PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL COMMITTEE, ODISHA HELD ON 10TH AUGUST, 2021

The SEAC met on 10th August, 2021 at 11:00 AM through Video Conferencing in Google Meet under the Chairmanship of Sri. B. P Singh. The following members were present in the meeting.

1.	Sri. B. P. Singh	-	Chairman
2.	Dr. K. Murugesan	-	Secretary
3.	Dr. D. Swain	-	Member
4.	Prof. (Dr.) H.B. Sahu	-	Member
5.	Sri. J. K. Mahapatra	-	Member
6.	Sri. K. R. Acharya	-	Member
7.	Prof. (Dr.) B.K. Satpathy	-	Member
8.	Prof. (Dr.) P.K. Mohanty	-	Member
9.	Dr. K.C.S Panigrahi	-	Member
10.	Dr. Sailabala Padhi	-	Member

The agenda-wise proceedings and recommendations of the committee are detailed below.

ITEM NO. 01

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S KHUSI REALCON PVT. LTD. FOR PROPOSED RESIDENTIAL / COMMERCIAL APARTMENTS TOWER-1 (2B+G+9), TOWER-2 (2B+G+22) & TOWER-3 (2B+G+23) OVER AN AREA 2.44 ACRES AT MOUZA- PAHALA, BHUBANESWAR, DIST- KHURDA, ODISHA OF SRI VIKASH KUMAR JAIN (PROJECT HEAD) WITH TOTAL BUILT UP AREA - 63215.5 SQM - EC

1. The proposal is for Environmental Clearance of M/s. Khusi Realcon Pvt. Ltd. for Proposed Residential/ Commercial Apartments Tower-1 (2B+G+9), Tower-2 (2B+G+22) & Tower-3 (2B+G+23) over an area 2.44 acres at Mouza- Pahala, Bhubaneswar, Dist- Khurda, Odisha of Sri Vikash Kumar Jain (Project Head) with total built up area - 63215.5sqm.
2. The project falls under category “B” or activity 8 (a)-Building and Construction projects under EIA Notification dated 14th September 2006 as amended from time to time.
3. M/s Khusi Realcon Pvt. Ltd. proposes to construct Residential / Commercial Apartments Tower-1(2B+G+9), Tower-2 (2B+G+22) & Tower-3(2B+G+23). The project is in Plot No.:- 210, 199,208/1244, 126, 125/1242,123/1243/1844, 124,211/1746, 211, and Khata No.:- 352/1205, 352/1206, 56/98,352/1226, 56/102, 352/122 and Kissam – Gharabari of Mouza- Pahal, Bhubaneswar, Dist- Khurda, Odisha.
4. **Location and Connectivity** - The Project Site is a part of the Survey of India Toposheet No. 73H/15 & 73H/16. The proposed site is located at Mouza - Pahala, Tahashil - Bhubaneswar, Dist - Khurda, Odisha. The Geographical co-ordinates of the project site is: Latitude –20^0 20’ 2.27” N & Longitude - 85^0 52’ 57.78” E. The project site is well connected with National Highway NH-16 at a distance of approx 0.2 Km in East direction. The nearest railway station is Vani Vihar Railway station at a distance of approx 6.8 Km in South-West direction & Bhubaneswar Railway Station at a distance 10.3 Km in South-west direction. The nearest airport is Biju Patnaik International Airport at a distance of approx. 13.7 Km in South-west direction from project site.

5. The site is coming under Bhubaneswar Development Authority. The project comprises of Tower 1 2B+G+9, Tower 2 2B+G+22, Tower 3 2B+G+23.
6. The total plot area is 9877.92 Sqmt with total built-up area 63,215.5 sqm Sq.mt.
7. The Building Details of The Project:

Particular	Proposed	
Project Name	Khushi Realcon Pvt. Ltd.	
Plot Area	9877.92 Sqm	
Ground Coverage	3225.0 sqm (32.65 %)	
FAR (Floor Area Ratio)	4.52	
Built up Area	63,215.5 sqm	
Maximum Height	78.85 m	
Total Parking Area	13,847.8 sqm	
Green Belt Area	2181.25 sqm (22.08%)	
Maximum No. of Floor	Tower 1 2B+G+9, Tower 2 2B+G+22, Tower 3 2B+G+23	
Power/Electricity Requirement & Sources	Total - 1543 KW Solar – 82.6 KW CESU – 1460.4 KW	
No. of DG sets	3x500 KVA	
Water requirement	156.0 KLD (Fresh)	
Sewage Treatment Plant	STP Capacity - 250 KLD	
Estimated Population-Residential, Commercial, Floating/visitors	1970 nos.	

8. **Water requirement**: The total water requirement for the project will be approx.235 KLD, out of which domestic water demand is 148.5 KLD and commercial is 7.5 KLD. The fresh water requirement will be 156 KLD. Fresh water will be extracted from ground water through borewell.
9. **Waste water details**: The project will generate approx. 200 KLD (sewage load) of wastewater. The wastewater will be treated in an onsite STP of 250 KLD capacity. Out of which 190.0 m3/day will be recycled within the project for flushing (79.0 m3/day), landscaping (8.7 m3/day), dust suppression (3.3 m3/day) and 99.0 m3/day will become surplus which will be discharged to drain.
10. **Power requirement**: The daily power requirement for the proposed complex is preliminarily assessed as 1543 KW (Solar System- 58 KW & CESU – 1485 KW). In order to meet emergency power requirements during the grid failure, there is provision of 3 nos. of DG sets having 500 KVA capacities for power back up in the Residential/Commercial Building Project. Total Energy saving from renewable energy = (72.5+10.1) KW = 82.6 KW i.e 5.3 % is contributed from solar energy.

11. **Rain Water Harvesting**: Rain Water will be harvested and recharge through 11 recharge pits from the plot area.
12. **Parking Requirement**: Total parking area required 13847.8 m^2 Sq.mt./497 ECS and basement parking area will be provided.
13. Fire fighting Installations: Fire fighting system will be installed as per recommendation of the Fire fighting Officer, Odisha and as per the guideline of NBC (part-4).
14. **Green Belt Development**: Out of the total area, green belt will be developed over an area of 2181.25 sqm (22.08% of the plot area).
15. **Solid Waste Management**: From the residential complex solid waste inform of food wastes from kitchen and miscellaneous wastes will be generated @ 0.45 kg/person/day, which will be about 729.0 kg/day. The generated solid wastes from the residential complex will be segregated as biodegradable and non-biodegradable. This will be collected in separate-coloured bins. Proper waste management practices will be adopted during the collection, storage and disposal of the generated solid wastes and construction and demolition wastes. Around 100 kg/day of STP sludge will be generated.

S. No.	Category	Counts (heads)	Waste generated (kg/day)
1.	Residents	1620 @ 0.45 kg/day	729.0
2.	Commercial	50 @ 0.15 kg/day	7.5
3.	Club	100 @ 0.15 kg/day	15.0
4.	Floating Population	200 @ 0.15 kg/day	30.0
5.	STP sludge		100.0
Total Solid Waste Generated			**881.5 kg/day**

16. The total population of project will be 1970 persons.
17. The estimated project cost is ` 95 Crores and cost for EMP is 2.17 crores.
18. The project proponent along with the consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd., Bhubaneswar** made a detailed presentation on the proposal.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd., Bhubaneswar**, the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent followed by visit of the sub-committee of SEAC to the site.

i) Detailed land schedule with kissam of land in tabulated form. Whether land kissam has been converted to “Gharabari”, if so, detailed document to be submitted.

ii) Layout of drainage system and exact distance of project site to nearest drain and outfall of drain.

iii) Status of NOC from BMC/ appropriate authority for the above drain for sewage disposal.

iv) Proposal to increase in usage of treated waste water in premises and thereby reducing quantity of discharge to drain. Revised water balance to be submitted.

v) Surface runoff management plan with details of surface water to be used in the project.

vi) Percentage of Rain water Harvesting /recharging vis-à-vis fresh water consumption according to norms of CGWA be submitted.

vii) Details of DG sets to be installed at the suitable places after due consideration of pre-dominant wind direction to avoid air pollution from entering the dwelling house of the colony. DG set location w.r.t wind direction, stack height with layout / installation and drawing of the stack / exhaust pipe be submitted, considering cumulative capacity(s) of all DG sets and height of the tallest tower.

viii) Adequate parking in terms of ECS for dwelling units, floating population & visitors with locations including compatibility with the proposed parking space provided needs to be submitted in tabular form.

ix) Fire clearance from the appropriate authority need to be obtained and their observations is to be submitted.

x) Plan for solar power with exact calculations to be submitted.

xi) Since, this being a flood prone/ water lodging zone, detailed SOP for proper management of the same to be submitted.

xii) Permission status from Water Resources Deptt. for usage of ground water.

xiii) Details of solid waste management.

xiv) Separate compartments for storing of storm water and sewage water.

xv) Findings of traffic study undertaken at point of intersection with NH Vis-a vis the norm in terms of PCU and traffic decongestion measures recommended if any be submitted.

ITEM NO. 02

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/s KUSHALESWAR MINERALS FOR RAIKA- KALAPARBAT IRON AND MANGANESE MINES FOR PRODUCTION OF 53,990 TPA ROM OVER AN AREA 9.8136HA. LOCATED IN THAKURANI R.F., NEAR VILLAGE- RAIKA, UNDER CHAMPUA SUBDIVISION OF KEONJHAR DISTRICT, ODISHA OF SRI. BASANTA KUMAR MOHANTY (MANAGING PARTNER) - EC

1. The proposal is for Environmental Clearance of M/s Kushaleswar Minerals for Raika-Kalaparbat Iron And Manganese Mines for Production of 53,990 TPA ROM over an area 9.8136ha. located in Thakurani R.F., near village- Raika, under Champua Subdivision of Keonjhar District, Odisha.
2. Raika-Kalaparbat Iron and Manganese Mines of M/s. Kushaleswar Minerals is spread over an area of 9.8136 hectare in Thakurani Reserve Forest, near Raika village under Champua subdivision of Keonjhar district, Odisha.
3. Raika-Kalaparbat Iron and Manganese Mine was executed initially on 09.04.1981 for 30 years. Later on, the mining lease was transferred to M/s Kushaleswar Minerals vide Govt.

of Odisha order no. 1788/III(A)SM-42/91, dated 13.02.1992 and the transfer deed was executed on 12.05.1992.

4. The mining operation has been stopped within the lease area since 19.01.1997 by the DDM, Joda as the mining operation was carried out in the forest land included in the ML area without having required Forest Clearance.
5. 1st renewal of ML area over 9.8136 ha. was applied by the lessee for 20 years w.e.f. 09.04.2011 to 08.04.2031. The period of ML applied for renewal is deemed to have been extended for 50 years in total w.e.f 09.04.1981 to 08.04.2031 as per section 8A(3) of MM(D&R) amendment Act, 2015.
6. Surface right of the entire lease area has been granted by the Collector, Keonjhar on 14.01.1982.
7. Public Hearing was conducted on 05.01.2010 for the project and the final EIA /EMP report was submitted for EC to SEIAA, Odisha. Then, SEIAA, Odisha asked for the original file with all documents from MoEF, Govt. of India (as TOR was issued by them) to consider their case. During this transfer, the file was misplaced and their case could not proceed further.
8. As per suggestion of SEIAA, Odisha, they have applied a fresh and obtain Terms of Reference (ToR) for their Raika-Kalaparbat Iron and Manganese Mines over an area of 9.8136 Ha on 19.10.2019 vide letter no. 321/SEAC-11/19.
9. The ML area of 9.8136 ha entirely comprises of forest land. Stage – I Clearance for the forest land involved in the lease area has been obtained vide letter no. 5-ORC229/2014-BHU, dated 09.07.2015.
10. 8.5476 ha. of non-forest govt. land has been identified in village Tana (Khata No. 75-AAA, Plot No. 40 (P)) of Telkoi Tahasil (now in Banspal Tahasil) in BJP Forest Range of Keonjhar Forest Division in lieu of forest land involved in the ML area for compensatory afforestation.
11. DFO, Keonjhar Forest Division has prepared a Compensatory Afforestation Scheme in Block model at an estimated cost of Rs 18,48,000/- including 10 years maintenance.
12. Certificate under Forest Right Act has been issued by the Collector, Keonjhar for the forest land of 9.8136 ha. in two phases.
13. The user agency has submitted the DGPS survey map of the forest area proposed for diversion by ORSAC and duly authenticated by the DFO, Keonjhar Forest Division.
14. NPV of Rs. 71,64,220, for the forest land involved in the ML area, has been paid on 23.07.2010.
15. Right now, the proposal is pending at DFO, Keonjhar Forest Division for submitting the compliances stipulated in the Stage-1 conditions for the final approval of the forest clearance.
16. **Location And Accessibility:** The proposed mining project is located in Thakurani Reserve Forest of Keonjhar district of Odisha. The ML area is featured under the SOI toposheet No. 73 F/8 bounded by latitude 22^0 03' 24.96600" to 22^0 03' 35.84160" N and longitude 85^0 25' 15.12120" to 85^0 25' 32.45160" E. All-weather 3.5km long road connects the mines with NH-520. The mining lease area is also accessible from Barbil

town through 8.5km long all weather road. The nearest railhead is Bansapani, located at a distance of 6km. Full-fledged market facilities, postal and medical facilities are available at Barbil. Interstate boundary between Odisha and Jharkhand lies at distance of 9.5km in North-East direction from the proposed project site.

