

**PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL
COMMITTEE, ODISHA HELD ON 09TH FEBRUARY 2024**

The SEAC met on 09th February 2024 at 10:30 AM in the Conference Hall of Odisha State Pollution Control Board, Bhubaneswar under Chairmanship (Working) of Prof. (Dr.) B.K. Satpathy. The following members were present in the meeting.

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|------------------------------|---|---------------------|
| 1. Prof. (Dr.) B.K. Satpathy | - | Chairman (Working) |
| 2. Dr. K. Murugesan | - | Member Secretary |
| 3. Dr. Rabi Narayan Patra | - | Member |
| 4. Prof. (Dr.) H.B. Sahu | - | Member (through VC) |
| 5. Prof. (Dr.) Abanti Sahoo | - | Member (through VC) |
| 6. Er. Fakir Mohan Panigrahi | - | Member (through VC) |
| 7. Er. Kumuda Ranjan Acharya | - | Member |
| 8. Shri Jayant Kumar Das- | | Member (through VC) |
| 9. Dr. Ashok Kumar Sahu- | | Member |
| 10. Dr. K. C. S Panigrahi | - | Member (through VC) |

Draft proceedings of the meeting was finalized by the members through e-mail and final proceedings of the meeting was confirmed by the members through e-mail. The agenda-wise proceedings and recommendations of the committee are detailed below.

ITEM NO. 01

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S. FLUX MINERALS FOR RARUANGUDA QUARTZITE BLOCK OVER AN AREA OF 25.406 HA. FOR THE PRODUCTION OF 0.551 MTPA QUARTZITE ALONG WITH 50 TPH PROCESSING UNIT AT VILLAGE - RARUANGUDA, TAHASIL-CHAMPUA, DIST- KEONJHAR OF SRI SIDDHARTH SARDA - 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. This proposal is for Terms of Reference (ToR) for obtaining Environmental Clearance of M/s. Flux Minerals for Raruanguda Quartzite Block over an area of 25.406 Ha. for the production of 0.551 MTPA quartzite along with 50 TPH processing unit at village: Raruanguda, Tehsil-Champua, Dist- Keonjhar of Sri Siddharth Sarada.
3. **Category:** As per the EIA notification 2006 and its subsequent amendments, proposed project falls in category B under schedule of Item 1(a)-Mining of minerals.
4. Raruanguda Quartzite Block is a virgin mine over 25.406 Ha./ 62.780 Ac. for the production of 55123.00 Tons of Quartz per year at Village - Raruanguda, Tahasil-Champua, Dist. Keonjhar
5. Mining Lease is granted vide letter no 11850 (LOI) dated 19.12.2022 to the Successful Bidder M/s Flux Minerals, At/PO - 513 - 5th Floor, Forum Galleria Mall, Civil Town Ship, Rourkela, Odisha -76900.
6. The mining plan was approved by Joint Director, Directorate Geology & Steel & Mines Department, Govt. of Odisha with letter no. MGXXIV(b)-08/2023/12306/DoMG and date. 06.10.2023.
7. The lease area is 25.406 Ha consisting of 1.682 Ha. - Forest Land and 23.724 Ha. - Non-forest Land.

Proceedings of SEAC meeting held on 09.02.2024

J. Nayak
Environmental Scientist, SEAC

ACTIVITY AREAS	WATER REQUIREMENT PER DAY (KLD)
Drinking & Other purpose	1
Crushing & Screening units	3
Dust Suppression in dust generating locations	3
Plantation	3

13. Water requirement: Total Water Requirement is 10 KLD for proposed project.

YEAR	AREA in m ²	TYPE OF SAPPLINGS	NO. OF SAPPLING
First Year	658	Neem, Tamarind, Karanja, Subabul, Badam, Ficus, Rain tree	40
Second Year	658		40
Third Year	658		40
Fourth Year	658		40
Fifth Year	658		40
TOTAL	3290		

12. Greenbelt:

11. Waste generation: During the plan period, the volume of waste generated is 28006.5 m³ i.e., 25% of total excavation and its swell volume will be 44810.56 m³, a temporary dump has been proposed of 0.663 hectare at the north western side. The dump height shall not exceed 6m in height.

10. Mining method: Mining will be done by Semi Mechanized method with a total production of 220551.2 Tons. Machines to be used are hydraulic Excavator - Poclain (CK90) 0.9m³ capacity-1 nos, Backhoe loader—1, Jack hammer drill-32 mm drill bit-3no, Tipper-(10T)/20T-2/1 nos, Compressor-Holman TA 13T-2 and Water Tanker- 5KL capacity-1.

9. Reserves and production: The total Mineable Reserves is 2040996.4 Tons and geological reserve is 2722530.1 Tons and the Proposed Production for the Proposed Project is 55123 Tons/ annum.

8. Location and connectivity: The project is located at Village Raruanuguda under Champua Tehsil of Keonjhar District bearing Plot no: 1273/P, 1284/P, 1285, 1286, 1287/P, 1288/P, 1293/P, 1294/P, 1295, 1296/P, 1297/P, 1298/P, 1299/P, 1304/P, 1305/P, 1306, 1307, 1308, 1310/P, 1311, 1312, 1313, 1314, 1325/P, 1326, 1327/P, 1143/P, 1145/P, 1146/P, 1148/P, 1149/P, 1160/P, 1161, 1162, 1163, 1164, 1165/P, 1166, 1167/P, 1169/P, 1170, 1171, 1172, 1173, 1174, 1175, 1177/P, 1181/P, 1182/P, 1184, 1185, 1186, 1187, 1188, 1189, 1190/P, 1197, 1198, 1199/P, 1226/P, 1227/P, 1228/P, 1199/1758, 1199/1759, 1199/1670, 1187/1756, 187/1757, 1286/1785, 1294/1761, 1294/1548, 1166/1533, 1309/1581, 1307/1763, 546/P, 547/P, 549/P, 551/P, 552/P, 553, 554, 555/P, 556/P, 557/P, 558/P, 559/P, 561, 582/P, 583/P, 587/P, 588, 589, 590, 591, 592, 593, 594, 595/P, 596/P, 597/P, 598/P, 599/P, 600/P, 601/P, 602/P, 603/P, 607/P, 611/P, 1637/P, 1551/P, 1741, 1638, 1742, 1183/P, 1315, 1310, 1641, 43, 29, 75, 96, 20, 144, 147, 27, 128, 99, 78, 35, 37, 49, 8, 50, 111, 97, 54, 38, 60, 145, 48, 5, 47, 146 bounded by Lat. 21 57 27.34385 N to 21 57 59.58316 N & Long. 85 45 49.11958 E to 85 46 16.62327 E with Toposheet no F45N13 (73 G/13) with Khasam of land - Sarada - II, Biali, Gramya Jungle, Patharabani, Ghodanda, Sarada - III, Bastidogya, Gochara, Sarada - I, Godandi, Danda, Patharabani, Patita, Jalsaya - II, Hudi, Balichara. Nearest SH is SH 108 at 40km West, Nearest NH is NH 20, 15 km NW. Nearest airport is Jharsuguda - 223km and nearest water bodies are Mermanda River located at a distance of 0.04km and Baltarani River located at a distance of 0.37km from the site.

Total	10
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14. **Power requirement:** Power required for the proposed project is 10 KVA Power from diesel generators.
15. **Baseline study details:** Baseline Study is being conducted from Dec 2023, Jan 2024 & Feb 2024.
16. **Manpower:** The total number of persons required for the project is 42 persons.
17. **Project cost:** Estimated project cost is 480.00 Lakhs and EMP Cost is 72 Lakhs.

SL. NO.	PARTICULARS	CAPITAL COST IN LAKHS	RECURRING COST IN LAKHS
1	AIR POLLUTION CONTROL		
a)	Truck mounted water tankers -1 nos.	7	4
b)	Maintenance of equipment		
c)	Water Sprinkling		
2	WATER POLLUTION CONTROL		
a)	Construction of garland drains with settling pits	10	2
b)	Rainwater harvesting pits		
3	NOISE POLLUTION CONTROL		
a)	PPE	24	4
b)	Stack for DG set		
4	ENVIRONMENT MONITORING	-	3
5	GREEN BELT DEVELOPMENT	12	2
6	OCCUPATIONAL HEALTH MANAGEMENT	-	4
TOTAL		53	19

18. **Environment Consultant:** The Environment consultant M/s Global Tech Enviro Experts Pvt Ltd. Bhubaneswar along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, M/s Global Tech Enviro Experts Pvt Ltd. Bhubaneswar along with the project proponent, the SEAC recommended the following:

- a) The proponent may be asked to submit the following for further processing of TOR application:
- The project proponent has not applied for Forest Clearance. Hence the TOR may be processed subjected to submission of copy of forest clearance application.
- b) Following specific ToRs may be prescribed while issue of Terms of References.
- The project proponent shall strictly carry out non-explosive blasting mining as sensitive areas like School is located at distance of 300m, Baitarani bank is at 137m, Mermenda River is at 0.04km, and Dam is within 500m away from the mining area.

