specific conditions:

- i. Stone revetment up to HFL level in the portions where loose material was visible (about 50 m to 100 m length)
- ii. Strengthening of slopes by stones in wire mesh in certain portions on the slope of the dumps (about 30-40m length)
- iii. Bigger size stone support of slopes in some portions of the dump are required to be put in the overhanging portion
- iv. Grassing / vegetation in patches specially on denuded areas of the slopes in consultation with expert agencies
- v. Toe wall with provision of weep holes be provided along the loose parts of the dump along the river side
- vi. Slope stability study to be got done through CMPDI for safety aspects and the recommendations be implemented.
- vii. The Plantation in the slopes of Dump No 1 be mixed and native species.
- viii. The proponent may see and consider implementing reclamation measures taken by M/s Nevyleli Lignite Corporation.
- ix. The project proponent has assured to implement the assurances given during the public hearing.

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

ANNEXURE-1

PARTICIPANTS IN 2nd EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 3rd - 4th OCTOBER, 2013 IN NEW DELHI.

LIST OF PARTICIPANTS Expert Appraisal Committee (Coal Mining)		
1.	Shri A. S Lamba	Chairman
2.	Prof. C.R. Babu	Member
3.	Dr. T. K .Dhar	Member
4.	Shri Jawahar Lal Mehta	Member
5.	Shri N. K. Verma	Member
6.	Shri A. K. Bansal	Member
7.	Dr.G.R.Rathnavel	Member
8.	Shri G. S. Dang	Member
9.	Dr. Shiv. Attri, Indian Meteorological Department,(IMD), New Delhi	Member
10.	Dr. Asha Rajmunshi Wildlife Institute of India (WII), Dehradun	Member
11.	Dr. Manoranjan Hota	Director & Member Secretary
12.	Shri. P. R. Sakhare	Deputy Director
Special Invitee		
13.	Dr. R K Garg, Adviser, Coal India Limited	

PARTICIPANTS IN 2nd EXPERT APPRAISAL COMMITTEE (EAC) (THERMAL & COAL MINING) MEETING HELD ON 3rd - 4th OCTOBER, 2013 ON COAL SECTOR PROJECTS.

2.1 Gevra OCP by SECL

1. Shri P.K. Roy Chowdhary
2. Shri Monaj Kumar
3. Shri U.T. Kanzaokar
4. Shri D. Sainath
5. Shri Amit Saxena
6. Shri S.C. Shankar
7. Shri M.P. Singh
8. Shri A.K. Gupta
9. Shri T. Chakaraborty
10. Dr. Anurag Tiwari
11. Shri Kushagra Vashishth

2.2 Chhatrasal by Sasan Power Ltd.

1. Shri R.S. Johri
2. Shri Bijon Mishra
3. Shri Alok Pathak
4. Shri Manohar
5. Shri Jagat Paikara
6. Shri P. S. S. Manian

2.3 Talabira-II & III M/s Mahanadi Coalfields Ltd.

1. Shri Vinod K. Verma
2. Shri Ashok
3. Shri Soubhagya K. Tripathy
4. Shri R.V. Rings
5. Shri S.K. Pall
6. Shri P.R. S. Mani
7. Dr. A.K. Samantaray
8. Shri J.P. Singh
9. Shri D. Bhattacharya
10. Shri V.K. Pandey
11. Shri K. S. Ganapathy
12. Shri S.K. Bhar
13. Shri B.C. Tripathi

2.4 Thesgora UGC M/s Thesgora Coal Pvt. Ltd.

1. Shri Chinmany Palekar
2. Shri D.K. Swain
3. Shri S. Kumar

2.5 Kapurdi Lignite Mine M/s Barmer Lignite Mining Company Ltd.

1. Shri Promod Menon
2. Shri R.P. Nagliya
3. Shri G. Kolag
4. Dr. V. Shastri

5. Shri Unnikrishnan

2.6 Krishnasila OCP M/s NCL

1. Shri Vikas Kumar Singh
2. Shri P. Chaudhary
3. Shri Atal Bihari
4. Shri A N Bahadur
5. Shri N. Das
6. Shri B. K. Sharma
7. Shri V. K. Bajaj
8. Shri Rakesh Kumar
9. Shri W. C. Dumka
10. Shri V. K. Pandey

2.7 Bina OCP M/s NCL

1. Shri Vikas Kumar Singh
2. Shri P. Chaudhary
3. Shri Atal Bihari
4. Shri A N Bahadur
5. Shri N. Das
6. Shri B. K. Sharma
7. Shri V. K. Bajaj
8. Shri Rakesh Kumar
9. Shri W. C. Dumka
10. Shri V. K. Pandey