17. **Topography:** The proposed Raika-Kalaparbat Iron and Manganese mines lease hold area over 9.8136 ha of reserve forest land displays a rugged mountainous topography with slope towards west having highest altitude of 664.5m AMSL in the south-east part and the lowest altitude of 617.5m AMSL on the south-west side. The mining lease area is located in tropical region where climate is characterized by hot summers and cool winters. There is no human settlement within the applied lease area.

18. The mine is planned to produce maximum ROM of 53,990 TPA and Setting up a Crusher & Screening Plant of 100 TPH Capacity; maximum production of Iron Ore & Manganese Ore to be 53,040 TPA and 950 TPA respectively.

19. Mining will be carried out by opencast semi-mechanized with drilling and blasting on single shift basis. The float ores and loose strata will be excavated by 0.9 m^3 capacity excavator and loaded into 10t tippers. ROM will be fed into 100 TPH crushing & screening unit within the lease area to get saleable ore.

20. The mining activity shall generate direct employment opportunity for 75 nos. Out of this total (skill, semi-skill & un-skill type) workers will be 64.

21. The peak water requirement shall be 17 cum/ day and shall be met from Kundra nala by tanker & ground water source with due permission.

22. The last mining plan was approved by IBM on 09.04.2012. Later review of mining plan was approved by Regional Controller of Mines, IBM, Bhubaneswar on 10th April, 2019 vide letter no. MSOTFM/54-ORI/BHU/2018-19/84.

23. **Geology and Mining:** Mining shall commence from the southern part of the leasehold. Based on the exploration input, it is planned to produce maximum 53,990 TPA of ROM (Iron ore: 53,040 TPA & Manganese ore: 950 TPA). Mineable reserves of 189,645 MT of iron ore & 6,610 MT of manganese ore have been assessed in the lease area. Opencast method of mining on single shift basis with drilling & blasting is proposed to excavate the ore to gradually achieve the production target. ROM iron ore from mines will be crushed and screened for preparation of saleable ore. Dry processing plant in the ML area consists of crushing unit of 100 TPH capacity & screening plant of 100 TPH capacity for iron ore breaking & sizing only. The entire ROM manganese ore will be broken, sorted & sized manually. Height and width of the benches will be maintained at 3m & 6m respectively; the individual benches will be kept at 75^0 while overall quarry slope angle will be maintained at around 30^0 with horizontal.

24. With the production of 53,040 TPA of iron ore, the life of the mines will be about 4 years whereas with production of 950 TPA of manganese ore, the life of the mines will be about 7 years. So, as a whole, the life of the mines will be 7 years. An area of 5.701 ha land is likely to be degraded for mining & ancillary activities in the conceptual period; only quarry area will occupy an area of 3.776 ha., which will be in the southern part of the lease area. Ore is planned to be extracted up to a depth of 15m (618m AMSL is the pit limit at the end of the life of the mines) from the surface level by the end of the life of the mines. At the end of the conceptual period, 43,906m^3 of waste is likely to be generated; out of

these, 24,080m^3 waste to be generated in remaining 2years of the plan period (i.e. first 2 years of mining) will be dumped over 0.301 ha. at 10m height (maximum) in one terrace in north-west part of the lease area as Dump-4 and remaining 19,826m^3 will be utilize for backfilling of 1ha. mined out area at 2m thick average filling. There is a proposal to plant a total of 14646 saplings in the afforested /reclaimed /rehabilitated area; of these, 6042 saplings will be planted over 1ha. backfilled area & 2.776 ha. mining benches @ 1600 per ha. The saplings proposed for plantation are Amba, Chakunda, Neem, Mahaneem, Panas, Jamu, etc. Species of the saplings are proposed to be kept at 2.5m apart.

25. Baseline data on Ambient Air Quality, Water Quality, Noise level, Soil, Flora & Fauna has been collected for Post Monsoon Season starting from October to December of 2019.

26. **Project Cost:** The project cost is estimated to be Rs. 1.73 crores and there is a budgetary provision of Rs. 31 lakhs as capital cost for pollution control measures & environmental monitoring at Raika-Kalaparbat Iron and Manganese ore mines and Rs 13 lakhs as annual recurring cost. There is also Rs 3 lakhs allocated for Occupational health and Rs 20 lakhs for green belt development as capital cost. The company has also allocated Rs 4 lakhs as fund to spend under Social and Infrastructure Development Activities to fulfill the demands of public hearing.

27. The Environment Consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd., Bhubaneswar** along with the proponent made a detailed presentation on the proposal before the Committee.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Centre for Envotech & Management Consultancy Pvt. Ltd., Bhubaneswar**, the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent.

i) Tabulated form of quantity of overburden generated, its storage and usage with layout map.

ii) NEERI recommendation point regarding whether 80% production achieved with details of capacity and corresponding production duly authenticated by Steel and Mines Deptt. Govt. of Odisha- this is required in case of manganese ore mining.

iii) Details of measures to be taken towards issues raised in Public Hearing in physical terms. A legible copy of minutes of Public Hearing is also to be submitted.

iv) Re-evaluation of PM_{10} and $PM_{2.5}$ as quantity is less and study was undertaken during lockdown.

v) Ambient Air Quality Monitoring Stations in haulage roads, Entry and Exit gates to be incorporated and monitoring data to be submitted.

vi) Details of number of tress existing and proposed to be planted in safety zone and non mineral zone.

vii) Status of stage – II forest clearance.

viii) Detailed plan and measures undertaken so that ground water will not be intersected during mining as it is just 3m below.

ix) Number of vehicles to be added and its route map.

x) Copy of Wildlife Conservation Plan with details of biodiversity in area and measures to conserve.

xi) As per SWOT of NEERI recommendation, carrying capacity of the mineral carriers to be confirmed.

xii) Provision of Solar power with plan and detailed calculation be submitted.

xiii) Plan for rain water harvesting considering maximum rainfall and its reuse.

a) Comprehensive water management.

b) Pre monsoon and post monsoon water balance.

xiv) Network with dimensions of concrete cement road inside ML area and haulage road from/ to entry and exit of the mines till the interesting point of public road be submitted.

xv) Parking plaza at entry and exit point of the mines with Basic amenities to be shown and confirmed.

xvi) Detailed plan and SOP for water sprinkling inside mines and outside in haulage road including regular vacuum cleaning and "zero Dust resuspension system" to arrest fugitive dust emission be submitted.

xvii) Details of grade of Fe to be mined, cutoff grade, management of off grade, quantity of each year wise and the dumping or storage plan of off grade and wastes to be provided.

ITEM NO. 03

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S ODISHA MINERAL EXPLORATION CORPORATION (OMECL) FOR PROPOSED 2.0 MTPA IRON ORE PRODUCTION AT RENGALBEDA (NE) IRON ORE BLOCK OVER AN AREA OF 24.203 HA. LOCATED IN VILLAGE – NUAGAON & GANDHALPADA, TAHASIL - BARBIL, DISTRICT – KEONJHAR, ODISHA OF SRI. SHAILENDER KUMAR SINHA (DIRECTOR, GEOLOGY) – TOR

1. The proposal was considered by the Committee to determine the "Terms of Reference (ToR)" for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006 and amendment thereafter.
2. M/s Odisha Mineral Exploration Corporation (OMECL) for proposed 2.0 MTPA Iron ore production at Rengalbeda (NE) Iron ore block over an area of 24.203 ha. located in village – Nuagaon & Gandhalpada, Tahasil - Barbil, District – Keonjhar, Odisha.
3. The project falls under category "B" or activity 1 (a) - Mining of Minerals under EIA Notification dated 14th September 2006 as amended from time to time.
4. Odisha Mineral Exploration Corporation Limited (OMECL) is a 100% State PSU, established in the year 2016 to intensify the mineral exploration and mining activities in the State.
5. State Govt. with the approval of Ministry of Mines, Govt. of India, reserved Rengalbeda (NE) Iron Ore Block over 24.203 ha in Barbil Tehsil, Keonjhar District in favour of OMECL, under section 17A (2) of MMDR Act 1957 vide Notification No. 946/SM, Bhubaneswar, dt. 28.01.2021 by Dept. of Steel & Mines, Odisha.

6. LoI was issued vide letter no. 2215/SM on dt. 26.02.2021 by the State Govt. for grant of Mining Lease for Rengalbeda (NE) Iron Ore Block over an area of 24.203 ha in village Nuagaon and Gandhalpada under Barbil Tehsil, Keonjhar District of Odisha State, for a period of 50 years.
7. Mining Plan with Progressive Mine Closure Plan has been approved by IBM vide letter No: MP/A/43-ORI/BHU/2020-21/ dt. 09.04.20201 for a period of 5 years after execution of the lease deed for production of iron ore to the tune of 2.0 MTPA (RoM).
8. The proposed mine for extraction of Iron Ore is located in two villages namely Nuagaon & Gandhalpada of Keonjhar District of Odisha granted over an area of 24.203 hectare under which 17.034 hectare is revenue forest land and 7.169 hectare is non-forest land recorded as forest as on 25.10.1980 (SABIK).
9. **Location and Connectivity:** The ML area is featured under Toposheet F45H4, F45H8, F45N1 & F45N5 (formerly 73G/5) and bounded by geo coordinates Latitude: 21° 57' 51.56" N - 21° 58' 09.73“ N; Longitude: 85°16'03.80“ E - 85° 16' 29.78“ E. The mining lease area is approachable from Barbil town covering a distance of 26 km. The Block area is connected by NH-215, which is passes through the lease area. Also, the area can be approachable from Koira which is by the side of NH - 215 at a distance of 6 km. The District Head Quarters Keonjhar is at a distance of 85 km from lease area. The nearest railway station is Banspani railway siding, Joda which is 25 km away from the Rengalbeda (NE) Iron Ore Block. Barbil Railway Station, which is 30 km away from the block, lying on Tatanagar - Barbil section of the South-Eastern Railway. Nearest river is Karo Nadi at 1.23km. No National Park or Wildlife Sanctuary within 10 km radius. Nearest Reserve forest is Mendhamaruni RF – 2.12 km. Jharkhand - Odisha Interstate Boundary is at 5.19km.
10. **Topography**: The Lease area is generally a semi-rugged terrain with elongated hill trendings in NW-SE direction, low mounds and wide valleys. Maximum elevation - 594 m above MSL and Minimum elevation - 548 m above MSL.
11. **Reserves and Mining:** Total Reserves - 2,72,82,778.96 Tonnes (Fe > 45%), 46,96,888.40 (Fe > 45% < 55%) and 2,25,85,890.56 (Fe > 55%).The annual production is targeted at 2.0 MTPA of ROM. The mine is proposed to be worked by mechanized opencast mining method by engaging HEMM with deep hole drilling and blasting. The blasted ROM will be fed to a Crushing/Screening unit for further sizing and screening to CLO (+10-40/+5 -18mm) and fines (-10/-5mm). The output is to be sent to designated stack yards which will be sold to industries.
12. **Production Details:** The year-wise in-situ tentative excavation for the first five years from the date of opening of the mine is given as follows :-