- ii) Standard operating procedures (SOP) to be followed for rock excavation/mining.
- iii) The project proponent shall complete the total plantation within first two years and maintain it in the remaining years. Green cover within the safety zone shall be strictly maintained to protect the nearest human sensitive places.
- iv) The PP shall give details of post mining R.L and Surface R.L. If post mining R.L is below the surface level then the area to be fenced after post mining to avoid accidents and surface run off from mining site to nearby agricultural fields.
- v) The project proponent shall specify the air pollution control measures undertaken at crusher plant and during mining activities to protect school children from dust emission.
- vi) Note on free silica generation during mining and measures for its control.
- vii) **measures for restricting the silt load with storm water making way to nearest Karo river.**
- viii) **suggested measures for existing ITI inside the lease area.**
- ix) **Precautionary measures to ensure damage to Baitarani River bank protection.**
- x) **Protective measures as there is a Raniguda school at about a distance of 200 Mt.**

ITEM NO. 02

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S PRIME INDUSTRIES FOR CHROME ORE BENEFICIATION PLANT WITH THROUGHPUT CAPACITY OF 18,500 TPA WITHIN THE EXISTING CHROME MONOLITHIC UNIT IN RAHANJA INDUSTRIAL ESTATE, VILLAGE RAHANJA OF BHADRAK DISTRICT OF SRI SUMAN SWAIN - 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. This proposal is for Terms of Reference (ToR) for obtaining Environmental Clearance of M/s Prime Industries for Chrome ore beneficiation plant with throughput capacity of 18,500 TPA within the existing Chrome monolithic unit in Rahanja Industrial Estate, village Rahanja of Bhadrak District of Sri Suman Swain.
3. **Category:** The proposed project is for beneficiation facility of Chrome ore with throughput of 18500 TPA capacity. The project comes under sector 2 (b) and Category B2 (<20000 TPA) as per EIA Notification 2006 and subsequent amendments (OM dated 24th December 2013).
4. **Project details:** This is an existing unit of Prime industries which is a chrome monolithic unit and is operating since 2015.
5. The existing unit is operating with the consent to establish vide CTE letter no 409 dated 03.03.2015 and valid consent to vide letter no. 1003/CTO-2846/2015 on dated 19.05.2022 which is valid for the period up to 31.03.2026 from Odisha State Pollution Control Board.
6. The existing chrome monolithic unit does not attract Environment Clearance as it is only mixing of raw materials without any use of heat and chemical treatment.
7. Existing production from the unit are Chrome Monolithics :18000MT/annum, Refractory Mortar :18000MT/annum and Ferro Alloy Metals (Reclaimed from Ferro alloy slag) : 720 MT/annum
8. **Location and connectivity:** The proposed unit is located at IDCO Plot No-29 & 32, Rahanja Industrial State of Bhadrak District, Odisha. Odisha. The land area required for the project will be 0.198 Acres which comes under Mouza- Ranja bearing Khata no. 1 & 247 and Rev. plot no- 526(p), 527(p) and 528 (p) (sabik) and belongs to the project proponent. The area

falls in toposheet number F45O/12. Nearest National Highway is NH 16 at a distance of 0.17Km, SEE from the project site. Nearest railway station is at Ranital road railway station located at a distance of 3.30 Km from the project site. The NH- 16 is located at a distance of 0.18km, SEE from the project site. There is no wild life sanctuary, corridor, National Park, biosphere reserve located within 10Km buffer zone of the project site. Nearest Wildlife Sanctuary is Kuldhia Forest & Wildlife Sanctuary located at a distance of 26Km.

9. The proposed project for establishment of Chrome ore Beneficiation plant over an area of 0.798 Acres with throughput capacity of 18,500 TPA within the existing Chrome monolithic unit of M/s Prime Industries. The throughput capacity of the beneficiation unit will be 18500 TPA and beneficiated ore production will be 13800 TPA. The low-grade chrome ore will be procured from mines of OMC, Sukinda through auction process.

Existing product of the project:

- a) Chrome Monolithics :18000MT/annum
- b) Refractory Mortar :18000MT/annum
- c) Ferro Alloy Metals (Reclaimed from Ferro alloy slag) : 720 MT/annum

Proposed unit:

1. Chrome ore Beneficiation Plant: 18500TPA

Units	Products and By Products	Existing	Additional	After Expansion
TPA	Chrome Ore	---	18500	18500

From the Chrome Ore beneficiation will be maximum i.e. 4700 TPA (<10% Cr₂O₃) (25%) will be generated.

MATERIAL BALANCE

INPUT		OUTPUT	
Chrome Ore Beneficiation Plant			
Raw Material (37% Cr ₂ O ₃)	18500 TPA	Beneficiated Ore (50% Cr ₂ O ₃) (Recovery 75%)	13800 TPA
		Tailings (<10% Cr ₂ O ₃) (25%)	4700 TPA
Total	18500 TPA		18500 TPA
Chrome Monolithic Plant			
Beneficiated Ore (50% Cr ₂ O ₃)	12000 TPA	Chrome Monolithic as per Market requirement	18000 TPA
Tailing (<10% Cr ₂ O ₃)	4500 TPA		
Bentonite, Lime and Alumina	1500 TPA		
Total	18000 TPA		18000 TPA

10. **Waste generation and management:** The major solid waste will be the tailings generated from beneficiation process. The quantity of tailings to be 4700 TPA having <10% Cr₂O₃. The tailing generated will be utilized for blending in the chrome refractory mortar plant and there will be no solid waste dumping in long term. The tailing will be stored in the tailing dump.

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Jwajak
Environmental Scientist, SEAC

After drying the tailing will be blended in the chrome refractory mortar as per the demand of the customer. An area has been demarcated for storage of tailing within the plant premises. After beneficiation the tailings will flow down to the settling tank. An area of 225 m² has been earmarked, for storage of tailings and can store dry tailings upto two months. The tailings generated on daily basis will be shifted to the monolithic unit.

19. **Baseline Study Details:** Baseline study is under progress.

11. **Water Requirement and waste water management:** Total water requirement for the proposed project will be 153 KLD and make up water requirement will be 13 KLD. Out of the makeup water requirement 1 KLD used for drinking purpose which will be sourced from nearby village through tankers and rest water requirement of 12 KLD will be sourced from Rain Water Harvesting Pond. The water utilized in the process will be recycled resulting in zero discharge of wastewater. The tailing pond of adequate capacity will be constructed with suitable impervious lining to prevent percolation into ground water.

Description	For COB Plant (KLD) NON - MONSOON PERIOD		
	Fresh Water	Recycled	Total
Beneficiation (Make-up) from proposed rain water harvesting unit	3	7	10
Dust suppression	1.0	-	-
Green belt	1.0	-	-
Domestic	1.0	-	3.0
Total	6.0	7.0	13.0

Description	For COB Plant (KLD) MONSOON PERIOD		
	Fresh Water	Recycled	Total
Beneficiation (Make-up) from proposed rain water harvesting unit	3	7	10
Dust suppression	0.5	-	0.5
Green belt	0.5	-	0.5
Domestic	1.0	-	1.0
Total	5.0	7.0	12.0

12. **Power Requirement and solar power details:** The power requirement is estimated as 100 KVA and will be procured from TPCODL, Odisha. Also proposed to install 125 kVA DG set.

13. **Rain water Harvesting Details:** There will be construction of rain water recharge pit used for recharge of rain water in the premises.

14. **Green belt:** Green belt will be developed over an area of 1063 sq.m area with 250 saplings.