2.8 Bithnok Lignite M/s Neyveli Lignite Corporation Ltd.

1. Shri D. S. Ramteke
2. Shri Ambaram Enakhiya
3. Shri U. Sankar
4. Shri C. Muthuswami
5. Shri M. Ragnathan

2.9 Bhubaneshwari OCP M/s Mahanadi Coalfields Ltd.

1. Shri J. P. Singh
2. Dr. A.K. Samantaray
3. Shri A Kumar
4. Shri Sambu Jha
5. Shri K. S. Ganapathy
6. Shri D. Bhattacharya
7. Shri S.K. Bhar
8. Shri V. K. Pandey
9. Shri B. C. Tripathi

2.10 Bijahan Coal Block Mine M/s Bhushan Power Ltd.

1. Shri R.P. Goyel
2. Shri S.C. Wahi
3. Shri Ranjit Gosh
4. Shri B.D. Sharma

2.11 Pundi OCP CCL

1. Shri S. Singh
2. Shri J. Chakaravarty
3. Shri Pushkar
4. Dr. A Sinha
5. Shri Alok Kumar

2.12 Kalyan Khani M/s SCCL

1. Shri A Manohar Rao
2. Shri Vasantu Kumar
3. Shri Srimivara Rao
4. Shri P. Saratu Kumar

2.13 Kasipet-2 M/s SCCL

1. Shri A Manohar Rao
2. Shri Vasantu Kumar
3. Shri Srimivara Rao
4. Shri P. Saratu Kumar

2.14 Machhaata Opencast Coal Mine Project M/s Mahaguj Colliries Ltd.

1. Shri R. Mattoo
2. Shri G. V. Rao
3. Shri M. Janarohan
4. Shri S. P. Rekhade
5. Shri Manmohan Bisht
6. Shri Harsh Niwas
7. Shri M. K. Thapar
8. Shri Balbir Sodhi

2.15 Kakatiya long wall Underground coal mine expansion project M/s SCCL

1. Shri A Manohar Rao
2. Shri Vasantu Kumar
3. Shri Srimivara Rao
4. Shri P. Saratu Kumar

2.16 M/s Hind Energy

1. Shri Pawan Aggarwal
2. Shri Rajeev Aggarwal
3. Shri Amit Kumar Singh
4. Shri Nagarjuna

2.17 Chhinda OCP M/s WCL

1. Shri Debabrata Das
2. Shri Anand Azame
3. Shri R. M. Wanare
4. Shri K. Chakraborty

2.18 Ukni Deep OCP M/s WCL

1. Shri Debabrata Das
2. Shri Anand Azame

3. Shri R. M. Wanare
4. Shri K. Chakraborty

2.19 Kathara OCP M/s CCL

1. Shri T.K. Nag
2. Shri J. Chakravarty
3. Shri S. Singh
4. Dr. A. Sinha
5. Shri Alok Kumar
6. Shri Pushkar

GENERIC TOR FOR COAL WASHERY

-
- (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 heavy metals including levels of Hg, As, Pb, Cr etc.

- II Characteristics and quantum of washed coal.
- III Characteristics and quantum of coal waste rejects.
- (xvii) Management/disposal/Use of coal waste rejects
- (xviii) Copies of MOU/Agreement with linkages (for stand-alone washery) for the capacity for which EC has been sought.
- (xxxvi) Submission of sample test analysis of:
Characteristics of coal to be washed- this includes grade of coal and other characteristics ? ash, S
- (xxxvii) Corporate Environment Responsibility:
 - a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
 - b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
 - c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
 - d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

