

**PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL  
COMMITTEE, ODISHA HELD ON 19<sup>th</sup> FEBRUARY, 2021**

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The SEAC met on 19<sup>th</sup> February, 2021 at 11:00 AM through video conferencing in Google Meet under the Chairmanship of Sri. B.P. Singh. The following members were present in the meeting.

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

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

**ITEM NO. 01**

**PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR RARBAHAL GRAPHITE MINES OVER AN MINING LEASE AREA OF 20.675 HA LOCATED AT VILLAGE- RARBAHAL, TAHASIL- BELPARA, DIST- BALANGIR OF SRI ANTARYAMI MISHRA - EC**

1. This is a proposal for Environmental Clearance for Rarbahal Graphite Mines over a mining lease area of 20.675 ha located at Village- Rarbahal, Tahasil- Belpara, Dist- Balangir of Sri Antaryami Mishra.
2. The project falls under category "B" or activity 1(a) - Mining of Minerals projects under EIA Notification dated 14th September 2006 as amended from time to time.
3. ToR for this project has been granted by SEAC vide letter No. 849/SEAC/157 dated 12.10.2018. Public hearing was conducted on 22.01.2020 at Rarbahal Graphite Mines of village Rarbahal in Balangir district. Consent to establish from OSPCB, vide letter No. 3738/III CON(NOC)/34/2019-20, Dtd. 08.10.2020, has been obtained.
4. This is a proposal for graphite mining project with production capacity of 0.0138 Million Tonnes/Annum of Graphite Ore over mining lease area of 20.675 ha.
5. The mine lease is located at Plot No. 46, Village Rarbahal, Tahasil- Belpara, District Balangir, Odisha. The latitude 20° 34' 08" N to 20° 34' 27" N and longitude 83° 02' 10" E to 83° 02' 29" E. The highest altitude is of 258 mRL and the lowest altitude is 252 mRL. The area falls in the Survey of India Topo -sheet no. 64 P/ 2, 64 P/3, 64 L/14 & 64 L/15. The lessee is Sri Antaryami Mishra.
6. The lease area 20.675 ha is Government Non- forest land. The mining lease over an area of 20.675 ha was granted vide order of Dept. of Mines & Steel G.O. No.10334/SM/II(GR)SM - 27/2017 dt.15.12.2017 (expiry on 14.12.2067) for fifty years in favour of Sri Antaryami Mishra. Due to adverse marketing conditions there was no mining in the lease area till the end of first lease period.
7. Thereafter, the renewal of mining lease was granted to the lessee on over an area of 20.675 ha. for a period of 15 years from 05.03.2005 to 04.03.2020. Now, as per Rule 8 A (3) of MMDR (Amendment) Act 2015 lease period is valid up to 04.03.2040.