PROPOSED GREEN BELT PLAN			
Location	Area Under Plantation (Sq.m)	No. of saplings Proposed	Species Proposed
Green Belt around the plant boundary. Near entrance gate	840 (3m width)	200	Dalbergia sisoo, Cassia siamea, Gmelia arborea, Tectona grandis, Alstonia scholaris, Azadirachta indica, Mangifera indica, Bamboo sps, Phylanthus emblica, Punica granatum, Psidium guajva, Mimosups elengii, Hibiscus rosa

			sinensis, Nerium oliander
Plantation in open space (SE part of plant)	223 Sq.m	50	Dalbergia sisoo, Cassia siamea, Gmelia arborea, Acacia sps, Tectona grandis, Alstonia scholaris
Total	1063	250	
The proposed Green belt will be developed within 1 years of the plant operation			

15. **Manpower:** Proposed employment generation from proposed project will be 12 direct employments which includes operator -2, supervisor 2, 4 no of semi-skilled labor and 4 no of unskilled labour.

16. **Project Cost:** Total project cost is approx 5.195 Crore rupees and proposed EMP cost will be 32.0 lakhs and CSR cost will be 10.0 Lakhs.

Sl. No	Particulars	Amount (Rs in Lakhs)
Capital Cost		
01	Pollution Control Measures	18.00
02	Acoustics	5.00
03	Env. monitoring and management	3.00
04	Green Belt Development	2.0
05	Occupational Health & safety	2.0
Total		32.0
Recurring Cost		
01	Environmental Monitoring	3.00
02	Occupational health & safety	1.00
03	Greenbelt Development and maintenance	1.0
Total		5.0

17. **Environment Consultant:** The Environment consultant M/s Kalyani Laboratories Pvt Ltd, Bhubaneswar along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, M/s Kalyani Laboratories Pvt Ltd, Bhubaneswar along with the project proponent, the SEAC recommended the following:

- A. The proponent may be asked to submit the following for further processing of TOR application:**
- Complete layout of existing monolithic plant and proposed plant.
 - Specify the area earmarked for existing and proposed dumping stockyard and submit plant layout for existing and proposed unit.
 - Copy of Agreement (MOU) with raw material suppliers for the existing Monolithic plant and proposed chrome ore beneficiation Plant.
 - Submit water balance, material balance, chromium content and hexavalent Chromium content in the whole process.
 - Layout of the whole plant demarcating the settling pond, jigging plant, spiral area, parking area, storage space and Surface Runoff treatment system.

- vi) Submit Particle size analysis.
- vii) The SEAC observed that, the existing land is insufficient for all the total setup of the proposed plant and the Terms of Reference (TOR) can be considered subjected to acquisition of additional land.

B. The proposed site shall be visited by Sub-Committee of SEAC to verify the followings

- i) Environmental compliance of the existing project and adequacy of the land available for setting of the proposed project.
- ii) Construction activities if any carried out for the proposed project.
- iii) Drainage network at the site.
- iv) Discharge point for discharge of treated waste water and distance of the discharge point from the project site.
- v) Area available for tailings management.
- vi) Road connectivity to the project site.
- i) Any other issues including local issues.

ITEM NO. 03

PROPOSAL OF ENVIRONMENTAL CLEARANCE OF M/S BEE PEE ROLLERS PVT. LTD. FOR THE PROJECT WHEREIN ALL NON-TOXIC SECONDARY METALLURGICAL PROCESSING UNIT WITH CAPACITY GREATER THAN 5000 TON PER ANNUM AT VILLAGE CHIKATMATI, DIST – SUNDARGARH OF SRI AKHIL KUMAR AGARWAL – TOR.

The proponent did not attend the meeting. The SEAC decided to defer the case to next meeting.

ITEM NO. 04

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S REGEN MATERIALS PVT. LTD FOR CHROME ORE BENEFICIATION PLANT OVER AN AREA OF 2.66ACRES OR 1.0765 HA. WITH THROUGHPUT CAPACITY OF 19,000 TPA WITHIN THE EXISTING UNIT AT KURUNTI UNDER ODAPADA TAHASIL OF DHENKANAL DISTRICT OF SRI RABINDRA KUMAR NAYAK - 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. This proposal is for Terms of Reference (ToR) for obtaining Environmental Clearance of M/s Regen Materials Pvt. Ltd for Chrome ore Beneficiation plant over an area of 2.66Acres or 1.0765 Ha. with throughput capacity of 19,000 TPA within the existing unit At Kurunti under Odapada Tahasil of Dhenkanal District of Sri Rabindra Kumar Nayak.
3. **Category:** The proposed project is for beneficiation facility of Chrome ore with throughput of 19000 TPA capacity. The project comes under sector 2 (b) and Category B2 (<20000 TPA) as per EIA Notification 2006 and subsequent amendments.
4. The proposed project is for Chrome ore beneficiation unit with throughput of 190000 TPA capacity.
5. **Location and connectivity:** The unit bounded between Latitude 20°48'55.37"N to 20°48'59.59"N and Longitude 85°16'49.39"E to 85°16'54.31"E and falls under Toposheet number F45T/5. The project covers total land 2.66acres or 1.07655 Ha. & total 9 no. of plots bearing plot no. 3886/6792, 3885, 3892/4840,3930/4841, 3892 under the kissam of Sarada dui and plot no. -3890/4029, 3889, 3891and 3932 under Gharabarikissam of Mouza- Kurunti, PS-Motanga of Tahasil Odapada in the district Dhenkanal, Odisha. The project site is about

200m from NH-55 i.e., Sambalpur –Cuttack Highway in the Northern direction. Nearest railway station is at Meramundali railway station located at a distance of 3 Km from the project site. There is no wild life sanctuary, corridor, National park, biosphere reserve located within 10Km buffer zone of the project site. Nearest Wildlife Sanctuary (Tikarapada Wildlife Sanctuary) is at 30Km

6. **Project details:** M/s Regen Material Private Limited is a private limited company established in 01.02.2022 with Sri Biswajit Das as Managing Director. The applicant of the project is Sri Rabindra Kumar Nayak, Power of Attorney holder of M/s Regen Materials Pvt. Ltd, attested by Director of the company Sri Biswajit Das. The company is involved in production of Chromium Oxide black since last 2 years.
7. **Briefing of EC if issued earlier:** The company is involved in production of Chromium Oxide black since last 2 years which is exempted from Environment clearance as per EIA Notification, 2006 and subsequent amendment. Now the proposed project application for establishment of Chrome ore Beneficiation plant over an area of 2.66 Acres with throughput capacity of 19,000 TPA within the existing Chrome monolithic unit and this application is for grant of environment clearance for the proposed beneficiation plant.
8. **Statutory Clearances obtained earlier:** The existing unit is operating with valid consent to establish vide the letter no 2930/MISC/ROSPCB/AGL/75/2019-20 dated 01.10.2022 and consent to operate (CTO) Vide letter no 399/MISC/ROSPCB/AGL/75/2019-20 dated 06.02.2023 valid till 31.03.2027 from Odisha State Pollution Control Board. No forest land involved in the proposed project as it is private land over an area of 2.66 Acres or 1.0765 Ha. At Kurunti under Odapada Tahasil of Dhenkanal District, Odisha.
9. **Existing production and proposed production with beneficiation plant for which Terms of Reference (ToR) has been applied for:** Details of M/s Regen Materials Pvt. Ltd. existing Chrome monolithic unit:

Existing production of the project:

- Chromium Oxide Black :30000MT/annum
- Nickel Oxide: 2000 MT/Annum
- Ferro Alloy Metals (Reclaimed from Ferro alloy slag) : 720 MT/annum

By Products

- Aluminum oxide: 5500 MT/Annum
- Iron oxide: 5500 MT/Annum
- Salt (NaCl): 2500 MT/Annum

Proposed unit: Chrome ore Beneficiation: 19000TPA

The throughput capacity of the beneficiation unit will be 19000 TPA and beneficiated ore production will be 14250 TPA. The low-grade chrome ore will be procured from OMC, Sukinda through auction process.

Units	Products and By Products	Existing	Additional	After Expansion
TPA	Chrome Ore	--	19000	19000

10. **Tailing generation:** From the Chrome Ore beneficiation tailing of 4940 TPA (<10% Cr₂O₃) (25%) will be generated.
11. **Waste generation and management:** The major solid waste will be the tailings generated from beneficiation process. The quantity of tailings to be 4940 TPA having <10% Cr₂O₃. The

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tailings will be collected & treated with Ferro-Sulphate solution and dried through a filter press. An area has been demarcated for storage of tailing within the plant premises. The tailing will be stored in the tailing dump. After drying the tailing will be sold for brick manufacturing. Each batch of tailing before dispatch to brick manufactures will be analyzed for hexavalent chromium for its safe disposal and use. The capacity of the tailing disposal area will be 410 sq.m which can store dry tailing upto one year.