Year	Quarry	Total Tentative Excavation	Top Soil	OB/SB/IB	ROM (M Cu. m)			ROM: Waste
					Ore	Mineral Rejects	Total ROM	
		M CuM	M CuM	M CuM	M CuM	M CuM	M CuM	CuM: CuM
1st Year	Pit-1	0.81	0.00	0.02	0.53	0.26	0.79	1:0.02

Sub Total	**0.81**	**0.00**	**0.02**	**0.53**	**0.26**	**0.79**	**1:0.02**
2nd Year Pit-1	0.81	0.00	0.01	0.53	0.27	0.80	1:0.016
Sub Total	**0.81**	**0.00**	**0.01**	**0.53**	**0.27**	**0.80**	1:0.016
3rd Year Pit-1	0.67	0.00	0.009	0.65	0.01	0.66	1:0.014
Sub Total	**0.67**	**0.00**	**0.009**	**0.65**	**0.01**	**0.66**	**1:0.014**
4th Year Pit-1	0.80	0.00	0.003	0.79	0.01	0.80	1:0.004
Sub Total	**0.80**	**0.00**	**0.003**	**0.79**	**0.01**	**0.80**	**1:0.004**
5th Year Pit-1	0.69	0.00	0.004	0.66	0.03	0.69	1:0.006
Sub Total	**0.69**	**0.00**	**0.004**	**0.66**	**0.03**	**0.69**	**1:0.006**
Grand Total	**3.78**	**0.00**	**0.046**	**3.16**	**0.58**	**3.74**	**1:0.012**

13. There will be no raw material requirement for the production of iron ore. And the extracted 2.0 MTPA iron ore will be sold out after processing i.e. sizing and sorting.
14. **Water requirement**: Total water requirement is about 180 KLD and source by Ground water and Surface water. Whereas 60KLD water is required for domestic use which will be sourced from Ground water & 120 KLD water is required for mining activities, greenbelt development and environment management which will be sourced from surface water.
15. **Power requirement:** Power requirement of 241 kW will be sourced from the State Grid. and 125 kVA power backup is proposed through DG set. 132 kVA transmissions line passing through the lease area.
16. **Green Belt Development:** Green belt will be developed over an area of 4.493 ha.
17. The estimated total manpower requirement for the mining project is 356 persons.
18. **Rehabilitation and Resettlement (R&R) Plan** - The people residing in the lease area will be rehabilitated as per the State Govt. guidelines and the socio-economic study will be carried out by the organization empanelled by Nabakrushna Choudhury Centre for Development Studies (NCDS), Bhubaneswar Odisha.
19. The estimated project cost is Rs. 3804.66 lakhs.
20. The Environment consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar** along with the proponent has made a presentation on the proposal before the Committee.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar**, the SEAC prescribed the following specific ToRs in addition to standard ToRs as per **Annexure – A** for conducting detailed EIA study.

i) The following information to be submitted.

a) Compliance of mining plan, including waste and OB dump management, mine closure plan etc.

b) Compliance to Common cause judgment

c) Status of R&R

d) Compliance of plantation

e) Compliance of public hearing issues

f) Status of complaints/ court cases/legal action

g) Any other relevant environmental issue / parameter.

ii) The following studies be undertaken by domain experts, viz:

a) Blast vibration study

b) Socio economic study of the neighbouring habitation

c) Biodiversity study with audit mechanism.

d) Slope stability study for both mines and OB /waste dumps.

e) Surface runoff management along with rainwater harvesting and ground water recharge include the design of drainage structures.

f) Traffic density study, both inside the mines and at haulage roads, intersecting points of haulage road with public road.

g) Hydrology study: The study findings and the mitigation measures thereof to be submitted

iii) The Project Proponent shall undertake the peripheral plantation and closed areas as well as gap plantation within 6 months with the seedling of 4-6 ft height having atleast 90% survival rate. An undertaking for the same also needs to be submitted by Project Proponent.

iv) Cost of the CER calculated shall be utilized for the concerns of the people in terms of health, education, and infrastructure and environment protection. Project Proponent also shall include the budget for the betterment of schools nearby and to facilitate the online education system by providing Wi-Fi connectivity and desktops/tablets.

v) The project proponent should provide in the EIA Report details of all the statutory clearances, permissions, no objection certificates, consents etc. required for this project under various Acts, Rules and regulations and their status or estimated timeline after grant of EC.

vi) The project proponent should submit the revenue plan for mining lease, revenue plan should be imposed on the satellite imaginary clearly demarcate the Govt. land, private land, agricultural land etc.

vii) The project proponent should submit the real-time aerial footage & video of the mining lease area and of the transportation route. The project proponent should submit the detailed plan in tabular format (year-wise for life of mine) for afforestation and green belt development in and around the mining lease. The project proponent should submit the number of saplings to be planted, area to be covered under afforestation & green belt, location of plantation, target for survival rate and budget earmarked for the afforestation & green belt development. In addition to this the project proponent should show on a surface plan (5-year interval for life of mine) of suitable scale the area to be covered under afforestation & green belt clearly mentioning the latitude and longitude of the area to be covered during each 5 years. The capital and recurring expenditure to be incurred needs to be submitted. Presently in India there are many agencies which are developing forest in short interval of time. Thus, for the plantation activities details of the experts/agencies to be engaged needs to be provided with budgetary provisions.

viii) The project proponent should submit the quantity of surface or ground water to be used for this project. The complete water balance cycle needs to be submitted. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. PP should submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.

ix) The project proponent should clearly bring out the details of the manpower to be engaged for this project with their roles /responsibilities/designations. In addition to this the project proponent should mention the number and designation of person to be engaged for implementation of environmental management plan (EMP). The capital and recurring expenditure to be incurred needs to be submitted.

x) The project proponent should submit the year-wise, activity wise and time bound budget earmarked for EMP, occupational health surveillance & Corporate Environmental Responsibility. The capital and recurring expenditure to be incurred needs to be submitted.

xi) The project proponent should submit the measures/technology to be adopted for prevention of illegal mining and pilferage of mineral. The project proponent should submit the detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory.

xii) The project proponent should clearly show the transport route of the mineral and protection and mitigative measure to be adopted while transportation of the mineral. The impact from the center line of the road on either side should be clearly brought out supported with the line source modelling and isopleth. Further, frequency of testing of Poly Achromatic Hydrocarbon needs to be submitted along with budget. Based on the above study the compensation to be paid in the event of damage to the crop and land on the either side of the road needs to be mentioned. The project proponent should provide the source of equations used and complete calculations for computing the emission rate from the various sources.

xiii) The project proponent should clearly bring out that what is the specific diesel consumption and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.

xiv) The project proponent should bring out the awareness campaign to be carried out on various environmental issues, practical training facility to be provided to the environmental engineer/diploma holders, mining engineer/diploma holders, geologists, and other trades related to mining operations. Target for the same needs to be submitted.

xv) The budget to be earmarked for the various activities shall be decided after perusal of the Standard EC conditions. After perusal of Standard EC conditions if agreed the project proponent should also submit an undertaking by the way of affidavit for Compliance of Standard EC conditions already prescribed by the Ministry vide O.M. No and Specific condition if prescribed by the SEAC/SEIAA, Odisha.

xvi) The project proponent should ensure that only NABET accredited consultant shall be engaged for the preparation of EIA/EMP Reports. The project proponent shall ensure

that accreditation of consultant shall be valid during the collection of baseline date, preparation of EIA/EMP report and during the appraisal process. The project proponent and consultant should submit an undertaking the information and data provided in the EIA Report and submitted to the SEIAA, Odisha are factually correct and the project proponent and consultant are fully accountable for the same.

xvii) The project proponent should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this the project proponent should submit the original test reports and certificates of the labs which will analyze the samples.

xviii) The percentage of iron in the final waste generated and not used as iron ore or its upgradation.

xix) "Zero discharge" management & "Zero Dust Re-suppression" management with SOP be submitted.

xx) Internal roads, drain management with network of the drain, retaining walls and settling tanks with ETPs be submitted.

xxi) Details of air quality monitoring stations of the area and additional stations at entry and exit of mines and haulage roads, habitation to be considered.

xxii) Construction and perennial maintenance of haulage road with details of plantation and the species thereof to be submitted.

xxiii) Parking plaza layout with maximum no. of vehicles and types of vehicles that can be parked with basic amenities and facilities.

xxiv) Forest Clearance details with copy of all Forest Clearance.

xxv) Status of complaints/ court cases/legal action regarding to lease along with a detailed write up indicating case no., purpose of the case etc.

xxvi) Copy of lease document.

xxvii) Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage.

xxviii) Project Proponent shall consider developing a good nursery in nearby village for production of saplings of 4-6 feet height for planting in safety zone, sides of external haulage roads and distribution among villagers for planting in their private land/ community land. The nursery may be developed by company on their own or in collaboration with forest department. A detailed proposal to this effect shall be submitted. The proponent shall ensure to use organic fertilizer in the nursery.

xxix) Comprehensive water management, water balance with water harvesting and its reuse both monsoon and non-monsoon period.

xxx) STP plan with design with location in the layout map for domestic waste water treatment.

xxxi) Provision of solar power (percentage wise) with detail plan.

xxxii) To submit the network with dimension of concrete cement roads inside the mining

lease area and haulage road.

xxxiii) To submit parking plaza at entry and exit of the mines with basic amenities.

xxxiv) Plan and SoP to be submitted for water sprinkling inside the mines and outside in haulage road including regular vacuum cleaning and Zero Dust Resuspension system to completely mitigate and arrest fugitive dust emission.

xxxv) National Highway is passing through the lease area. Blasting vibration and impact of mining activity on NH to be studied. Non - mineable Safety zone to be earmarked from NH and accordingly, conceptual plan to be prepared and submitted.

xxxvi) NH 215 is passing through the lease area covering about four acres that is approximately 15% of the total lease area and thus source of safety threads to commutators in NH due to flying rock, vibration due to and during blasting and fugitive emission due to dust and fumes. So, specific mitigation measures with SOP to be submitted for the above.

xxxvii) One high tension line is passing through the lease area. This aspect has to be studied and adequate safety measures to be suggested.

xxxviii) Wagon drill blasting must be avoided- to confirm.

xxxix) The source of water is stated to be both ground water and surface water .

xl) Why cannot it be only surface water? And drinking water requirement can be met with installation of WTP ?

xli) Since there will be an engagement of about more then 400 people , there must be a provision of STP and thus STP design with water balance (monsoon and non monsoon) be submitted.

xlii) Details of grade of Fe to be mined, cutoff grade, management of off grade, quantity of each year wise and the dumping or storage plan of off grade and wastes to be provided.

ITEM NO. 04

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/s UTKAL HYDROCARBON PVT. LTD. FOR GREENFIELD PROJECT ON COAL TAR DISTILLATION OF CAPACITY – 180,000 TPA; PHASE-I 60,000 TPA COAL TAR DISTILLATION PROJECT (TO MANUFACTURE 31,200 TPA COAL TAR PITCH,; 15,000 TPA WFO & 12,000 TPA ANTHRACENE OIL) AND PHASE-II 120,000 TPA COAL TAR DISTILLATION PROJECT (TO MANUFACTURE 62,400 TPA COAL TAR PITCH,; 30,000 TPA WFO; 24,000 TPA ANTHRACENE OIL) LOCATED AT VILLAGE - SIRIAPALI PS & TAHASIL - KOLABIRA, DISTRICT - JHARSUGUDA, ODISHA OF DEEPAK AGARWAL (DIRECTOR) - TOR

1. The proposal was considered by the Committee to determine the “Terms of Reference (ToR)” for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006 and amendment thereafter.
2. The project falls under category “B” or activity 4(b) (ii) Coal tar processing units under EIA Notification dated 14th September 2006 as amended from time to time.