GENERIC TOR FOR AN OPENCAST COALMINE PROJECT

- (i) An EIA-EMP Report would be prepared for **??.. MTPA** rated capacity in an ML/project area of ??ha based on the generic structure specified in Appendix III of the EIA Notification 2006.
- (ii) An EIA-EMP Report would be prepared for **??**. MTPA rated capacity cover the impacts and management plan for the project specific activities on the environment of the region, and the environmental quality ?air, water, land, biotic community, etc. through collection of data and information, generation of data on impacts including prediction modelling for **???. MTPA** of coal production based on approval of project/Mining Plan for **???**MTPA. Baseline data collection can be for any season except monsoon.
- (iii) A map specifying locations of the State, District and Project location.
- (iv) A Study area map of the core zone and 10km area of the buffer zone (1: 50,000 scale) clearly delineating the major topographical features such as the land use, surface drainage of rivers/streams/nalas/canals, locations of human habitations, major constructions including railways, roads, pipelines, major industries/mines and other polluting sources. In case of ecologically sensitive areas such as Biosphere Reserves/National Parks/WL Sanctuaries/ Elephant Reserves, forests (Reserved/Protected), migratory corridors of fauna, and areas where endangered fauna and plants of medicinal and economic importance found in the 15 km area of the buffer zone should be given.
- (v) Land use map (1: 50,000 scale) based on a recent satellite imagery of the study area may also be provided with explanatory note of the land use. Satellite imagery per se is not required.
- (vi) Map showing the core zone delineating the agricultural land (irrigated and unirrigated, uncultivable land (as defined in the revenue records), forest areas (as per records), along with other physical features such as water bodies, etc should be furnished.
- (vii) A contour map showing the area drainage of the core zone and 2-5 km of the buffer zone (where the water courses of the core zone ultimately join the major rivers/streams outside the lease/project area) should also be clearly indicated as a separate map.
- (viii) A detailed Site plan of the mine showing the various proposed break-up of the land for mining operations such as the quarry area, OB dumps, green belt, safety zone, buildings, infrastructure, CHP, ETP, Stockyard, township/colony (within and adjacent to the ML), undisturbed area and if any, in topography such as existing roads, drains/natural water bodies are to be left undisturbed along with any natural drainage adjoining the lease /project and modification of thereof in terms of construction of embankments/bunds, proposed diversion/re-channelling of the water courses, etc., approach roads, major haul roads, etc.
- (ix) In case of any proposed diversion of nallah/canal/river, the proposed route of diversion/modification of drainage and their realignment, construction of embankment etc. should also be shown on the map.
- (x) Similarly if the project involves diversion of any road/railway line passing through the ML/project area, the proposed route of diversion and its realignment should be shown.
- (xi) Break up of lease/project area as per different land uses and their stage of acquisition.

LANDUSE DETAILS FOR OPENCAST PROJECT

S.N.	LANDUSE	Within ML Area (ha)	Outside ML Area (ha)	TOTAL
1.	Agricultural land			
2.	Forest land			
3.	Wasteland			
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 breakup of water requirement for the various mine operations should be given separately.
- (xxi) Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-à-vis the competing users.
- (xxii) Impact of mining and water abstraction use in mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long-term modelling studies on. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
- (xxiii) Impact of blasting, noise and vibrations.
- (xxiv) Impacts of mining on the AAQ, predictive modelling using the ISCST-3 (Revised) or latest model.
- (xxv) Impacts of mineral transportation within and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop, management plan for maintenance of HEMM, machinery, equipment. Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities.
- (xxvi) Details of waste generation (OB, topsoil) as per the approved calendar programme, and their management shown in figures as well explanatory chapter with tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use. OB dump heights and terracing should be based on slope stability studies with a max of 28° angle as the ultimate slope. Sections of dumps (ultimate) (both longitudinal and cross section) with relation to the adjacent area should be shown.
- (xxvii) Progressive Green belt and afforestation plan (both in text, figures as well as in tables prepared by MOEF) and selection of species (local) for the afforestation/plantation programme based on original survey/landuse.

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

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

* As a representative example

Table 2: Stage-wise Cumulative Plantation

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

	year									
3.	5 th year									
4.	10 th year									
5.	15 th year									
6.	20 th year									
7.	25 th year									
8.	30 th year									
9.	34 th year (end of mine life)									
10.	34-37 th Year (Post-mining)								85	

* As a representative example

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

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

S.N.	Land use during Mining	Land Use (ha)				
		Plantation	Water Body	Public Use	Undisturbed	TOTAL
1.	External OB Dump					
2.	Top soil Dump					
3.	Excavation					
4.	Roads					
4.	Built up area					
5.	Green Belt					
6.	Undisturbed Area					
	TOTAL	85				110

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

(xxx) Occupational health issues. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine.

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

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

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

(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.

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

(A) FORESTRY CLEARANCE

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

GENERIC TOR FOR AN UNDERGROUND COALMINE PROJECT

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

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

Area Under Surface Rights

S.N.	Details	Area (ha)
1.	Buildings	
2.	Infrastructure	
3.	Roads	

4.	Others (specify)	
	TOTAL	

- (vii) Study on the existing flora and fauna in the study area carried out by an institution of relevant discipline and the list of flora and fauna duly authenticated separately for the core and buffer zone and a statement clearly specifying whether the study area forms a part of the migratory corridor of any endangered fauna. The flora and fauna details should be furnished separately for the core zone and buffer zone. The report and the list should be authenticated by the concerned institution carrying out the study and the names of the species scientific and common names) along with the classification under the Wild Life Protection Act, 1972 should be furnished.
- (viii) Details of mineral reserves, geological status of the study area and the seams to be worked, ultimate working depth and progressive stage-wise working plan/scheme until end of mine life should be reflected on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps should also be included.
- (ix) Impact of mining on hydrology, modification of natural drainage, diversion and channelling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (x) Collection of one-season (non-monsoon) primary baseline data on environmental quality ? air (PM₁₀, 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.
- (xxxviii) Submission of sample test analysis of:
- (xxxvii) Characteristics of coal - this includes grade of coal and other characteristics ? ash, and heavy metals including levels of Hg, As, Pb, Cr etc.
- (xxxviii) Copy of clearances/approvals ?such as Forestry clearances, Mining Plan Approval, NOC from Flood and Irrigation Dept. (if req.), etc.