12. **Baseline Study Details:** The baseline data is being collected for the period of December 2023 to February 2024.
13. **Water Requirement and wastewater management:** Total water requirement for the proposed project will be 153 KLD and make up water requirement will be 13 KLD. Out of the makeup water requirement 1 KLD used for drinking purpose which will be sourced from nearby village through tankers and rest water requirement of 12 KLD will be sourced from Rain Water Harvesting Pond. The water utilized in the process will be recycled resulting in zero discharge of wastewater. The tailing pond of adequate capacity will be constructed with suitable impervious lining to prevent percolation into ground water.
14. **Power Requirement and solar power details:** The power requirement is estimated as 100 KVA and will be procured from TPCODL, Odisha. Also proposed to install 125 kVA DG set.
15. **Rain water Harvesting Details:** There will be construction of rain water recharge pit used for recharge of rain water in the premises.
16. **Greenbelt Development:** Plantation will be carried out over an area of 0.1486 Ha of the area with 900 saplings.

PROPOSED GREEN BELT PLAN			
Location	Area Under Plantation (Sq.m)	No. of saplings Proposed	Species Proposed
Green Belt around the plant boundary. Near entrance gate	2550 (5m width)	650	<i>Cassia siamea, Gmelia arborea, Tectona grandis, Alstonia scholaris, Azadirracha indica, Mangifera indica, Bamboo sps, Phylanthus emblica, Punica granatum, Psidium guajva, Mimosups elengii, Hibiscus rosa sinensis, Nerium oliander, Saraca asoka</i>
Plantation in open space	1072 Sq.m	250	<i>Dalbergia sisoo, Cassia siamea, Gmelia arborea, Acacia sps, Tectona grandis, Alstonia scholaris</i>
Total	3622	900	
The proposed Green belt will be developed within 1 years of the plant operation			

17. **Total Employment:** Proposed employment generation from proposed project will be 12 direct employments which includes operator -2, supervisor 2, 4 no of semi-skilled labour and 4 no of unskilled labour.
18. **Project Cost and EMP, CSR Cost:** Total project cost is approx.. 5Crore rupees. Cost of EMP will be 30.0 lakhs and CSR cost will be 10.0 Lakhs.

SI. No	Particulars	Amount (Rs in Lakhs)
Capital Cost		
01	Pollution Control Measures	16.00
02	Acoustics	5.00
03	Env. monitoring and management	3.00

04	Green Belt Development	2.0
05	Occupational Health & safety	2.0
Total		30.0
Recurring Cost		
01	Environmental Monitoring	3.00
02	Occupational health & safety	1.00
03	Greenbelt Development and maintenance	1.0
Total		5.0

19. **Environment Consultant:** The Environment consultant **M/s Kalyani Laboratories Pvt Ltd, Bhubaneswar** along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s Kalyani Laboratories Pvt Ltd, Bhubaneswar** along with the project proponent, the SEAC recommended the following:

A. The proponent may be asked to submit the following for further processing of TOR application:

- i) Process details in flow sheet of the existing plant along with mass balance.
- ii) Note on ETP details, disposal of ETP sludge and treatment process.
- iii) Copy of documentation in support of raw material sourcing for proposed expansion.
- iv) Particle size analysis.
- v) Note on calculation of Surface run off considering the highest rainfall and treatment system to be adopted.
- vi) Copy of Agreement (MOU) with raw material suppliers for the existing Monolithic plant.
- vii) Submit water balance, material balance, chromium content and hexavalent Chromium content in the whole process.
- viii) Layout of the whole plant demarcating the settling pond, jigging plant, spiral area, parking area, storage space and Surface Runoff treatment system.

B. The proposed site shall be visited by Sub-Committee of SEAC to verify the followings

- i) Environmental compliance of the existing project and adequacy of the land available for setting of the proposed project.
- ii) Construction activities if any carried out for the proposed project.
- iii) Drainage network at the site.
- iv) Discharge point for discharge of treated waste water and distance of the discharge point from the project site.
- v) Area available for tailings management.
- vi) Road connectivity to the project site.
- ii) Any other issues including local issues.

ITEM NO. 05

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S FLUX MINERALS FOR LUMURUJHALA (SE) QUARTZ BLOCK OVER 7.987 HA. FOR THE PRODUCTION OF 1686.9 TONS OF QUARTZ PER YEAR AT VILLAGE - LUMBURUJENA & SALEPADA UNDER BOUDH TAHASIL, DIST. BOUDH OF SRI SIDDHARTH SARDA - 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. This proposal is for Terms of Reference (ToR) for obtaining Environmental Clearance of M/s Flux Minerals for Lumurujhala (SE) Quartz Block over 7.987 Ha. for the production of 1686.9 Tons of Quartz per year at Village – Lumburujena & salepada under Boudh Tahasil, Dist. Boudh of Sri Siddharth Sarada
3. **Category:** As per the EIA notification 2006 and its subsequent amendments, proposed project falls in category B under schedule of Item 1(a)-Mining of minerals.
4. Mining Lease is granted by letter no.11845 SM:MC3-ML-OO43-2022 S&M Bhubaneswar on dated 19.12.2022 to the Successful Bidder M/s Flux Minerals, At/PO -513 - 5th Floor, Forum Galleria Mall, Civil Town Ship, Rourkela, Odisha -76900.
5. The mining plan was approved by Joint Director, Directorate Geology & Steel & Mines Department, Govt. of Odisha with letter no. MGXXIV(b)-07/2023/12310 on dated 06.10.2023. This is new mine.
6. The lease area is 7.987 Ha. consisting of 2.459 Ha. - Forest Land and 5.528 Ha. - Non-forest Land.
7. **Location and connectivity:** The proposed project is located at Plot No. 653/P, 655/P & 9/P, in Boudh Tahasil Boudh district. The Geo-coordinates of the project are: Latitude: 20°42'58.04000"N to 20°43'11.07600"N and Longitude: 84°04'24.04100"E to 84°04'30.95100"E bearing Toposheet no:, F45S2 and Kisam of land is Abada Ajogya Anabadi. Nearest distance of approach road is Sagada Road intersecting, 1.46 km in South; nearest SH is SH-41 is at 20.72 Km North-west, nearest NH is NH-57 is at 9.04 km NE Direction and nearest Airport is Veer Surendra Sai Airport, Jharsuguda which is about 132 km from the site in North direction. Nearest Reserve Forest is Putuna RF 1.0 km East.
8. **Total Reserves and proposed production:** As estimated, the total geological reserve has been estimated as 1,67,092 Tons and mineable reserve is 1,66,739 Tons with proposed production of 1686.9 TPA.
9. **Mining method:** Mining Method for the proposed project is Semi-mechanised Method with a production capacity of 6948 Tons. Proposed mining depth as per approved mining plan for Quarry 1 is 147 mRL & Quarry 2 is 156 mRL. Equipment which will be used are Excavator/JCB-1 (0.9 Cu.m.), Rock breaker-1, Rock cutter-1, Tipper -1/ Tractor-2, Sawing Machine-1, Hydraulic shovel dumper- 1(0.9 cum).
10. **Waste generation:** Solid waste is expected as waste material generated during plan period shall be 2079.2 m³ (inner burden waste) and 3326.72 m³ (Total swell vol. waste) are not useable, dumped in the temporary dump of 0.006 ha to obtain max. 1-2m height, which will be utilized for approach road development and maintenance purposes.
11. **Water requirement:** Water required for the proposed project is 9 KLD.

Activity Areas	Water Requirement per day (KL)
----------------	--------------------------------

Industrial and drinking water for 21 persons	2
Dust Suppression in dust generating locations	4
Plantation	3
Total	9

12. **Power requirement:** Power required for the proposed project is 10 KVA Diesel Generator.

13. **Baseline study details:** Baseline study is being conducted from Dec 2023, January 2024 & Feb 2024.

14. **Greenbelt development:**

YEAR	AREA m2	TYPE OF SAPLINGS	NO. OF SAPLING
First Year	0.1752	Neem, Tamarind, Karanja, Subabul, Badam, Ficus, Raintree	40
Second Year	0.1752		40
Third Year	0.1752		40
Fourth Year	0.1752		40
Fifth Year	0.1752		40
Total	0.876		200

15. **Manpower requirement:** 21 Persons will be engaged as manpower for the proposed project.