3. Utkal Hydrocarbon Private Limited (UHPL) has proposed to set up greenfield Coal Tar Distillation Unit of capacity 180,000 TPA in 2 Phases, Phase-I: 60,000 TPA Coal Tar distillation project (to manufacture 31,200 TPA, Coal Tar Pitch; 15,000 TPA, WFO & 12,000 TPA Anthracene Oil) and Phase-II: 120,000 TPA Coal Tar distillation project (to manufacture 62,400 TPA Coal Tar Pitch; 30,000 TPA WFO; 24,000 TPA Anthracene Oil) At Village- Siriapali PS & Tehsil-Kolabira, District - Jharsuguda, Odisha..
4. **Location and Connectivity**: The Project Site is a part of the Survey of India Toposheet No.F45M1 & F45M2. The site falls between Latitude - 21°49'29.13"N and Longitude - 84° 5'32.63"E. Nearest habitation is Siripali which is at a distance of 0.40 km from project site. The site is well connected with the road. NH-200 is at a distance of 20 m from the project site. The railway facility is also available near to the site. Nearest is Jharsuguda at a distance of 8 km from the project site. Nearest airport is at Jharsuguda 11 km and nearest seaport is Paradeep at a distance of 340 km E from the project site. Water Bodies: Kharkhari Nala -0.50 KM, Telen River-4.40 KM, Bheden River- 8.0 KM.
5. The total land area: Phase-I : 5.38 acres, Phase-II : 12.22 acres (Total area: 5.38 +12.22 = 17.60 acres). The entire land is Gochar kissam land. The proponent will acquire land through IDCO.
6. **Requirement of raw material & Source**: Crude Coal Tar for Phase-I 60,000 TPA Phase-II 12,0000 TPA will be sourced from Rourkela Steel Plant-Rourkela, Nilachal Ispat Nigam Limited-Jajpur, Bhushan Steel Limited, IISCO Steel Plant, Durgapur Steel plant, Bokaro Steel Plant, , Bhilai Steel Plant, Visakhapatanam Steel Plant by Road..
7. **Water Requirement**: Total Water requirement for the plant – 85m3/day (Phase-I: 32.8m3/day and Phase-II: 52.2m3/day) which will be sourced from Ground Water (59.5 m3/day) and recycle of treated water (25.5 m3/day) from ETP & STP. Capacity of ETP is envisaged as 20 KLD. Domestic water will be treated in STP of capacity 15 KLD.
8. **Power requirement**: Total power requirement for the project is envisaged as 1200 KVA. Requirement for Phase-I is 450 KVA and for Phase-II is 750 KVA. It will be sourced from Western Electricity Supply Company of Odisha (WESCO). For back-up DG sets of capacity for Phase-I 200 KVA & Phase-II is 300 KVA will be installed.
9. **Solid waste**: Settled Dust from APC devices from Phase-I is 3.3 TPA & from Phase-II is 6.6 TPA will be used as fuel. Carbon Sludge (Bottom Residue) from Phase-I is 3 TPA & from Phase-II is 6 TPA will be reused in Process.
10. **Process Description**: The raw material crude coal tar is fed into the batch process flash distillation vessel from storage tanks. The distillation vessel is heated up gradually to the dehydration at 120°c. Then this dehydrated tar is distilled upto 410°c at atmospheric pressure or 350°c under vacuum. Either is adopted as per the party's specification. During the distillation, the volatile oil is collected into the receiver through goose neck and condenser. In the distillation volatile oil is evaporated out as the temperature is raised up of the distillation vessel and the vapour is condensed down in the cell and tube condenser attached with the distillation system horizontally and slightly angled. The condensed oil is collected into the close receiver connected with the cooling condenser of the distillation system. The volatile oil is categorized in two parts as per boiling point, WFO (Wide Fraction Oil) fraction upto 395°c at atmospheric pressure or upto 330°c under vacuum, and Anthracenee-1 or heavy PAH (Polyaromatic Hydrocarbon), fraction above

395°c at atm or 330-350°c under vacuum. The residue remains into the vessel, is pitch and is tested as per customer's specification. After satisfied testing the material gets ready for despatch. The despatch of pitch is performed by special tankers in liquid form or by gunny bags in solid form.

11. **By-product Recovery Process:** In by-product plants, the main raw material is WFO, the fraction is taken from coal tar pitch processing Units as discussed above. The WFO is fractionally distilled in fractionation column batch type. The reboiler is loaded with WFO and heated up gradually by the TF boiler. The WFO is boiled up into the reboiler and vapours come into the column. The vapour is purified by the liquid contact through column packing. The collection is received from the top one by one fraction maintaining the reflux ratio and temperature through intermediate testing.

12. **Recovery from Coal tar after distillation are:**

    1. Moisture Content
    2A. Light Oil
    2B. Crude Napthalene
    3. Heavy Creosote Oil
    4. Anthracene Oil
    5. Coal tar Pitch (Depends upon softening point of the pitch)

13. The estimated project cost is ` 37 Crores.

14. The project proponent along with the consultant **M/s Visiontek Consultancy Services Pvt. Ltd. Bhubaneswar** made a detailed presentation on the proposal.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar**, the SEAC prescribed the following specific ToRs in addition to standard ToRs as per **Annexure – B** for conducting detailed EIA study.

i) Detailed specification of ETP to be used including confirmation of chemical analysis of treated waste water from ETP and "zero discharge" SOP.

ii) Detailed proposal for management of Hazardous waste generated.\

iii) Entire land area for the project is Gochar land. The proponent shall convert the Gochar land for industrial use. Detailed land conversion document to be submitted.

iv) Land schedule along with kissam plot wise in tabular form.

v) Maintenance of Biodiversity register.

vi) Mitigation measures to be taken to conserve reserve forest and nala passing near to the project site.

vii) Existing tress at the project site should not be cut and it should be transplanted in other area of project site. Detailed proposal to this effect to be submitted.

viii) Chemical Analysis of Waste water and ensure zero liquid discharge from the premises. Water balance with ZLD proposal to be submitted.

ix) Mitigation measures to be undertaken to arrest pollutants going to air including composition / chemical analysis of process loss effluents and emissions to be found out and technology driven mitigation measures to be submitted.

x) Occupational health study in the area including adoption of ISO 14001 and OHSAS to be submitted.

xi) Measures to be taken to control odour problem.

xii) To submit STP and it's capacity including the water balance (both monsoon and non-monsoon) and disposal of excess treated waste water, quantity, mechanism and SOP.

xiii) To indicate details of bore well, tube well and Pond/ or water bodies physically present within 2-5 kms of the proposed project and the habitation within 5 kms.

xiv) SOP for periodical testing of the water/ tube Wells, bore well and Ponds / water bodies w.r.t Cyanide, phenolic compounds (Phenol), ammonia and health hazardous substances Etc. w.r.t BIS for drinking water suitability.

xv) To make provision of concrete Garland drain around the boundary of the project to collect surface runoff/ storm water/ or any mix of treated waste water from ETP, collection of the same in an impervious concrete Pond with matting to arrest any leached and recycling of the same in ETP.

xvi) To have technological provision in ETP so that have treated liquid outlet discharge having Cyanide, Phenol or ammonia contain etc. and continuous chemical analysis of the same.

xvii) To have provision of concrete Pit of appropriate dimension with matting to put ETP sludge and SOP for suitable disposal of the same after due chemical analysis.

xviii) To undertake traffic density study by domain expert at the intersection of the incoming vehicles/ outgoing vehicles of the proposed project with NH 200 which is located at about 200 mtr from the project side.

xix) To undertake socio- economic study of the locality through the domain expert.

ITEM NO. 05

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR REDEVELOPMENT OF SCB MEDICAL COLLEGE & HOSPITAL, CUTTACK (PHASE-I) OVER AN AREA 136.36 AC OR 55.18 HA OF M/s ODISHA BRIDGE & CONSTRUCTION CORPORATION LIMITED OF SRI PRADIPTA KUMAR BAL – TOR

1. The proposal was considered by the Committee to determine the "Terms of Reference (ToR)" for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006 and amendment thereafter as the total built-up area exceeds 1.5 lakh m^2.
2. The proposal is for Environmental Clearance for Redevelopment of SCB medical College & Hospital, Cuttack (Phase-I) over an area 136.36 Ac or 55.18 Ha of M/s Odisha Bridge & Construction Corporation Limited of Sri Pradipta Kumar Bal.
3. The project falls under category "B" or activity 8(b) - Townships and Area Development projects under EIA Notification dated 14th September 2006 as amended from time to time.

4. Shri Ram Chandra Bhanja (SCB) Medical College and Hospital is an undergraduate as well as a postgraduate medical institution with a tertiary care referral hospital. The redevelopment and expansion of SCB medical campus is proposed to be undertaken across approximately 136 acres of land area located next to the Mahanadi River.

5. The re-development plan shall broadly include construction of 3500 bedded Multi Specialist Hospital, Research facilities, Residential Block, Hostel Block, Guest Room with Ancillary Infrastructures like Playgrounds, Parking Facilities, Open Landscaped Spaces, Five nos. of entry points and robust circulation plan, Amenities and Services for Patients and Visitors, Extensive waiting areas, dormitory, Aahaar centre etc.

6. **Location and Connectivity** - The Project Site is a part of the Survey of India Toposheet No F45T15 & F45T16. The site falls between Latitude-20° 28'48.59"N to 20° 28'10.44"N and Longitude-85° 53'51.58"E to 85° 53'26.64"E in plot no and Khata no - 142 to 651 Manglabag (full or part) 1831 to 1853 Buxi Bazar. Proposed Project Site is well connected to a network of existing Taladanda canal road at E and ring road at NW. The hospital has two entrances with a service road which connects the main entrance to the rear entrance. The same service road acts as connecting link between one part of the city with the other which is used by the patients and general public. The main entrance is through the Manglabag side which has two gates for entry and exit. SSE direction. (KTJI) Katha Jori Railway station is 2.13 km away from the project site towards – S direction. Charbatia Airship -13.7 km- N, Biju Pattanaik airport – 31.5 km –S,Ravenshaw University-1.2 Km –SSE, Barabati stadium- 2.08 km-NW, Barabati Fort: 2.72 KM –NW. NH-16/NH-55 – 2.7KM.

7. The site is coming under development plan of Cuttack Development Authority.

8. The total plot area is 5, 51,865 sqmtr or 136.37 Ac. or 55.18 Ha. and proposed super built-up area for phase-1(Existing + Proposed) = 781081.48 Sqm.

9. The Building Details of The Project:

Area Details - Proposed Buildings - Phase 1	
Building Name	**Total Built up Area (Sqm)**
Proposed Building	
Clinical	349543.00
Hostel	96328.93
Residential	170575.11
Other Facilities	9704.35
Total	**626151.39**

10. **Water requirement**: Total Water Requirement - 2757 KLD (Domestic + Flushing). Total Fresh Water Requirement - 2287 KLD; Source: water supply through PHED Supply, Cuttack .Total flushing water Requirement - 470 KLD; Source: Re-use of Treated water from STP.

11. **Wastewater Generation**: Total - 2298 KLD. Treated Wastewater to be reused - 470 KLD for Flushing, 71 KLD, for Green Belt Development, 15 KLD for HVAC etc. Capacity of Sewerage Treatment Plant - 2400 KL (MBBR Type) Capacity of Effluent Treatment Plant -135 KL (MBBR Type) Treated Wastewater Reuse - 2220 KLD Excess Wastewater discharge to nearest drain – 235 KLD (during Rainy Season).