(A) FORESTRY CLEARANCE

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

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 area and the seams to be worked, ultimate working depth and progressive stage-wise working scheme until end of mine life should be reflected on the basis of the approved rated capacity and calendar plans of production from the approved Mining Plan. Geological maps and sections should be included. The progressive mine development and final mine closure plan should also be shown in figures.
- (xviii) Details of mining methods, technology, equipment to be used, etc., rationale for selection of that technology and equipment proposed to be used vis-à-vis the potential impacts.
- (xix) Study on subsidence, measures for mitigation/prevention of subsidence, modelling subsidence prediction and its use during mine operation, safety issues.
- (xx) Impact of mining on hydrology, modification of natural drainage, diversion and channelling of the existing rivers/water courses flowing through the ML and adjoining the lease/project and the impact on the existing users and impacts of mining operations thereon.
- (xxi) Detailed water balance should be provided. The break up of water requirement for the various mine operations should be given separately.
- (xxii) Source of water for use in mine, sanction of the competent authority in the State Govt. and impacts vis-à-vis the competing users.
- (xxiii) Impact of mining and water abstraction use in mine on the hydrogeology and groundwater regime within the core zone and 10 km buffer zone including long? Term modelling studies on. Details of rainwater harvesting and measures for recharge of groundwater should be reflected in case there is a declining trend of groundwater availability and/or if the area falls within dark/grey zone.
- (xxiv) Impact of blasting, noise and vibrations.
- (xxv) Impacts of mining on the AAQ, predictive modelling using the ISCST-3 (Revised) or latest model.
- (xxvi) Impacts of mineral transportation ?within and outside the lease/project along with flow-chart indicating the specific areas generating fugitive emissions. Impacts of transportation, handling, transfer of mineral and waste on air quality, generation of effluents from workshop, management plan for maintenance of HEMM, machinery, equipment. Details of various facilities to be provided in terms of parking, rest areas, canteen, and effluents/pollution load from these activities.
- (xxvii) Details of waste generation ? OB, topsoil ? as per the approved calendar programme, and their management shown in figures as well explanatory chapter with tables giving progressive development and mine closure plan, green belt development, backfilling programme and conceptual post mining land use. OB dump heights and terracing should be based on slope stability studies with a max of 28° angle as the ultimate slope. Sections of dumps (ultimate) (both longitudinal and cross section) with relation to the adjacent area should be shown.
- (xxviii) Impact and management of wastes and issues of rehandling and backfilling and progressive mine closure and reclamation.
- (xxix) Flow chart of water balance. Treatment of effluents from workshop, township, domestic wastewater, mine water discharge, etc. Details of STP in colony and ETP in mine. Recycling of water to the max. possible extent.
- (xxx) Occupational health issues. Baseline data on the health of the population in the impact zone and measures for occupational health and safety of the personnel and manpower for the mine.
- (xxxi) Risk Assessment and Disaster Preparedness and Management Plan.
- (xxxii) Integrating in the Env. Management Plan with measures for minimising use of natural resources - water, land, energy, etc.

(xxxiii) Progressive Green belt and afforestation plan (both in text, figures as well as in tables prepared by MOEF given below) and selection of species (local) for the afforestation/plantation programme based on original survey/landuse.

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

S.N.	Land use Category	Present (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 letters (all, if there are more than one)

(B) MINING PLAN APPROVAL

(B) MINING PLAN/PROJECT APPROVAL

Date of Approval of Mining Plan/Project Approval:

Copy of Letter of Approval of Mining Plan/Project Approval

(xxxxiv) Corporate Environment Responsibility:

- a) The Company must have a well laid down Environment Policy approved by the Board of Directors.
- b) The Environment Policy must prescribe for standard operating process/procedures to bring into focus any infringements/deviation/violation of the environmental or forest norms/conditions.
- c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions must be furnished.
- d) To have proper checks and balances, the company should have a well laid down system of reporting of non-compliances/violations of environmental norms to the Board of Directors of the company and/or shareholders or stakeholders at large.

GENERAL CONDITIONS AND ADDITIONAL POINTS OF TOR

The following general points should be noted:

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

The following additional points are also to be noted:

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