16. **Project cost:** Total estimated Project cost is 400 lakhs and EMP cost will be 60 Lakhs.

SL. NO.	PARTICULARS	CAPITAL COST IN LAKHS	RECURRING COST IN LAKHS
1	AIR POLLUTION CONTROL	9	5
a)	Truck mounted water tankers -1 nos.		
b)	Maintenance of equipment		
c)	Water Sprinkling		
2	WATER POLLUTION CONTROL	11	2
a)	Construction of garland drains with settling pits		
b)	Rainwater harvesting pits		
3	NOISE POLLUTION CONTROL	5	2
a)	PPE		
b)	Stack for DG set		
4	ENVIRONMENT MONITORING	-	3
5	GREEN BELT DEVELOPMENT	16	3
6	OCCUPATIONAL HEALTH MANAGEMENT	-	4
TOTAL		41	19

17. **Environment Consultant:** The Environment consultant M/s Global Tech Enviro Experts Pvt Ltd. Bhubaneswar along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, M/s Global Tech Enviro Experts Pvt Ltd. Bhubaneswar along with the project proponent, the SEAC recommended the following:

A. The proponent may be asked to submit the following for further processing of TOR application:

- i) The project proponent has not applied for Forest Clearance. Hence the TOR may be processed subjected to submission of copy of forest clearance application.

B. Following specific ToRs may be prescribed while issue of Terms of References.

- i) NOC/permission from concerned DFO for mining activities in the non-forest land of the lease area along with certificate from DFO that the plots covered under non-forest land does not include in DLC land.
- ii) The lease area is full of forest growth, hence the project proponent shall give the details of number of trees to be cut due to mining activity, or if possible transplant the big trees into the safety zone with consultation with local DFO/forest dept. officials.
- iii) Standard operating procedures (SOP) for blasting.
- iv) The project proponent shall complete the total plantation within first two years and maintain it in the remaining years. Green cover within the safety zone shall be strictly maintained to protect the nearest human sensitive places.
- v) The PP shall give details of post mining R.L and Surface R.L. If post mining R.L is below the surface level then the area to be fenced after post mining to avoid any type of accidents and surface run off from mining site to nearby agricultural fields.
- vi) The project proponent shall specify the air pollution control measures to be undertaken for dust control.
- i) Note on free silica generation during mining and measures for its control.

ITEM NO. 06

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S. NILACHAKRA MINERAL PRIVATE LIMITED FOR PROPOSED CHROME ORE BENEFICIATION PLANT OVER AN AREA OF 3.020 ACRES WITH THROUGHPUT CAPACITY OF 19,000 TPA AT SUANARI VILLAGE, P.O. SAPHA, DISTRICT CUTTACK OF SRI SATISH KUMAR ROUT - 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. This proposal is for Terms of Reference (ToR) for obtaining Environmental Clearance of M/s Nilachakra Mineral Private Limited for Proposed Chrome ore beneficiation plant over an area of 3.020 acres with throughput capacity of 19,000 TPA at Suanari village, P.O. Sapha, District Cuttack of Sri Satish Kumar Rout.
3. **Category:** This project falls under Category "B" under 2(b): Mineral Beneficiation as per EIA Notification dated 14th Sept, 2006 and its amendments.
4. **Location and connectivity:** The proposed project is located at Suanari village, P.O. Sapha, District Cuttack, Odisha. The land area required for the project will be 3.020 Acres bearing Khata no. 116/116, Plot No- 528,532 and belongs to the project proponent. The project site is

bounded by latitude 20°38'17.66"N to 20°38'22.15"N and longitude 85°56'21.35"E to 85°56'24.92"E. The project is traced in the Survey of India Toposheet no F45T/14. Nearest road is Tangi Road which is located at a distance of 1.30km, East side of the proposed project. Nearest railway station is at Charbatia railway station located at a distance of 8.30 Km and NH-16 is located at a distance of 11.60Km, E from the project site. There is no wild life sanctuary, corridor, National Park, biosphere reserve located within 10Km buffer zone of the project site. Nearest Wildlife Sanctuary is Govindapur Bird Sanctuary which is 25.50km from the project site and another sanctuary is Chandaka Damapada Sanctuary which is located at a distance of 42km.

5. This is a green field project for establishment of Chrome ore Beneficiation plant over an area of 3.020 Acres with throughput capacity of 19,000 TPA and beneficiated ore production will be 13300 TPA.
6. The proposed unit have UDYAM registration certificate through the registration no. UDYAM-OD-07-0042429 dated 23.11.2023 from Govt. of India.
7. The low-grade chrome ore will be procured from OMC, Sukinda through auction process.
8. **Summary of products generated by the project:**

Units	Products and By Products	Existing	Additional	After Expansion
TPA	Chrome Ore	--	19000	19000

9. **Land use as per mining plan at the end of plan period and at conceptual stage**

Sl. No	Description	Area in Sq.m	Area in Ha.
a)	Security Room	9.29	0.000929
b)	Office & rest room	167.22	0.016722
c)	Toilet Block	7.43	0.000743
d)	Weigh Bridge & Scale Room	57.14	0.005714
e)	Truck Parking area	696.77	0.069677
f)	Raw material Yard	929.03	0.092903
g)	Factory Shed (Washing Unit)	163.88	0.016388
h)	Pannel room	46.82	0.004682
i)	ETP	76.645	0.0076645
j)	Settling Tank	222.97	0.022297
k)	Finished product go down	313.55	0.031355
l)	Rain water harvesting pond	232	0.0232
m)	Electric substation	37.16	0.003716
n)	Plantation (33%)	4033.0	0.4033
o)	Road Drain and Setback	3489	0.3489
p)	Tailing disposal area	1739.095	0.1739
Total Land area		12221.51	1.222151

10. **Water requirement:** Total water consumption for the proposed project will be 153 KL/ day out of which 13 KLD will be the makeup water. About 95% of the water will be recirculated in the process and only 5% of the will be makeup water.
11. **Wastewater details:** There will be no waste water generation from the project. Domestic waste water will be treated through soak pit via septic tank and industrial waste water generated will be treated by settling and reused in the process.
12. **Rainwater harvesting details:** There will be construction of rain water recharge pit used for recharge of rain water in the premises.

13. **Solid waste generation:** The major solid waste will be the tailings generated from beneficiation process. The quantity of tailings to be 5700 TPA having <10% Cr₂O₃. The tailings will be collected & treated with Ferro-Sulphate solution and dried through a filter press.
14. **Mitigation of solid waste generated:** The tailings will be stored in the tailing dump. After drying, the tailing will be blended in the chrome refractory mortar as per the demand of the customer. An area has been demarcated for storage of tailings within the plant premises. After beneficiation the tailings will flow down to the settling tank. The capacity of the tailing disposal area will be 225 sq.m which can store dry tailing upto two month. The tailing generated daily basis will be shifted as raw material in the monolithic unit.
15. **Greenbelt:** There are proposed to be planted 1000 nos. of samplings over an area of 0.4033Ha. for the proposed project. Plantation will be carried out in the plant premises and boundary wall side of the plant.
16. **Manpower:** The project generates employment opportunities for 15 personnels which includes operator -2, supervisor - 2, 5 no. of semi-skilled labours and 6 no. of unskilled labours.
17. **Project cost:** Total project cost is approx. 360.88 Lakhs rupees. The cost of EMP will be 25 lakhs and CSR cost will be 10 Lakhs.
18. **Environment Consultant:** The Environment consultant M/s. Kalyani Laboratories Pvt Ltd, Bhubaneswar along with the proponent made a presentation on the proposal before the Committee.
19. The proponent has applied to consider their project as Category-B2 as per MoEF&CC, Govt. of India O.M. No. J/13012/12/2013-IA-II(I), dated 24.12.2013 as throughput of Mineral Beneficiation activity is less than 20,000 TPA involving only physical beneficiation.
20. The MoEF&CC, Govt. of India O.M. No. J/13012/12/2013-IA-II(I), dated 24.12.2013 stipulates the Mineral Beneficiation activity listed in the schedule as Category-B will be treated as Category-B2 with throughput ≤ 20,000 TPA, involving only physical beneficiation.

Considering the information / documents furnished by the proponent and presentation made by the consultant M/s Kalyani Laboratories Pvt Ltd, Bhubaneswar, the SEAC considered the project as category - B2 as per MoEF&CC, Govt. of India O.M. No. J/13012/12/2013-IA-II(I), dated 24.12.2013 as throughput of Mineral Beneficiation activity is less than 20,000 TPA involving only physical beneficiation and prescribed the following specific ToRs in addition to standard ToRs as per Annexure – A for conducting detailed EIA study with exemption of conducting public hearing for the project.