12. **Power requirement**: Maximum Demand Load 25,568 KW /26,914 KVA Or Say 27 MVA & Source: - Supplied by TPCODL (Tata Power Central Odisha Distribution Limited). Solar Power - Maximum Demand Load through Solar Street Light, Water heater & other System. Back Up DG Set: 12 Nos. 2000 KVA, 415V DG Sets for Clinical Blocks, 6 Nos. 2000 KVA, 11KV DG Sets for HT Chillers, Boys & Girls Hostel and common area of Residential Blocks 415 Volt, Radiator Cooled DG Sets with stack height as per CPCB norms.(Recommended stack height is =h+0.2*√KVA=55 M).
13. **Rain Water Harvesting**: Total Runoff from Storm Water from Site is 22911 m^3 so based on 1no. Harvesting pit volume 43 cum, 135nos rain harvesting pits has been proposed.
14. **Parking Requirement**: Total parking area available is 162498 sq.mt./ 5106 ECS (30 % of total FAR Area as per ODA planning standards) i.e., 100,361 sq.mt./3084 ECS for clinical & 62,137.29 sq.mt. / 2022 ECS for residential at basement parking, stilt and surface parking. There will be separate Entry/ Exit Point. The internal traffic generated by visitors shall be regulated and managed through well laid road (more than 12 mtrs (R/W). in each side) and parking system in the campus. The road system has been designed in accordance with the ODA, NBC codes/regulations. Pavement shall be designed in accordance with the IRC standards and codes. Necessary signs and road furniture shall be provided to ensure regulation and smooth flow of traffic. Peripheral road around the building is 7.5 mtrs wide (minimum R/W).
15. **Fire fighting Installations**: Fire fighting system will be installed as per recommendation of the Fire fighting Officer, Odisha and as per the guidelines of NBC 2016. Hospital block-As per clause 3.1.4 of NBC-2016, the said Hospital is classified under group C; Institutional Buildings. Hostel block-As per clause 3.1.4 of NBC-2016, the said Hostel is classified under group A; in subdivision A-3 dormitories. Residential block:-As per clause 3.1.2 of NBC-2016, the said Residential is classified under group A; Residential Buildings.
16. **Green Belt Development**: Total Green Area measures 120192 sqm (approx. 21% of the Total Plot Area) which will be area under tree plantation & gardening. About 6900 nos. of trees will be planted. Preference will be given to native trees. Allergy causing trees will be avoided. 495 KLD of treated waste water will be used for watering of the plants and garden. Apart from this terrace pot plantation outside the boundary and along the approach road
17. **Solid Waste Management**: MSW-2.289 Ton/day [Biodegrable waste = 1.335 Ton/day+ Non-Biodegradable=0.888 Ton/day]. Solid waste disposal - in Integrated Composting Plant and as per Solid Waste Management Rules 2016.Total Hospital waste = 5.250 Ton/day [Biomedical waste =0.788 Ton/day. Segregation, Storage & Disposal as per Bio-medical Waste Management Rules 2016.
18. The estimated project cost is ` 3500 Crores.
19. The project proponent along with the consultant **M/s Visiontek Consultancy Services Pvt Ltd**., **Bhubaneswar** made a detailed presentation on the proposal.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar**, the SEAC prescribed the following specific ToRs in addition to standard ToRs as per **Annexure – C** for conducting detailed EIA study.

i) Detailed report on waste management i.e., collection and disposal of Biomedical waste, liquid waste and solid waste from the premises.

ii) Separate provision for STP and ETP and chemical analysis of output water in each with capacity of STP to be installed should be increased suitably at least by 20% to accommodate additional requirement.

iii) Whether Incineration will be done? if yes, details of waste to be incinerated.

iv) Distance and detailed layout of drainage system from project site to nearest drain and thereof outfall of drain.

v) Sample survey study for parking to be submitted. Traffic study from ring road to entry points. While arriving at Parking space in terms of ECS, an expert sample study needs to be undertaken for the existing hospital taking into consideration number of beds, hospital staff, residences, patient attendance and visitors beyond standard norms and extra polated for the proposed expansion. Traffic study at all five proposed entry points and entry and exit points interesting ring road by domain expert be undertaken and traffic decongestion if any observe as per study findings mitigation measures thereof be submitted

vi) Detailed plan for Environmental Monitoring Cell – an in-house permanent "Environment Management Cell" with Organogram and functions be submitted.

vii) Water logging issues how to resolve it in the project site.

viii) Proposal to increase in utility of treated waste water in premises and thereby reducing quantity of discharge to drain. Analysis report of treated waste water to be submitted.

ix) Increase in percentage of solar power usage.

x) Details of existing Fire safety measures and proposed.

xi) Details of earlier EC, Consent to Establish, Consent to Operate and Authorization issued and compliance to it.

xii) Kissam of the land of the proposed expansion and along with necessary documents from appropriate revenue authority be submitted.

xiii) Existing building under construction of 4099.77 sq.m as indicated be shown in the existing layout and the purpose be indicated.

xiv) Treated ETP waste as well as sludge need to be analyzed chemically (Chemical analysis) and accordingly, SOP of disposal to be submitted. ETP sludge is expected to be biologically toxic and hazardous.

xv) What is hospital waste? What are it's ingredients and a source of generation? How it is different from Bio- medical waste?

xvi) Layout with dimensions of storm water/ surface run off and waste water drains to be shown separately in the layout.

xvii) Due to unpredicted rainfall intensity, duration and frequency at least 20% increase in the dimension of the internal drain need to be in place to consultation and advice of domain expert.

xviii) Details of solar system with calculation item wise to be furnished.

xix) Location of DG sets with reference to wind direction vis-à-vis the location of the hospital and residential buildings and corresponding stack heights with installation of chimney drawings as per CPCV norm be submitted.

xx) What is the design of existing and proposed incinerator and details (ingredients) of non-bio degradable solid waste to be incinerated and disposal SOP of the residues of the incineration be submitted.

xxi) Each "zero discharge" possible are indicated in a term report.

xxii) A WTP, both for existing and propose expansion with detailed design be submitted.

xxiii) Structural stability of existing buildings of the existing hospital and residential buildings be submitted from authorized structural engineer.

Since, this is an important and critical project, the SEAC recommended that a site visit of sub-committee of SEAC to be made after issue of Terms of References (ToRs) by SEIAA, Odisha and observations of sub-committee to be communicated to SEIAA, Odisha to issue additional ToRs if any so that the observations can be addressed by the proponent during EIA / EMP study for a consensus decision.

Approved

31.08.2021

SECRETARY, SEAC

CHAIRMAN, SEAC

ANNEXURE – A

TERMS OF REFERENCE (ToR) FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT FOR M/S ODISHA MINERAL EXPLORATION CORPORATION (OMECL) FOR PROPOSED 2.0 MTPA IRON ORE PRODUCTION AT RENGALBEDA (NE) IRON ORE BLOCK OVER AN AREA OF 24.203 HA. LOCATED IN VILLAGE – NUAGAON & GANDHALPADA, TAHASIL - BARBIL, DISTRICT – KEONJHAR, ODISHA OF SRI. SHAILENDER KUMAR SINHA (DIRECTOR, GEOLOGY) - TOR

A. STANDARD TOR FOR MINING PROJECT

1. The Environmental Clearance will not be operational till such time the Project Proponent complies with all the statutory requirements and judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors..
2. Department of Mining & Geology, State Government shall ensure that mining operation shall not commence till the entire compensation levied, for illegal mining paid by the Project Proponent through their respective Department of Mining & Geology in strict compliance of judgment of Hon'ble Supreme Court dated the 2nd August 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India and Ors.
3. Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.
4. A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
5. All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
6. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
7. Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
8. Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
9. It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The

hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The 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, may also be detailed in the proposed safeguard measures in each case should also be provided.

10. The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

11. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

12. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

13. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

14. Status of forestry clearance for the broken-up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

15. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

16. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

17. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

18. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.

19. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area,

the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

20. Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.

21. Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects failing under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

22. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine (ease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

23. One season (non-monsoon) [i.e. March - May (Summer Season); October - December (post monsoon season) ; December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM_{10}, particularly for free silica, should be given.

24. Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

25. The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

26. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided,

28. Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

29. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater, Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter- alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

30. Details of any stream, seasonal or otherwise, passing through the tease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be.

31. Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.

32. A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

33. Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

34. Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

35. Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures

should be detailed along with budgetary allocations.

38. Measures of socio-economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

39. Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

40. Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

41. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

42. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

43. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

44. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

45. The activities and budget earmarked for Corporate Environmental Responsibility (CER) shall be as per MoEF&CC, Govt. of India O.M No 22-65/2017-IA. II (M) dated 01.05.2018 and the action plan on the activities proposed under CER shall be submitted at the time of appraisal of the project included in the EIA/EMP Report.

46. The Action Plan on the compliance of the recommendations of the CAG as per MoEF&CC, Govt. of India Circular No. J-11013/71/2016-IA.I (M), dated 25,10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.

47. Compliance of the MoEF&CC, Govt. of India Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgement of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report.

B. <u>Specific TOR:</u> Recommendation of CSIR-NEERI Report on "Carrying Capacity Study for Environmentally Sustainable Iron and Manganese Ore Mining Activity in Keonjhar, Sundargarh and Mayurbhanj districts of Odisha State"

1. Department of Steel & Mines, Govt, of Odisha <u>should prepare 5 years regional</u> <u>plan for annual iron ore requirement from the state, which in turn shall be</u> <u>met from different mines/zones (e.g. Joda, Koira.') in the state.</u> Accordingly, sustainable annual production (SAP) for each zone/mine may be followed adopting necessary environmental protection measures.

2. The expansion <u>or opening of new manganese ore mines may be considered</u> <u>only when the actual production of about 80% is achieved.</u> Further, <u>the mines</u> <u>that have not produced Mn ore for last two years and have no commitment in the</u> <u>current year as well: EC capacity in such cases may be reviewed. The</u> <u>Department of Steel & Mines. Govt, of Odisha shall submit the Annual Report on</u> <u>this issue to the MoEF&CC for further necessary action.</u>

3. Analysis of baseline environmental quality data for the year 2014 and 2016 indicates that existing mining activities appear to have little / no potential impact on environmental quality, except on air environment, which was mainly due to re-suspension of road dust. Therefore, all the working mines can continue to operate with strict compliance to monitoring of environmental quality parameters as per EC and CTE/CTO conditions of the respective mine, and implementation of suggested measures for control of road dust and air pollution. Odisha State Pollution Control Board has to ensure the compliance of CTE/CTO. Regional office of the MoEF&CC, Bhubaneswar shall monitor the compliance of the EC conditions. Regional office of the Indian Bureau of Mines (IBM) shall monitor the compliance of mining plan and progressive mine closure plan. Any violation by mine lease holder may invite actions per the provisions of applicable acts.

4. Considering the existing environmental quality, EC capacity, production rate, iron ore resources availability and transport infrastructure availability, the share of Joda and Koira sector works out to be 70% and 30% respectively for the existing scenario for the year 2015-16. However, for additional EC capacity, it can be 50:50 subject to commensurate infrastructure improvement (viz. SOTM. pollution free road transport, enhancement of rail network etc.) in the respective regions.

5. Continuous monitoring of different environmental quality parameters as per EC and CTE/CTO conditions with respect to air, noise, water (surface and ground water) and soil quality in each region shall be done. The environmental quality parameters should not indicate any adverse impact on the environment. Monitoring within the mines should be done by individual mine lease holders, whereas outside the mine lease area, monitoring should be done by the Govt, of Odisha through various concerned departments/ authorized agencies. Various monitoring/ studies should be conducted through national reputed institutes, NABET/ MoEF&CC accredited laboratories/organizations. The reports submitted by individual mine lease holders and study reports prepared by other concerned departments/agency for each of the regions should be evaluated and examined by SPCB/ MoEF&CC.

6. Construction of cement concrete road from mine entrance and exit to the main road with proper drainage system and green belt development along the roads and also construction of road minimum 300 m inside the mine should be done. This should be done within one year for existing mines and new mine should have since beginning. The concerned departments should extend full support; wherever the land does not belong to the respective mine lease holders. The Department of Steel & Mines, Govt, of Odisha should ensure the compliance and should not issue the Mining Permits, if mine lease holder has not constructed proper cement concrete road as suggested above.

7. In view of high dust pollution and noise generation due to road transport, it is proposed to regulate/guide the movement of iron and manganese ore material based on the EC capacity of the mines. Accordingly, ore transport mode has been suggested, as given below in Table.

Table : EC Capacity based Suggested Ore Transport Mode (SQTM)

Code	EC	Suggested Ore Transport Mode
SOTM 1	> 5 MTPA	100% by private railway siding or conveyor belt up to public railway siding or pipeline for captive mines and 70% for non-captive mines

Code	EC	Suggested Ore Transport Mode
SOTM 2	Between 3 and <5 MTPA	Minimum 70% by public railway siding, through conveyor belt and maximum 30% by road - direct to destination or other public railway siding or above option
SOTM 3	Between 1 and < 3 MTPA	Minimum 70% by public railway siding and maximum 30% by road - direct to destination or by other public railway siding or above options
SOTM 4	<1 MTPA	100 % by 10/17 Ton Trucks or above options

It is mentioned by State Govt, of Odisha that currently about 45% of the iron ore is despatched using rail network and progressively it will be increased to about 60% by rail/slurry over a period of 5 years, taking into account time required to set up more railway sidings.