8. The mining plan of Rarbahal Graphite Mining lease in Village - Rarbahal, District – Balangir, State – Odisha was approved under Rule 23 of MCDR, 2017 by the Regional Controller of Mines, Odisha Region, Indian Bureau of Mines vide letter No. MP/OTFM/04-ORI/BHU/2018-19/518 dated 16.05.2018.
9. **Location and Connectivity** - The topography of the area represents a mild sloping terrain. General slope of the area is from West to East. Applied M.L area can be approached from Balangir (district head quarter) covering a distance of 64 km which is the sum of 38 km SH between Balangir and Patnagarh, 13 km SH between Patnagarh and Mandal square, 8 km metalled road between Mandal square & Mandal, 4 km metalled road between Mandal & by pass to Rarbahal and 1 km kuchha road between by pass to Rarbahal P.L area via village Rarbahal. Lease area is also approachable from Belpara PS town covering a road distance of 12 km. The nearest railway station is at Kantabanji on the Titlagarh – Raipur rail track of the East-Coast Railway which is 25 km from the lease area. The nearest air port is at Bhubaneswar at a distance 390 K.M from the project site.
10. The total Mineable reserve is 96,799 MT. The ore occurs at shallow depth and rocks are mostly weathered and soft, hard in patches only. Graphite ore exposed in the existing quarry inform of small veins, pockets, lenses & vein etc. Therefore, mining will be done on single shift basis, by open cast semi mechanized method of mining with the help of excavators.
11. Mining will be done in a top downward manner by developing 3m high & 3m wide bench. Graphite from the bench floors will be transported manually by head load to the ore stacking & sorting site. The quarry will be developed between the RL 257.6 m and RL 222.2 m. Overall quarry slope angle will be kept at around 60° with the horizontal.
12. Excavation will be taken up on the north western side of the lease area. Average annual production during the ensuing plan period will be 13023 tonnes. Average working days during the year are about 300 days. Average daily production is about 43.4 tones. No drilling and blasting will be done for loosening of hard rock mass during mining operation.
13. During the development work of 2018-19 to 2022-23, the top soil in the tune of 93874.84 m<sup>3</sup> will be spread on the waste dump and preserved for future plantation work.
14. During current scheme of mining (2018-19 to 2022-23), the volume of the waste/ OB generated (including side burden waste) will be 476744.6 m<sup>3</sup>. Thus the total new volume of waste generated during the coming years that is till the tentative end of the life of the mine, shall be 544920 m<sup>3</sup>. Therefore, the ultimate capacity of the waste dump at the end of the life of the mine shall be 544920 m<sup>3</sup>. The dumps shall be kept in terraces in a regular fashion. It is proposed to dump in south-western of the quarry. The ultimate capacity of proposed dump will be 544920 m<sup>3</sup>, with a height of 20 m having two terraces. Development of garland drain and retention wall will be done simultaneously with the development of dump.
15. Machinery used for mining purpose will be excavator, loader, tippers, sprinkler, jeep etc.
16. **Water Requirement** - Total 10 KLD per day water will be required for overall purposes. 5 KLD water for drinking and domestic purposes, plantation, water sprinkling on land roads & agriculture purposes, 5 KLD for beneficiation of ore. Drinking water will be collected from a bore well and the rest water will be collected from the mining pit.
17. The maximum strength of workers will be 26 nos. Most of the workers will be hired from local villages. Besides there will be indirect employment for transportation, canteen, repair shop, security etc. Since there is no habitation in the lease area therefore no resettlement will be

necessary. During the plan period 6000 plants will be planted in 10.06 m<sup>2</sup>. The entire plantation will be done on the 7.5 m safety barrier. The project cost is about ` 80 Lakhs.

18. The extracted ore will be dispatched to secondary washing plant located at village- Dungerepalli, Dist-Balangir at a distance of 25 Km. If in case the plant is not established as per the proposal than the ROM will be sent directly to the washing plant located at Village-Dungerepalli of district Balangir.
19. **Green Belt** - Total green area at the end of conceptual period is 19.29 ha land. No. of trees proposed to be planted = 6000 trees. Plantation of wide leaf trees, creepers, tall grasses around quarry sites, waste dumps, roads, colony and other surrounding barren zones.
20. Baseline data collection for the project has been conducted from period March – 2018 to May 2018.
21. The total estimated cost of the project is approximately INR ` 0.8 Crores.
22. The consultant **M/s Green Circle. INC., Vadodara (Gujarat)** along with the proponent have made a detailed presentation on the EIA/EMP report.

Considering the information / documents furnished by the proponent and presentation made by the consultant, the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent.

- (i) Plot wise Khasra of land duly certified by concerned Tahasildar.
- (ii) Copy of agreement between owners of private land for company.
- (iii) Details of silt management, water logging management and Waste Water Management, besides discharge / disposal management with SOP / mechanism of water accumulated during rainy season in mines pit.
- (iv) Proposal for reduction of ground water usage.
- (v) Details of Zero discharge proposal.
- (vi) Slope study report to be undertaken both for mine and OB / waste dump by domain expert and blasting study as well.
- (vii) Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage i.e. complete waste / dump / OB management.
- (viii) Documents related to permission letter from WR Deptt, Govt. of Odisha respectively for drawl of ground water.
- (ix) Status of physical condition and maintenance of approach roads from lease area to washing plant. NOC and maintenance of approach road from concerned authority.
- (x) Possibility for water usage from River Lanth, to reduce load on ground water usage.
- (xi) Total Plantation should be carried out within 2 years and maintenance to be continued in remaining years. Trees present in mining area should be uprooted & transplanted in safety zone.
- (xii) Sludge disposal from ETP and settling tanks, rain water harvesting and usage /recharge / recycling of it to reduce the use of ground water.
- (xiii) Detailed proposal for Rain water Harvesting.
- (xiv) Copy of modified mining plan incorporating progressive mine closure plan.