- i) NOC/permission from Sarpanch for usage of approach road.
- ii) Study report on the topography, drainage pattern of the area and the water flow gradient for smooth drainage of storm water in the project area.
- iii) Agreement copy (MOU)with the suppliers for procurement of raw materials.
- iv) NOC/permission for withdrawal of ground water along with permission from Water Re4source Deptt., Govt. of Odisha for usage of groundwater.
- v) Submit a detailed report on the water balance and mass balance.
- vi) Submit the size gradient of the tailings generated.
- vii) Submit detailed characteristics analysis of the chrome ore.
- viii) Submit the disposal methodology for the tailings generated.
- ix) Instead of land fill, explore alternatives for disposal of wastes.

- x) Revisit the calculation for the Rain water harvesting pits, considering the highest rainfall occurred over span of ten years.

ITEM NO. 07

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR COMMON BIO-MEDICAL WASTE TREATMENT FACILITY PROJECT AT KHATA NO-64, PLOT NO- 993, CITY- TENTOLA, TAHASIL- DHARMASALA, DISTRICT- JAJPUR OF SRI BIPIN SARANGI - 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. This proposal is for Terms of Reference (ToR) for obtaining Environmental Clearance for Common Bio-Medical Waste Treatment Facility Project at Khata No-64, Plot No-993, City-Tentola, Tahasil- Dharmasala, District- Jajpur of Sri Bipin Sarangi.
3. **Category:** This project falls under Category "B" of Project activity 7 (da) - Development of Common Bio Medical Waste Treatment Facility projects as per EIA Notification dated 14th Sept, 2006 as its amendments.
4. **Location and connectivity:** The proposed project is located at Khata No. -64, Plot No. -993, City-Tentol, Tahasil- Dharmasala, District-Jajpur, Odisha. The geographical co-ordinates of project site are 20°82'43.46"N and 85°98'80.39"E. The nearest road is NH-53 at 4.7 km in ENE direction, Nearest Railway Station is Jenapur Railway Station at 8.5 km in ENE direction, nearest airport is BijuPatnaik International Airport at 65.7 km towards SSW direction, nearest Habitation is Tentola at 0.27 km in WSW direction, nearest Wildlife Sanctuary is – ChandakaDampada Sanctuary at 47.3 Km in SSW Direction, Nearest Water Body is Brahmani River at 4 km in NW direction. There are no National Park/Wildlife Sanctuary/ Eco-sensitive zone are within 10 km radius of the Project Site.
5. Proposed Units & Total Capacity are as follows:

Name of equipment	Rated Capacity	Operational hr/day	Remarks
Incinerator	250 Kg/Hr x 2 = 500 Kg/Hr	16	Installed separately for process in Yellow Colour bag for BMW
Autoclaves	1000 Ltr	16	Installed separately for process in Red, White, Blue Colour bag for BMW
Shredders	200 kg/hr	10	For Shredding from autoclave/ disinfected wastes

6. Land-use Area Breakup:

S. No.	Facilities	Area (sqm)
a)	Plant Facilities (Waste storage rooms, autoclave, incinerator, shredder etc.)	1021.93
b)	Administrative and auxiliary facilities	167.22
c)	Rain Water Harvesting Pit	111.48
d)	ETP	111.48
e)	Vehicle Wash	111.48

S. No.	Facilities	Area (sqm)
f)	Green Belt area	2670.97
g)	Parking	102.19
h)	Internal roads	169.103
i)	Miscellaneous	46.45
j)	Open Area	3581.41
	Total Area	8093.713

7. **Baseline study conducted-** Baseline study is being conducted for the time period- December 2023- February 2024.
8. **Water requirement:** The total water requirement for the proposed project will be 25 KLD. Water will be sourced from Borewell and other supply (Supply water).
9. **Wastewater details:** Total effluent generation would be 25 KLD which will be treated in ETP of 15 KLD capacity.
10. **Power requirement:** Total power requirement for the proposed project would be approx. 100 kVA.
11. **Greenbelt development:** Green belt will be developed over 0.27 Ha. of land and 1600 saplings are provided as green belt cover.
12. **Total Employment:** Total 60 skilled & unskilled persons are proposed to hire for plant operations.
13. **Project cost:** The estimated project cost is 7.73 Crores.
14. **Environment Consultant:** The Environment consultant M/s.Grass Roots Research and Creation India (P) Ltd, Noida along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant M/s Grass Roots Research and Creation India (P) Ltd, Noida along with the project proponent, the SEAC recommended the following:

- A. **The proponent may be asked to submit the following for further processing of TOR application:**
 - i) CPCB guidelines stipulates that no common biomedical facility to be allowed within 75 kms from existing Common Biomedical Facility. M/s RAMKEY, Jajpur has already obtained Environmental Clearance from MoEF&CC, Govt. of India for setting up of Common Biomedical Treatment Facility at Jajpur. A detailed note to be submitted by the proponent justifying as to why their case will be considered for grant of Environmental Clearance under the above circumstances.
 - ii) Land document with Kisam of land in the name of the company.
- B. **Following specific ToRs may be prescribed while issue of Terms of References.**
 - i) A detailed process flow sheet including ETP.
 - ii) Mass balance for the proposed project.
 - iii) A report on rainwater/storm water management.
 - iv) Detailed layout earmarking the units.

ITEM NO. 08

PROPOSAL OF ENVIRONMENTAL CLEARANCE OF M/S MEDIAID MEDICAL ANCILLARY SERVICES FOR COMMON BIOMEDICAL WASTE TREATMENT FACILITY (CBWTF) AT: KHATA NO:552/149, PLOT NO:2283 & 465/5610AT-SEEPUR, KARNAPAL, KANIHA, TALCHER, DIST –ANGUL OF SRI SUSANTA KUMAR TRIPATHY - 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. This proposal is for Terms of Reference (ToR) for obtaining Environmental Clearance of M/s Mediaid Medical Ancillary Services for Common Biomedical Waste Treatment Facility (CBWTF) At: Khata No:552/149, Plot No:2283 & 465/5610At-Seepur, Karnapal, Kaniha, Talcher, Dist –Angul of Sri Susanta Kumar Tripathy.
3. **Category:** This project falls under Category “B” of Project activity 7 (da) - Development of Common Bio Medical Waste Treatment Facility projects as per EIA Notification dated 14th Sept, 2006 as its amendments.
4. **Location and connectivity:** The proposed project is located at Khata No. 552/149, Plot No. 2283 & 465/5610 Mouza-Seepur, GP-Karnapal, Tahasil-Kaniha, District –Angul, State-Odisha. The geographical co-ordinates of project site are: 21°10'24.12"N and 85°10'16.40"E. The Topo Sheet No. is F45N3, 45N4 & 45N8. And kissam of land (presently –Taila-2) will be change to "Industrial use" before start construction of the project. PP has been applied for conversion of Kism of the land from agricultural to non-agricultural vide Application no.-2023140700587 on dated 24/11/2023. The nearest road is NH149 at 1.58 km in WNW direction & Banarpal -Palhara Road at 3.32km in E direction. Nearest Reserve Forest is Pandaba Reserve Forest at 6.91km in N direction, Jambua Reserve Forest at 7.85 in NNW direction, Khajuria Reserve Forest at 6.46 in NW direction, Kunjam Reserve Forest at 3.74 in NE direction. Nearest Water Body is Brahmani River at 3.03 in W direction, Samakoi Nadi at 5.08 in SSE, Balijyoti Nala at 1.25 in W direction, Jambua Nala at 3.62 in WNW direction. There are no National Park/Wildlife Sanctuary/ Eco-sensitive zone are within 10 km radius of the Project Site.
5. **List of Statutory clearances obtained:**
 - Applied for conversion of Kism of the land from agricultural to non-agricultural vide Application no.-2023140700587 on dated 24/11/2023.
 - NOC from Karnapal Gram panchayat for setting of a CBWTF vide letter no. 42 dtd. 13.11.2023.
6. Proposed Units & Total Capacity are as follows:

Name of equipment	Rated Capacity	Number
Incinerator	250 kg/hr	1+1
Autoclaves	300 kg/ batch	1
Shredders	300 kg/hr	1
Effluent Treatment Plant	10 KLD	1

7. **Baseline study conducted**–Baseline study is being conducted for the time period- 1st Oct 2023 to 31st Dec 2023.
8. **Mitigation of waste produced:** During Construction phase of the unit, Solid & Hazardous Waste will be Wooden, Metallic Waste, Containers, Oil Drums and Domestic Waste from the labor unit etc. During Operation of the unit main waste will be Ash from Incinerator and Sludge

from ETP; Total 100-150 kg/day of Incineration Ash and 10-20 kg/day of Residues shall be generated from the Treatment Unit; Ash Residue from High Temperature Incineration and Other Material Residues from the process shall be collected into Containers / Bags and shall be stored at temporary ash storage shed and shall be disposed into the secured Landfill periodically after sufficient accumulation; Approx. 50-100 kg /month of Sludge will be generated from ETP. Approx. 15 kg/day municipal solid waste and Other Residues @ 10 - 20 kg/day is generated.