In view of present ore transport practices and practical limitations, all the existing mines should ensure adoption of SQTM within next 5 years. New mines or mines seeking expansion should incorporate provision of SOTM in the beginning itself, and should have system in place within next 5 years. However, the State Govt, of Odisha shall ensure dust free roads in mining areas wherever the road transportation of mineral is involved. The road shoulders shall be paved with fence besides compliance with IRC guidelines. All the roads should have proper drainage system and apart from paving of entire carriage width the remaining right of way should have native plantation (dust capturing species). Further, regular maintenance should also be ensured by the Govt. of Odisha.

Transportation of iron & manganese ore through river (jetty) to nearest Sea port (Sea cargo option) may be explored or connecting Sea ports witn Railway network from the mines to be improved further so that burden on existing road and rail network and also pollution thereof can be minimized.

Progress on development of dust free roads, implementation of SOTM, increased use of existing rail network, development of additional railway network/conveyor belt/ pipelines etc. shall be submitted periodically to MoEF&CC and SEIAA, Odisha. Responsibility: Department of Steel & Mines, Govt. of Odisha; Time Period: 5 Years for developing railway/ conveyor belt facilities

8. Development of parking plazas for trucks with proper basic amenities/ facilities should be done inside mine. This should be done within one year for existing mines and new mines should have since beginning. Small capacity mines (in terms of lease area or production) not having enough space within the mine lease areas should develop parking plaza at a common place within the region with requisite facilities. Responsibility: Individual Mine Lease Holders; Time Period: 1 Year
9. Construction of NH 215 as minimum 4 lane road with proper drainage system and plantation and subsequent regular maintenance of the road as per IRC guidelines. Construction of other mineral carrying roads with proper width and drainage system along with road side plantation to be carried out. Responsibility: Department of Steel & Mines with PWD / NHAI Time Period: 2 Years.
10. Regular vacuum cleaning of all mineral carrying roads aiming at "Zero Dust Resuspension" may be considered. Responsibility: PWD / NHAI/ Mine Lease Holders; Time Period: 3 months for existing roads.

11. Expansion of existing mines and new mines should be considered after conducting recent EIA Study fas per the provisions of EIA Notification 2QQ6, as amended time to time1) with proper justification on demand scenario for iron ore requirement and availability of pollution free transport network in the region. Responsibility: IBM, Department of Steel & Mines and MoEF&CC, New Delhi.

12. **Mine-wise Allocation of Annual Production:** In case the total requirement of iron ore exceeds the suggested limit for that year, permission for annual production by an individual mine may be decided depending on approved EC capacity (for total actual dispatch) and actual production rate of individual mine during last year or any other criteria set by the State Govt., i.e. Dept, of Steel & Mines. Department of Steel and Mines in consultation with Indian Bureau of Mines-RO should prepare in advance mine-wise annual production scenario as suggested in Table, so that demand for iron ore can be anticipated, and actual production/dispatch does not exceed the suggested annual production.

Table: Allocation of Production to Different Mines for 5 Years (as per approved Mining Plan)

Mine Lease	EC Capacity (MTPA)	Suggested Annual Production (MT)				
		2016-17	2017- 18	2018-19	2019-20	2020-21
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Mine 1	XI					
Mine 2	X2					
Mine 3	X3					
Mine n	Xn					
Total	160 +	105	129	153	177	201
Next year allocation = Average of EC Capacity and Last year production						

13. Expansion of Existing Mines having Validity up to 2020: In view of implementation of MMDR Act 2015, wherein many non-captive mines are expected to be closed by March 2020, total iron ore production scenario has been. It is expected that the non-captive mines having validity till 2020 shall try to maximize their production (limited to EC capacity) in the remaining period. Further, depending upon availability of iron ore resources, these mines may also seek expansion of EC capacity. It may be noted here that total EC capacity of existing 25 working mines having validity upto 2020 is about 85 MTPA, whereas actual production from these mines has been only 44.677 MT (52.6%) during 2015-16 and 57.07 MT (67.1%) during 2016-17. Also, it is expected that these mines would not even be able to achieve ore production as per existing EC capacity till March 2020. Therefore, these existing mines should go for production to the fullest extent to meet the requisite demand from the State. However, where EC limit is exhausted, application for expansion may be considered. Further, the EC process (i.e. Grant of TOR, Baseline data collection, Mining plan/ scheme approval, Public hearing, preparation of EIA/EMP Report. Appraisal by the EAC and grant of EC) takes about one year time. Under such circumstances, it is suggested that further applications for grant of TOR or grant of EC for expansion of production capacity of the mine should be considered for those existing mines, which have exhausted their capacity subject to consideration of all environmental aspects. Responsibility: Department of Steel & Mines and MoEF&CC, New Delhi.

14. **Sustained Iron Ore Production beyond 2020:** Considering the implementation of MMDR Act 2015, total production of iron ore in Odisha State is anticipated to be about 111 MT during 2016-17 (actual production was - 102.663 MT), 136 MT during 2017-18, 146 MT during 2018-19 and 146 MT during 2019-20. Then there will be substantial drop in total production (to the tune of 73 MT during 2020-21 onwards) due to closure of mines, which are valid up to 2020. Therefore, in order to maintain operation/sustained growth of downstream industries, iron ore mining in the region needs to be continued at a sustainable rate. The State Govt. through Department of Steel and Mines should initiate appropriate action to ensure continued availability of iron ore from the region, as per suggested sustainable annual production

15. **Reserves Estimation**-Mining Plan and Exploration; Appropriate actions (geo- technical investigation for qualitative and quantitative resource estimation & other preparations for auction of mines), may be initiated taken into account the existing working mines, and the mines which were operational at some point of time (but closed presently due to various reasons). The total iron ore reserves/ resources available within the total lease area of each mine should be estimated by State Govt./NMET/ GSI (or any other approved agency) with respect to: (i) Total lease area of mine (surface), (ii) Maximum depth to which resources could be available, (iii) Resources below the ground water table (if intersected), (iv) Reserves are to be estimated as per UNFC code with respect to quantity and quality (% Fe content), (v) Maximum mining rate and area for auction (after 2020) will be calculated based on total resources available and proposed life of mine leading to closure of mine in a stipulated time period. Responsibility: Department of Steel & Mines, IBM and GSI; Time frame: 1 year for the mines to be auctioned for next 2 years. The above mentioned organizations shall ensure the compliance with respect to timelines for implementations.

16. Depending upon availability of extractable iron ore resources within a mine, mining below the ground water table may be permitted after conducting necessary geological and hydro-geological study by GSI and requisite approval from the CGWB/CGWA (Central Ground Water Board/Authority). This can be explored at least in few mines on trial/pilot basis. Further, within a mine, it will be desirable to operate one pit at a time, and next pit should be opened after extracting maximum possible resources from the first pit, so that the exhausted pit can be used for back filling/ storing of low grade iron ore. However, depending upon the quantity and/or quality of iron/ manganese ore, other mine pits in the same mine lease may also be opened for sustainable scientific mining, as per approved mining plan/scheme of mining by IBM. The Department of Steel & Mines, Govt. of Odisha should initiate the pilot project so that minerals are fully utilized.

17. **Commercial Utilization of Low Grade Ore:** R&D studies towards utilization of low-grade iron ore should be conducted through research/academic institutes like IMMT, Bhubaneswar, NML, Jamshedpur, and concerned metallurgical departments in IITs, NITs etc., targeting full utilization of low-grade iron ore (Fe content upto 45% by 2020 and upto 40% by 2025). In fact, life cycle assessment of whole process including environmental considerations should be done for techno-economic and environmental viability. R&D studies on utilization of mine wastewater having high concentration of Fe content for different commercial applications in industries such as cosmetics, pharmaceutical, paint industry should also be explored. Responsibility: IBM, Dept, of Steel & Mines, Individual Mine Lease Holders.

18. The mining activity in Joda-Koira sector is expected to continue for another 100 years, therefore, it will be desirable to develop proper rail network in the region. Rail transport shall not only be pollution free mode but also will be much economical option for iron ore transport. The rail network and/or conveyor belt system upto public railway siding needs to be created. The total length of the conveyor belt system/ rail network to be developed from mines to nearest railway sidings by 11 mines in Joda region is estimated to be about 64 km. Similarly, in Koira region, total length of rail network/ conveyor system for 8 mines (under SOTM 1 & 2) is estimated to be around 95 km. Further, it is suggested to develop a rail network connecting Banspani (Joda region) and Roxy railway sidings in Koira region. Responsibility: Dept, of Steel & Mines, Govt, of Odisha and Concerned Mines along with Indian Railways. Time Period: Maximum 7 years (by 2025). The Department of Steel & Mines. Govt, of Odisha should follow-up with the concerned Departments and railways so that proposed proper rail network is in place by 2025.

19. State Govt, of Odisha shall make all efforts to ensure exhausting all the iron & manganese ore resources in the existing working mines and from disturbed mining leases/zones in Joda and Koira region. The criteria suggested shall be applicable while suggesting appropriate lease area and sustainable mining rate. Responsibility: Dept, of Steel & Mines, Govt, of Odisha.

20. Large and medium mine leases contribute to better implementation of reclamation and rehabilitation plans to sustain the ecology for scientific and sustainable mining. The small leases do not possess scientific capability of environmentally sustainable mining. Therefore, new mine leases having more than 50 ha area should be encouraged, as far as possible. This will ensure inter-generational resource availability to some extent. Responsibility: Dept, of Steel & Mines, Govt, of Odisha.

21. **Mining Operations/Process Related:** (i) Appropriate mining process and machinery (viz. right capacity, fuel efficient) should be selected to carry out various mining operations that generate minimal dust/air pollution, noise, wastewater and solid waste, e.g. drills should either be operated with dust extractors or equipped with water injection system, (ii) After commencement of mining operation, a study should be conducted to assess and Quantify emission load generation (in terms of air pollution, noise, waste water and solid wasted from each of the mining activity (Including transportation) on annual basis. Efforts should be made to further eliminate/ minimize generation of air pollution/dust, noise, wastewater, solid waste generation in successive years through use of better technology. This shall be ensured by the respective mine lease holders, (iii) Various machineries/equipment selected (viz. dumpers, excavators, crushers, screen plants etc.) and transport means should have optimum fuel/power consumption, and their fuel/power consumption should be recorded on monthly basis. Further, inspection and maintenance of all the machineries/ equipment/ transport vehicles should be followed as per manufacturer's instructions/ recommended time schedule and record should be maintained by the respective mine lease holders, (iv) Digital processing of the entire lease area using remote sensing technique should be carried out regularly once in 3 years for monitoring land use pattern and mining activity taken place. Further, the extent of pit area excavated should also be demarcated based on remote sensing analysis. This should be done by ORSAC (Odisha Space Applications Centre, Bhubaneswar) or an agency of national repute or if done by a private agency, the report shall be vetted/ authenticated by ORSAC, Bhubaneswar. Expenses towards the same shall be borne by

the respective mine lease holders. Responsibility: Individual Mine Lease Holders.

22. **Air Environment Related:** (i) Fugitive dust emissions from all the sources should be controlled regularly on daily basis. Water spraying arrangement on haul roads, loading and unloading and at other transfer points should be provided and properly maintained. Further, it will be desirable to use water fogging system to minimize water consumption. It should be ensured that the ambient air quality parameters conform to the norms prescribed by the GPCB in this regard, (ii) The core zone of mining activity should be monitored on daily basis. Minimum four ambient air quality monitoring stations should be established in the core zone for SPM, PM10. PM2.5, SQ2, NCb^ and CO monitoring. Location of air quality monitoring stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board (based on Emission Load Assessment Study). The number of monitoring locations may be more for larger capacity mines and working in larger area. Out of four stations, one should be online monitoring station in the mines having more than 3 MTPA EC Capacity, (iii) Monitoring in buffer zone should be carried out by SPCB or through NABET accredited agency. In addition, air quality parameters (SPM, PMiO, PM2.5, S02, NOx and CO) shall be regularly monitored at locations of nearest human habitation including schools and other public amenities located nearest to source of the dust generation as applicable. Further, 11 continuous air quality monitoring systems may be installed in Joida and Koira regions and one in Baripada/ Rairangpur region, (iv) Emissions from vehicles as well as heavy machinery should be kept under control and regularly monitored. Measures should be taken for regular maintenance of vehicles used in mining operations and in transportation of mineral, (v) The vehicles shall be covered with a tarpaulin and should not be overloaded. Further, possibility of 3 using closed container trucks should be explored for direct to destination movement of iron ore. Air quality monitoring at one location should also be carried out along the transport route within the mine (periodically, near truck entry and exit gate).Responsibility: Individual Mine Lease Holders and SPCB.

23. **Noise and Vibration Related:** (i) Blasting operation should be carried out only during daytime. Controlled blasting such as Nonel, should be practiced. The mitigation measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented, (ii) Appropriate measures (detailed in Section 5.4) should be taken for control of noise levels below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc. should be provided with ear plugs/muffs, (iii) Noise levels should be monitored regularly (on weekly basis) near the major sources of noise generation within the core zone. Further, date, time and distance of measurement should also be indicated with the noise levels in the report. The data should be used to map the noise generation from different activities and efforts should be made to maintain the noise levels with the acceptable limits of CPCB (CPCB, 2000) (iv) Similarly, vibration at various sensitive locations should be monitored atleast once in month, and mapped for any significant changes due to successive mining operations. Responsibility: Individual Mine Lease Holders.

24. **Water/Wastewater Related :** (i) In general, the mining operations should be restricted to above ground water table and it should not intersect groundwater table.

However, if enough resources are estimated below the ground water table, the same may be explored after conducting detailed geological studies by GSI and hydro- geological studies by CGWB or NIH or institute of national repute, and ensuring that no damage to the land stability/ water aquifer system shall happen. The details/ outcome of such study may be reflected/incorporated in the EIA/EMP report of the mine appropriately, (ii) Natural watercourse and/or water resources should not be obstructed due to any mining operations. Regular monitoring of the flow rate of the springs and perennial nallas should be carried out and records should be maintained. Further, regular monitoring of water quality of nallas and river passing thorough the mine lease area (upstream and downstream locations) should be carried out on monthly basis, (iii) Regular monitoring of ground water level and its quality should be carried out within the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out on monthly basis, (iv) In order to optimize water requirement, suitable conservation measures to augment ground water resources in the area should be undertaken in consultation with Central Ground Water Board (CGWB). (v) Suitable rainwater harvesting measures on long term basis should be planned and implemented in consultation with CGWB, to recharge the ground water source. Further, CGWB can prepare a comprehensive plan for the whole region, (vi) Appropriate mitigation measures (viz. ETP, STP, garland drains, retaining walls, collection of runoff etc.) should be taken to prevent pollution of nearby river/other water bodies. Water quality monitoring study should be conducted by State Pollution Control Board to ensure quality of surface and ground water sources on regular basis. The study can be conducted through NABL/ NABET approved water testing laboratory. However, the report should be vetted by SPCB. (vii) Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP so as to conform to the discharge standards applicable, (viii) Oil and grease trap should be installed before discharge of workshop effluents. Further, sewage treatment plant should be installed for the employees/colony, wherever applicable, (ix) Mine lease holder should ensure that no silt originating due to mining activity is transported in the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt should be undertaken. Quantity of silt/soil generated should be measured on regular basis for its better utilization, (x) Erosion from dumps site should be protected by providing geo-textile matting or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Further, dumps should be protected by retaining walls.(xi) Trenches / garland drain should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams should be constructed across seasonal/perennial nallas (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis, (xii) The water so collected in the reservoir within the mine should be utilized for the sprinkling on hauls roads, green belt development etc. (xiii) There should be zero waste water discharge from the mine. Based on actual water withdrawal and consumption/ utilization in different activities, water balance diagram should be prepared on monthly basis, and efforts should be made to optimize consumption of water per ton of ore production in successive years. Responsibility: Individual Mine Lease Holders, SPCB and CGWB.

25. **Land/ Soil/ Overburden Related** : (i) The top soil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years

or as per provisions mentioned in the mine plan/ scheme). The topsoil should be used for land reclamation and plantation appropriately, (ii) Fodder plots should be developed in the non-mineralised area in lieu of use of grazing land, if any. (iii) Over burden/ low grade ore should be stacked at earmarked dump site(s) only and should not be kept active for longperiod. The dump height should be decided on case to case basis, depending on the size of mine and quantity of waste material generated. However, slope stability study should be conducted for larger heights, as per IBM approved mine plan and DGMS guidelines. The OB dump should be scientifically vegetated with suitable native species to prevent erosion and surface run off. In critical areas, use of geo textiles should be undertaken for stabilization of the dump. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. Proper records should be maintained regarding species, their growth, area coverage etc, (iv) Catch drains and siltation ponds of appropriate size should be constructed to arrest silt and sediment flows from mine operation, soil, OB and mineral dumps. The water so collected can be utilized for watering the mine area, roads, green belt development etc. The drains should be regularly de-silted, particularly after monsoon and should be maintained properly. Appropriate documents should be maintained. Garland drain of appropriate size, gradient and length should be constructed for mine pit, soil. OB and mineral dumps and sump capacity should be designed with appropriate safety margin based on long term rainfall data. Sump capacity should be provided for adequate retention period to allow proper settling of silt material. Sedimentation pits should be constructed at the corners of the garland drains and de-silted at regular intervals, (v) Backfilling should be done as per approved mining plan/scheme. There should be no OB dumps outside the mine lease area. The backfilled area should be afforested, aiming to restore the normal ground level. Monitoring and management of rehabilitated areas should continue till the vegetation is established and becomes self-generating, (vi) Hazardous waste such as, waste oil, lubricants, resin, and coal tar etc. should be disposed off as per provisions of Hazardous Waste Management Rules, 2016, as amended from time to time. Responsibility: Individual Mine Lease Holders.

26. **Ecology/Biodiversity (Flora-Fauna) Related:** (i) As per the Red List of IUCN (International Union for Conservation of Nature), six floral species and 21 faunal species have been reported to be under threatened, vulnerable & endangered category. Protection of these floral and faunal species should be taken by the State Forest & Wildlife Department on priority, particularly in the mining zones, if any, (ii) The mines falling within 5-10 km of the Karo- Karampada Elephant corridor buffer need to take precautionary measures during mining activities. The forest and existing elephant corridor routes are to be protected and conserved. Improvement of habitat by providing food, water and space for the elephants is required to be ensured to avoid Man- Elephant conflicts. Though as per the records of State Forest Department, movement of elephants in the Karo-Karampada elephant corridor within 10 km distance from the mines in Joda and Koira is not observed, the Forest Department shall further record and ensure that elephant's movement is not affected due to mining activities, (iii) All precautionary measures should be taken during mining operation for conservation and protection of endangered fauna namely elephant, sloth bear etc. spotted in the study area. Action plan for conservation of flora and fauna should be prepared and implemented in consultation with the State Forest and Wildlife Department within the mine lease area, whereas outside the mine lease area, the same should be maintained by State Forest Department, (iv) Afforestation is to be done by using local and mixed species saplings within and outside the mining lease area. The

reclamation and afforestation is to be done in such a manner like exploring the growth of fruit bearing trees which will attract the fauna and thus maintaining the biodiversity of the area. As afforestation done so far is very less, forest department needs to identify adequate land and do afforestation by involving local people in a time bound manner, (v) Green belt development carried out by mines should be monitored regularly in every season and parameters like area under vegetation/plantation, type of plantation, type of tree species /grass species/scrubs etc., distance between the plants and survival rate should be recorded, (vi) Green belt is an important sink of air pollutants including noise. Development of green cover in mining area will not only help reducing air and noise pollution but also will improve the ecological conditions and prevent soil erosion to a greater extent. Further, selection of tree species for green belt should constitute dust removal/dust capturing plants since plants can act as efficient biological filters removing significant amounts of particulate pollution. Thus, the identified native trees in the mine area may be encouraged for plantation. Tree species having small leaf area, dense hair on leaf surface (rough surface), deep channels on leaves should be included for plantation, (vii) Vetiver plantation on inactive dumps may be encouraged as the grass species has high strength of anchoring besides medicinal value, (viii) Details of compensatory afforestation done should be recorded and documented by respective forest divisions, and State Forest Department should present mine-wise annual status, along with expenditure details, (ix) Similarly, Wildlife Department is also required to record and document annual status of wildlife in the region and should identify the need for wildlife management on regional level, (x) Maintenance of the ecology of the region is prime responsibility of the State Forest and Wildlife Department. They need to periodically review the status and identify the need for further improvement in the region. The required expenditure may be met from the funds already collected in the form of compensatory afforestation and wildlife management. Further, additional fund, if required can be sought from DMF. Responsibility: Individual Mine Lease Holders and State Forest & Wildlife Department.

27. **Socio-Economic Related:** (i) Public interaction should be done on regular basis and social welfare activities should be done to meet the requirements of the local communities. Further, basic amenities and infrastructure facilities like education, medical, roads, safe drinking water, sanitation, employment, skill development, training institute etc. should be developed to alleviate the quality of life of the people of the region, (ii) Land outees and land losers/affected people, if any, should be compensated and rehabilitated as per the national/state policy on Resettlement and Rehabilitation, (iii) The socioeconomic development in the region should be focused and aligned with the guidelines/initiatives of Govt, of India/ NITI Aayog / Hon'ble Prime Minister's Vision centring around prosperity, equality, justice, cleanliness, transparency, employment, respect to women, hope etc. This can be achieved by providing adequate and quality facilities for education, medical and developing skills in the people of the region. District administration in association with mine lease holders should plan for *"Samagra Vikas"* of these blocks well as other blocks of the district. While planning for different schemes in the region, the activities should be prioritized as per Pradhan Mantri Khanij Kshetra Kalyan Yojna (PMKKKY), notified by Ministry of Mines, Govt, of India, vide letter no. 16/7/2017-M.VI (Part), dated September 16, 2015. Responsibility: District Administration and Individual Mine Lease Holders.

28. **Road Transport Related:** (i) All the mine lease holders should follow thesuggested ore transport mode (SOTM\ based on its EC capacity within next 5 years, (ii) The

mine lease holders should ensure construction of cement road of appropriate width from and to the entry and exit gate of the miner as suggested in Chapter 10. Further, maintenance of all the roads should be carried out as per the requirement to ensure dust free road transport, (iii) Transportation of ore should be done bv covering the trucks with tarpaulin or other suitable mechanism so that no spillage of ore/dust takes place. Further, air quality in terms of dust, PMin should be monitored near the roads towards entry & exit gate on regular basis, and be maintained within the acceptable limits. Responsibility: Individual Mine Lease Flolders and Dept, of Steel & Mines.

29. **Occupational Health Related:** (i) Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects periodically, (ii) Occupational health surveillance program for all the employees/workers (including casual workers) should be undertaken periodically (on annual basis) to observe any changes due to exposure to dust, and corrective measures should be taken immediately, if needed, (iii) Occupational health and safety measures related awareness programs including identification of work related health hazard, training on malaria eradication, HIV and health effects on exposure to mineral dust etc., should be carried out for all the workers on regular basis. A full time qualified doctor should be engaged for the purpose. Periodic monitoring (on 6 monthly basis) for exposure to respirable minerals dust on the workers should be conducted, and record should be maintained including health record of all the workers. Review of impact of various health measures undertaken (at an interval of 3 years or less) should be conducted followed by follow-up of actions, wherever required. Occupational health centre should be established near mine site itself. Responsibility: Individual Mine Lease Holders and District Administration (District Medical Officer),

30. **Reporting of Environmental Sustainability Achievement:** All the mines should prepare annual environmental sustainability report (ESR), highlighting the efforts made towards environmental protection with respect to different environmental components vis-a-vis production performance of the mine on monthly basis. The data collected as per EC and CTE/CTO conditions should be utilized to prepare the annual sustainability report. The mines performing high with effective environmental safeguards may be suitably recognized/rewarded. "Star Rating Format" formulated by the Ministry of Mines along with environmental sustainability report may be used,

31. **Environmental Monitoring Requirements at Regional Level:** Apart from strict compliance and monitoring by individual mine lease holder, there is a need for simultaneous monitoring in each of the regions by competent expert agencies under the guidance/ supervision of concerned regulatory agency. Details of the studies required to be done on regular basis (continuously for 5 years) through responsible agency (organization of national/state repute) and time frame are suggested in Table.