9. **Rain Water Harvesting Details** - The rainwater from roof top and garden area will be sent to RWH pits and RWH pond. A RWH pond will be located in the SW corner with dimension 10 m x10m x10 m in the Project premises. The excess runoff water during rainfall inside the project site will be diverted to the nearby manmade canal.
10. **Water requirement:** Total water requirement of the proposed project is 20 KLD which is sourced from bore well /tankers. The fresh water requirement would be 16 KLD.

Sr. No.	Details	Consumption (KLD)
a)	Process requirement (Incineration, Cleaning of storage area, Autoclave, Shredder)	12.0
b)	Domestic Requirement	1.5
c)	Vehicle Washing And Floor Washing	3.0
d)	Plantation and Greenbelt	4.0

11. **Wastewater details:** Total 4 KLD of Effluent and 1 KLD of domestic sewage shall be generated from the proposed project. An Effluent Treatment Plant of 10 KLD capacity has been proposed to treat the effluent. Treated effluent shall be used back to the treatment process of unit and excess water.
12. **Power requirement:** DG set of 125 KVA is proposed for the project and 100 KW power from 11KV lines will be taken with due permission from concerned authority. Fuel consumption is Incinerator – LDO/HSD @ 35 litres/hr for 10 hrs = 350 litres/day, Autoclave Boiler-LDO/HSD @ 15 litres/hr = 150 litres/day, Total LDO/HS = 500 litres/day, Diesel for DG Set @ 12~15 litres/hr (in case of Power Failure). Provision of Solar power :52% of the total power consumption is 5KW.
13. **Greenbelt development:** Total 10,036.2 sqm area is identified proposed CBWTF. Total 1234.334 Sqm of land shall be used for treatment unit and 3367.86 (more than 33.5 % of total area) is secured for Green Belt Development.
14. **Total Employment:** Total about 30 persons are proposed to be hired for plant operations including officers, skilled and unskilled workers. Required manpower shall be sourced from local area. During Construction phase, the labours and workers will be hired from nearby villages.
15. **Project cost:** The estimated project cost is Rs. 3.156 Cr / 315.65 Lakh (Capital Cost), EMP Cost: 25.5 Lakh (capital cost), Recurring Cost:-4.3 Lakh, CSR Cost:-4.8 Lakh.
16. **Environment Consultant:** The Environment consultant M/sVisiontek Consultancy Services Pvt. Ltd. (Bhubaneswar) along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant M/s Visiontek Consultancy Services Pvt. Ltd. (Bhubaneswar) along with the project proponent, the SEAC recommended the following:



- A. The proponent may be asked to submit the following for further processing of TOR application:**
- Land document in the name of the company or in the name of the owner.
 - Aerial distance certificate from SPCB, Odisha indicating that there is no nearby CBWTF within 75km radius.
- B. Following specific ToRs may be prescribed while issue of Terms of References.**
- Waste handling procedure with layout.
 - Revised water balance including each process.
 - Provision of monitoring system of ETP.

ITEM NO. 09

PROPOSAL OF ENVIRONMENTAL CLEARANCE BHANJAPALLI, KOIRA & TEHERAI MANGANESE MINE OVER AN AREA OF 65.71 HA. AT VILLAGE: BHANJAPALLI, KOIRA & TEHERAI, TAHASIL: KOIRA, DISTRICT: SUNDERGARH OF SRI RUDRA SEN SINDHU - TOR

- 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.
- This proposal is for Terms of Reference (ToR) for obtaining Environmental Clearance Bhanjapalli, Koira & Teherai manganese mine over an area of 65.71 Ha. At Village: Bhanjapalli, Koira & Teherai, Tahasil :Koira, District: Sundergarh of Sri Rudra Sen Sindhu.
- Category:** This project falls under Category "B" under 1(a) Category B1 (major Mineral <250 Ha.) as per EIA Notification dated 14th Sept, 2006 and its amendments.
- Location and connectivity:** The lease area is in village Bhanjapalli, Koira & Teherai under KoiraTahasil of Sundargarh district, Odisha. The geo coordinates of the project site are: latitude 21° 54' 10.201" N to 21° 54' 36.895" N and Longitude 85° 15'49.032" E to 85° 16'37.778" E.This area falls under toposheet no. 73G/5 & 73G/1. The highest altitude of the area is 635 m from M.S.L and the lowest altitude is 600m AMSL and average level is 615m AMSL. A puccaa road connecting village Teherai and Kiora passes through the ML area. This road after entering the ML area gets subdivided into three parts. One part connects koira which passes at the southern margin of the ML area. The second part passes in the middle part of the ML area and also joins Koira. The third part passes in the eastern side of the ML area joining village Pureibahal and is under construction. The mine is accessible to Keonjhar-Rourkela NH 215 at 2 km from the mine. Nearest railway station is located at Barsuan at 16.5 km from the lease area.
- List of Statutory clearances obtained:**
 - Bhanjapalli, Koira & Teherai Manganese Ore mine has been granted in favour of Sri RudraSenSindhu vide letter no. III(MN)SM-08/2015-372/SM, Bhubaneswar dated 10.01.2017.
 - The applicant Rudra Sen Sindhu made the application for mining lease on 15.03.1985 and the State Govt of Odisha, Department of Steel & Mines had issued terms & condition vide letter No.III(S)SM-1/98/11957/SM, Bhubaneswar Dtd.29.12.99 for grant of Lease.
 - The proponent having IBM No- IBM/32585/2018.
 - Review of Mining plan with Progressive Mine Closure Plan has been approved vide letter no RMP/A/39-ORI/BHU/2021-22 dated 31.03.2022.
 - Forest clearance has been obtained for the forest area vide letter no- F.No.8-35/2016-FC dated 11.10.2017 and validity till 10.1.2067.

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6. **Total Reserves and Proposed Production:** Mineable Reserve: 400792 Tons; Blocked Resources: 116792 Tons; Mineral Resources: 517584 Tons.
7. **Mining method:** Mining operation was carried out in the lease area by opencast mechanised method of mining in a single shift basis. Bench height and width had been maintained at 3 meter and 4 meters respectively. Production of Mn ore @70063 (Max) TPA with the deployment of jack hammer drill, excavator, dumpers etc. The mining is proposed to be carried out by mechanized means using equipment like crowbar, pickaxe, spade, chisel, hand shovel etc., and for loosening the hard strata jack hammer drilling for blasting is proposed. Wherever necessary small capacity excavator of 0.9 cum to 1.5 cum will be used for loading and transportation purpose. Keeping the view of the production of 70063TPA of manganese from the mine per day production will be 233.543TPA. There are 23 no. of vehicles (tippers) with the capacity of 10 ton will be used for transportation of minerals from the quarry to the processing.
8. **Waste generation and management:** Waste materials generated in plan period will be dumped in the dump yard which is in the barren area (no ore bearing / non-mineralized area) designed outside the ultimate pit limit. During the proposed plan period 1465166 Tons of waste will be generated and dumped over an area of 2.565 Ha. The waste dump will be provided with Retaining wall, garland drains and settling ponds have been proposed to be constructed to restrict the flow of surface water from the higher to low lying lands and to allow overflow of the water after due settling of the suspensions within the settling ponds.
9. **Water requirement:** Total water requirement of the project is 25.5KLD out of which 3.5KLD of water will be used for the domestic purpose and 22KLD of water is used for non-domestic use activities. Pure drinking water will be provided to all workers and their dependents.
10. **Power requirement:** 11 KV power line is passing through the lease area. However solar lights will be employed for day to day living purposes. Diesel requirement of 1000liters/month for operation of mining equipment and DG sets.
11. **Greenbelt development:** There is existing plantation area in the mine. A total 6700 no. of saplings will be planted along the Govt. ITI College and safety zone of the mine in the 1st 2years of the mining period. An area of 2.686Ha. will be used for the plantation.
12. **Total Employment:** A total of 104 no. persons (out of 104 employees, 4 no. of managers, 2 no. of supervisors, 8 no. of skilled workers, 18 no. of semi-skilled workers and 72 no. of unskilled workers) will be of employed for the expansion of the mine in enhancement of production.
13. **Project cost:** Estimated project cost is 20 crores. The proponent has all the equipment required for the project. The proposed cost for EMP will be 80 lakhs and CSR cost will be 30 lakhs.
14. **Environment Consultant:** The Environment consultant **M/s.Kalyani Laboratories Private Limited. (Bhubaneswar)** along with the proponent 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.Kalyani Laboratories Private Limited. (Bhubaneswar)**, the SEAC prescribed the following specific ToRs in addition to standard ToRs as per **Annexure – B** for conducting detailed EIA study.