Table: Suggested Environmental Monitoring Requirements and Action Plans at

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
1.	Environmental Quality Monitoring with respect to Air, Water, Noise and Soil	SPCB	Continuous Annually

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
	Quality in each region (Joda, Koira and Baripada/Rairangpur) as per specified frequency shall be done by a third party (preferably Govt.) and/or laboratory approved/ recognized by NABET/ CPCB/ SPCB/ MoEF&CC. All the water bodies (rivers, nalias, ponds etc.) shall be monitored. National/State level research/ academic institutes may be involved initially for couple of years to streamline the activity. The report shall be brought out annually by June each year. The study shall be conducted in consultation with MoEF&CC-RO.		
	Installation of online ambient air quality monitor for PM1 0. PMP.S, SOx and NOx within the mine havina more than 3 MTPA EC Caoacitv	Respective Mine Lease Holders	Continuous Annually
	Installation of online ambient air quality monitor for PM_{10}, $PM_{2.5}$, SOx and NOx in the Joda and Koira Region (total 11 locations.	SPCB	Continuous Annually
2.	Status of flora and fauna in each of the regions shall be assessed on annual basis. Changes, if any, taking place in the region shall be brought out clearly. The study shall be conducted in consultation with State Forest and Wildlife Department.	State Forest & Wildlife Dept.	Annually in mining zone and once in 3 years in the region
3.	Socio-economic study incorporating developments taking place in each of the region, CSR initiatives made by the mining companies shall be conducted on annual basis. Further, micro level developmental needs shall be clearly brought out in the report for each region. The study shall be conducted in consultation with district administration.	Respective District Administration	Annually
4.	A detailed hydro-geological study in each of the regions shall be	SPCB	Once in 2 years

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
	conducted in an integrated manner in consultation with Regional Director, Central Ground Water Board. Accordingly, all project proponents shall implement suitable conservation measures to augment ground water resources in the area.		
5.	The State Govt. shall ensure construction and maintenance of dust free common roads/ appropriate rail network for transport of ore from mines to the consumer end.	Dept. of Steel & Mines	12 months for road network and 5-7 years for rail network
6.	Construction and maintenance of dust free roads from respective mine to the main road	Respective Mine Lease Holders	Continuous 6 months
7.	Traffic/road inspection study addressing the condition of traffic/roads leading to different mines and connecting to different railway sidings shall be undertaken on annual basis. Further, detailed traffic study shall be undertaken on every 5 yearly basis to ensure adequacy of road/rail infrastructure in each of the regions. The study can be undertaken through national/ state level research/ academic institute (such as CSIR-CRRI, New Delhi).	Dept. of Steel & Mines	Continuous 6 months
8.	Assessment of land use/ land cover changes in each of the regions, with particular focus on mining areas, afforestation activities, variation in flow path of various water bodies etc. using remote sensing data	ORSAC	Annually
9.	R&.D Studies for utilization of low-grade iron ore	Dept. of Steel & Mines through R&D / Academic Institutes	Upto 45% by 2020 and upto 40% by 2025

The data so generated for the region should be made available on the website of Department of Steel & Mines and also at MoEF&CC website, so that it can be effectively utilized by Individual Mine Lease Holders for preparing EIA/ EMP reports. This will meet the requirement for separate one season baseline environmental quality data collection by the individual proponents, if the mine proposed is in the same study region. Further. MoEF&CC fthrouah EAC1 can also utilize the data base available in evaluating the proposals for

expansion of existing mines or new mines while granting ToR or EC to the mine, taking an holistic view of the region. State Govt, of Odisha should bring out an integrated environmental sustainability report for each of the regions (mainly for Joda and Koia region) incorporating ESR of individual mines and data collected in the region through various agencies, once in 5 years, to plan level of scientific and sustainable mining for the next 5 years.

32. Institutional Mechanism for Implementation of Environmentally Sustainable Mining: The present study is not a one-time study, but a process to ensure environmentally sustainable mining activities in the region on long term basis. Looking into the large-scale mining activities and long term perspective for mining vis-a-vis environmentally sustainable mining and upiiftment of people of the region, there is a need to create an agency, who will integrate all the aspects relating to sustainable mining in the region on long term basis. It could be a SPV of Govt, of Odisha or a cell within the overall control and supervision of Dept, of Steel & Mines, with members from

    IBM, GSI, OSPCB, MoEF&CC-RO and other concerned Departments and Mine Owners (EZMA), District Administration. It is found that the strong database available for the region needs to be taken into account to map and establish environmental quality of the region on daily, monthly, seasonal and annual basis. Further, the efforts and initiatives of the mines towards environmental protection as well as upliftment of the people of the region are required to be integrated, and a systematic plan at the block/regional level needs to be framed for the overall benefit of the local society, region, district, state and the country as a whole. It will be desirable to have proper environmental quality data management and analysis by NEERI or any other agency for next 5 years (six monthly compliance reports followed by field verification) ensuring sustainable mining practices in the region leading to an overall development of the region. District Mineral Funds should be utilized appropriately for various developmental activities/needs of the region. Further, an environmental sustainability report incorporating environmental status of region coupled with social upliftment may be brought out by SPCB or any other authorized agency on annual basis. This report can be used for supporting the regional EIA study, and also need for environmental quality monitoring by individual mine seeking environmental clearance for new mine/ expansion of mine, including public hearing. Since, outcome of the above study reports shall be in the overall interest of all the stakeholders (including local population) of the region, further planning for the region shall warrant cooperation and assistance of all the stakeholders (mine operators, industries, transporters, State & Centra! Government Offices, MoEF&CC, CPCB, SPCB, Dept, of Steel & Mines, IBM, IMD, NGOs and local people) in sharing the relevant data/information/ reports/documents etc. to continuously improve upon the environmentally sustainable development plan for economic growth in mining sector as well as for improvement in quality of life of the people of the region.

C. Besides the above, the below mentioned genera! points are also to be followed:-

a) All documents to be properly referenced with index and continuous page numbering.

b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original

analysis/testing reports should be available during appraisal of the Project.

d) Where the documents provided are in a language other than English, an English translation should be provided.

e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006- IA.II (I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

h) As per the circular no. J-11011/618/2010-IA.II (I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) Sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

D. The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report.

ANNEXURE-B

STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR M/s UTKAL HYDROCARBON PVT. LTD. FOR GREENFIELD PROJECT ON COAL TAR DISTILLATION OF CAPACITY – 180,000 TPA; PHASE-I 60,000 TPA COAL TAR DISTILLATION PROJECT (TO MANUFACTURE 31,200 TPA COAL TAR PITCH,; 15,000 TPA WFO & 12,000 TPA ANTHRACENE OIL) AND PHASE-II 120,000 TPA COAL TAR DISTILLATION PROJECT (TO MANUFACTURE 62,400 TPA COAL TAR PITCH,; 30,000 TPA WFO; 24,000 TPA ANTHRACENE OIL) LOCATED AT VILLAGE - SIRIAPALI PS & TAHASIL - KOLABIRA, DISTRICT - JHARSUGUDA, ODISHA OF DEEPAK AGARWAL (DIRECTOR) - TOR

1) **Executive Summary**

2) **Introduction**

i. Details of the EIA Consultant including NABET accreditation

ii. Information about the project proponent

iii. Importance and benefits of the project

3) **Project Description**

i. Cost of project and time of completion.

ii. Products with capacities for the proposed project.

iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.

iv. List of raw materials required and their source along with mode of transportation.

v. Other chemicals and materials required with quantities and storage capacities

vi. Details of Emission, effluents, hazardous waste generation and their management.

vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)

viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided

ix. Hazard identification and details of proposed safety systems.

x. **Expansion/modernization proposals:**

a) Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of

compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing / existing operation of the project from SPCB shall be attached with the EIA-EMP report.

b) In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification, 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

4) **Site Details**

i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification

for selecting the site, whether other sites were considered.

ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places)

iii. Details w.r.t. option analysis for selection of site

iv. Co-ordinates (lat-long) of all four corners of the site.

v. Google map-Earth downloaded of the project site.

vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.

vii. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.

viii. Landuse break-up of total land of the project site (identified and acquired), government/ private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)

ix. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area

x. Geological features and Geo-hydrological status of the study area shall be included.

xi. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)

xii. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.

xiii. R&R details in respect of land in line with state Government policy

5) **Forest and wildlife related issues (if applicable):**

i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable)

ii. Land use map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (in case of projects involving forest land more than 40 ha)

iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.

iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-a-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon

v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area

vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife.

6) **Environmental Status**

i. Determination of atmospheric inversion level at the project site and site-specific micro- meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.

ii. AAQ data (except monsoon) at 8 locations for PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.

iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with - min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.

iv. Surface water quality of nearby River (100m upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.

v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.

vi. Ground water monitoring at minimum at 8 locations shall be included.

vii. Noise levels monitoring at 8 locations within the study area.

viii. Soil Characteristic as per CPCB guidelines.

ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.

x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule- I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.

xi. Socio-economic status of the study area.

7) **Impact and Environment Management Plan**

i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.

ii. Water Quality modelling - in case of discharge in water body.

iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor- cum-rall transport shall be examined.

iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.

v. Details of stack emission and action plan for control of emissions to meet standards.

vi. Measures for fugitive emission control

vii. Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.

viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.

ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be

incorporated.

x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.

xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.

xii. Action plan for post-project environmental monitoring shall be submitted.

xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

8) **Occupational health**

i. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers

ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre-placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above-mentioned parameters as per age, sex, duration of exposure and department wise.

iii. Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,

iv. Annual report of heath status of workers with special reference to Occupational Health and Safety.

9) **Corporate Environment Policy**

i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.

ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.

iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.

iv. Does the company have 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? This reporting mechanism shall be detailed in the EIA report

10) Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.

11) **Enterprise Social Commitment (ESC)**

i) Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.

12) Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.

13) A tabular chart with index for point wise compliance of above TOR.

14) **The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report.**

Environmental Scientist, SEAC

ANNEXURE-C

STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR REDEVELOPMENT OF SCB MEDICAL COLLEGE & HOSPITAL, CUTTACK (PHASE-I) OVER AN AREA 136.36 AC OR 55.18 HA OF M/s ODISHA BRIDGE & CONSTRUCTION CORPORATION LIMITED OF SRI PRADIPTA KUMAR BAL – TOR

1) Examine details of land use as per Master Plan and land use around 10 km radius of the project site. Analysis should be made based on latest satellite imagery for land use with raw images. Check on flood plain of any river.

2) Submit details of environmentally sensitive places, land acquisition status, rehabilitation of communities/ villages and present status of such activities.

3) Examine baseline environmental quality along with projected incremental load due to the project.

4) Environmental data to be considered in relation to the project development would be (a) land, (b) groundwater, (c) surface water, (d) air, (e) bio-diversity, (f) noise and vibrations, (g) socio economic and health.

5) Submit a copy of the contour plan with slopes, drainage pattern of the site and surrounding area. Any obstruction of the same by the project

6) Submit the details of the trees to be felled for the project.

7) Submit the present land use and permission required for any conversion such as forest, agriculture etc.

8) Submit Roles and responsibility of the developer etc. for compliance of environmental regulations under the provisions of EP Act.

9) Ground water classification as per the Central Ground Water Authority.

10) Examine the details of Source of water, water requirement, use of treated waste water and prepare a water balance chart.

11) Rain water harvesting proposals should be made with due safeguards for ground water quality. Maximize recycling of water and utilization of rain water. Examine details.

12) Examine soil characteristics and depth of ground water table for rainwater harvesting.

13) Examine details of solid waste generation treatment and its disposal.

14) Examine and submit details of use of solar energy and alternative source of energy to reduce the fossil energy consumption. Energy conservation and energy efficiency.

15) DG sets are likely to be used during construction and operational phase of the project. Emissions from DG sets must be taken into consideration while estimating the impacts on air environment. Examine and submit details.

16) Examine road/rail connectivity to the project site and impact on the traffic due to the proposed project. Present and future traffic and transport facilities for the region should be analyzed with measures for preventing traffic congestion and providing faster trouble-free system to reach different destinations in the city.

17) A detailed traffic and transportation study should be made for existing and projected passenger and cargo traffic.

18) Examine the details of transport of materials for construction which should include source and availability.

19) Examine separately the details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters.

20) Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster.

21) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

22) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

23) **The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report.**