- i) Precautionary measures should be taken so that the stacking area will not block the natural nala.
- ii) Copy of permission for water usage from the Water Resource Deptt., Govt. of Odisha.
- iii) Clarification is to be sought from the Director, Steel and Mines dept. for shifting educational institution within the lease area.
- iv) The safety provisions should be revised.
- v) Note on the blasting techniques to be followed in order for control of fly rocks and ground vibration.
- vi) Submit compliance to the previous EC conditions-imposed w.r.t the ITI.
- vii) Details of Forest Clearance obtained for the project.
- viii) Submit the compliance to CTE/CTO conditions.
- ix) Provision of culvert over the natural nala and its strength to handle the weight.
- x) Submit a chronology of development of the project with supporting documents.
- xi) Submit details of surface run-off management plan
- xii) There should be provision for garland drain at the dump site.
- xiii) Submit a copy of the drainage permission obtained.
- xiv) The PP should leave a 100m safety zone from the mining area.



MEMBER SECRETARY, SEAC

**STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT
IMPACT ASSESSMENT STUDY FOR MINERAL BENEFICIATION
PROJECTS AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT**

1. The alternate sites considered, the relative merits and demerits and the reasons for selecting the proposed site for the Beneficiation Plant should be indicated.
2. Details of the technology and process involved for beneficiation should be given.
3. Location of the proposed Plant w.r.t. the source of raw material and mode of transportations of the ore from mines to the beneficiation plant should be justified.
4. Treatment of run of mine (ROM) and or of the fines/waste dump should be spelt out.
5. Estimation of the fines going into the washings should be made and its management described.
6. Details of the equipment, settling pond etc. should be furnished.
7. Detailed material balance should be provided.
8. Sources of raw material and its transportation should be indicated. Steps proposed to be taken to protect the ore from getting air borne should be brought out.
9. Management and disposal of tailings and closure plan of the tailing pond, if any after the project is over, should be detailed in a quantified manner.
10. 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 also be indicated.
11. A copy of the document in support of the fact that the Proponent is the rightful lessee of the unit should be given.
12. All documents including EIA and public hearing should be compatible with one another in terms of the production levels, waste generation and its management and technology and should be in the name of the lessee.
13. All corner coordinates of the Unit, superimposed on a High Resolution Imagery/Toposheet should be provided. Such an Imagery of the proposed Unit should clearly show the land use and other ecological features of the study area (core and buffer zone).
14. Issues relating to Safety should be detailed. The proposed safeguard measures in each case should also be provided. Disaster management plan shall be prepared and included in the EIA/EMP Report.
15. The study area will comprise of 10 km zone around the Plant.
16. Cumulative impact study of both Beneficiation Plant with suggested mitigation measures as per the study should be described.

17. Option to provide only silo for storage of minerals instead of open stacking to avoid fugitive dust should be explored and arrangements finalized justified.
18. 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 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.
19. Details of the land for any Over Burden Dumps outside the lease, such as extent of land area, distance from lease, its land use, R&R issues, if any, should be given.
20. 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.
21. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
22. A study shall be got done to ascertain the impact of the 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.
23. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, 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.
24. 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.
25. Proximity to Areas declared as 'Critically Polluted' shall also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB/CPCB shall be secured and furnished to the effect that the proposed activities could be considered.

26. 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 lease 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.
27. 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 unit in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
28. 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.
29. 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.
30. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be secured and copy furnished. .
31. 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.
32. 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.
33. Details of any stream, seasonal or otherwise, passing through the project area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
34. 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. 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 the pollution.
35. 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.
 36. Details of the onsite shelter and facilities to be provided to the workers should be included in the EIA report.
 37. 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 should be detailed.
 38. 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.
 39. 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.
 40. Public hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan 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 brief background of the Project, its financial position, Group Companies and legal issues etc. should be provided with past and current important litigations if any.
 44. Benefits of the Project, if the project is implemented should be outlined. The benefits of the projects shall clearly indicate environmental, social, economic, employment potential, etc.
 45. Besides the above, the below mentioned general points are also to be followed:-
 - (a) Executive Summary of the EIA/EMP Report
 - (b) All documents to be properly referenced with index and continuous page numbering.

- (c) Where data are presented in the report especially in Tables, the period in which the data were collected and the sources should be indicated.
 - (d) 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.
 - (e) Where the documents provided are in a language other than English, an English translation should be provided.
 - (f) The Questionnaire for environmental appraisal of project as devised earlier by the Ministry shall also be filled and submitted.
 - (g) While preparing the EIA report, the instructions for the proponents and instructions for the consultants issued by MoEF&CC 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 also be followed.
 - (h) 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.
 - (i) 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. 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 by the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.
46. **THE TORS PRESCRIBED SHALL BE VALID FOR A PERIOD OF THREE YEARS FOR SUBMISSION OF THE EIA-EMP REPORTS ALONG WITH PUBLIC HEARING PROCEEDINGS (WHEREVER STIPULATED) AS PER MOEF&CC, GOVT. OF INDIA O.M. NO. J-11013/41/2006-IA-II(I)(P), DATED 07.11.2014.**

TERMS OF REFERENCE (ToR) FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT FOR BHANJAPALLI, KOIRA & TEHERAI MANGANESE MINE OVER AN AREA OF 65.71 HA. AT VILLAGE: BHANJAPALLI, KOIRA & TEHERAI, TAHASIL: KOIRA, DISTRICT: SUNDERGARH OF SRI RUDRA SEN SINDHU - 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

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- 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 alongwith 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 falling 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 (lease 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 PM₁₀, 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

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- 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. Specific TOR : 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 should prepare 5 years regional plan for annual iron ore requirement from the state, which in turn shall be met from different mines/zones (e.g. Joda, Koira.) in the state. Accordingly, sustainable annual production (SAP) for each zone/mine may be followed adopting necessary environmental protection measures.
2. The expansion or opening of new manganese ore mines may be considered only when the actual production of about 80% is achieved. Further, the mines that have not produced Mn ore for last two years and have no commitment in the current year as well: EC capacity in such cases may be reviewed. The Department of Steel & Mines, Govt, of Odisha shall submit the Annual Report on this issue to the MoEF&CC for further necessary action.
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,

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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 (SOTM)

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
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	Minimum 70% by public railway siding and maximum 30% by

Code	EC	Suggested Ore Transport Mode
	< 3 MTPA	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 SOTM 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 with 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 as per the provisions of EIA Notification 2006, 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.

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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 Yr 1	2017- 18 Yr 2	2018-19 Yr 3	2019-20 Yr 4	2020-21 Yr 5
Mine 1	X1					
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, SO2, NOx 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, PM10, PM2.5, SO2, 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 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

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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 geotextile 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 long period. 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

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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 outtees 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 the suggested 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 by 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, PM₁₀ should be monitored near the roads towards entry & exit gate on regular basis, and be maintained within the acceptable limits. Responsibility: Individual Mine Lease Holders 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 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	SPCB	Continuous Annually

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Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
	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 PM ₁₀ , PMP.S, SO _x and NO _x within the mine having more than 3 MTPA EC Capacity	Respective Mine Lease Holders	Continuous Annually
	Installation of online ambient air quality monitor for PM ₁₀ , PM _{2.5} , SO _x and NO _x 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 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.	SPCB	Once in 2 years
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

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
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 through 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 upliftment 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

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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 & Central 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 general 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.**