- (xv) Actual mineral deposit in 10 ha. Justify why they will require more than 20 ha. of land for mining.
- (xvi) Occupational Health Study report, including identification of occupational health hazards for employees as well as neighboring habitation, remedial measures for it and periodical health checkups, at least once in six months by occupational health expert.
- (xvii) Detailed surface runoff management plan.
- (xviii) Justify the lease period is 50 years when life of mine is less than 50 years.
- (xix) Project proponent may submit a certificate from concerned Executive Engineer, Water Resources Deptt, Govt. of Odisha that proposed mining will not interfere or cause hindrance to ongoing irrigation project.
- (xx) Proceedings of public hearing to be submitted and actions proposed to be taken in physical terms for the environmental issues raised.
- (xxi) SOP for zero discharge of slit and waste water to Agricultural.

## **ITEM NO. 02**

### **PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF BAITARANI IRON ORE MINES FOR EXPANSION IN PRODUCTION OF IRON ORE FROM 52531 TPA TO 400120 (5,71,600 TPA IRON ORE ROM) ALONG WITH SETTING UP A 200 TPH CRUSHING & SCREENING PLANT AND A 100 TPH BENEFICIATION PLANT (210000 TPA THROUGHPUT) OVER AN MINING LEASE AREA OF 65.397 HA. IN BAITARANI R.F. LOCATED NEAR VILLAGE-INGANIJHARAN, PO- DADUAN, TAHASIL- BARBIL, DISTRICT- KEONJHAR, ODISHA OF DR. SAROJINI PRADHAN (UNDER VIOLATION CASE) – EC**

1. This is a proposal for Environmental Clearance for Baitarani Iron Ore Mines for Expansion in Production of Iron Ore from 52531 TPA to 400120 (5,71,600 TPA Iron ore ROM) along with setting up a 200 TPH Crushing & Screening Plant And a 100 TPH Beneficiation Plant (210000 TPA Throughput) over an mining lease area of 65.397 Ha. in Baitarani R.F. located near Village- Inganijharan, PO- Daduan, Tahasil- Barbil, District- Keonjhar, Odisha of Dr. Sarojini Pradhan.
2. The Baitarani Iron Ore Mines over an area 65.397 ha. of forest land is located in the Baitarani R.F., near Village: Inganijharan, Tahasil: Barbil, Dist: Keonjhar, Odisha. The lease was executed by Govt. of Odisha in favour of Dr. Sarojini Pradhan on 16.09.1980 for a period 20 years with affect from 28.07.1978. The lease has been executed in two parts. Baitarani Iron Ore Mines over lease area- 52.892 ha. and 12.505 ha. Lease area 52.892 ha. was executed on 16.09.1980 in favor of Dr. Sarojini Pradhan for a period 20 years with effect from 28.07.1978. Subsequently the lease period was enhanced from 20 years to 30 years i.e up to 28.07.2008 vide proceeding No. 12239 dated 24.09.1980. Lease area over 12.505 ha. adjacent Baitarani Ore mining was executed on 09.05.1986 in favor of Dr. Sarojini Pradhan for a period of 30 years.
3. Subsequently, both mining lease area were amalgamated to 65.397 ha. and the supplementary lease deed period was executed till 27.07.2008 by the Collector, Keonjhar post issuance of Amalgamation Grant Order vide Department of Steel & Mines, Govt. of Odisha proceedings No. IV(AB)SM-96/2006/5553/SM dated 22.06.2007.
4. The said mining lease has been deemed Granted till 27.07.2028 U/s 8(A)(3) of the Amended MMDR Act, 1957. The same have been communicated by the Directorate of Mines, Department of Steel & Mines, Govt. of Odisha vide letter dated 31.01.2020.
5. The total land is forest land for which stage-I clearance has been approved vide MoEF&CC, Govt. of India letter No.F .NO.8-58/2008-FC dated 27.04.2009. The area does not have any

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eco sensitivity area. The wild life conservation plan has been approved Vide letter No11357/IF(Mn)-43/2007 dated 23.07.2009

**6. Violation under Environmental Protection Act:**

- (i) Maximum Production before 1994 :64948.50 TPA
- (ii) Permissible limit as per CTO : 52531 TPA

Year	Production (in T)
2003-04	1,79,012
2004-05	2,35,652
2005-06	210,308
2006-07	266,743
2007-08	245,307
2008-09	245629

**7. Violation under Forest Act :**

- Broken up land Surveyed & Certified by D.F.O, Keonjhar as on 2009 during submission of FC application was 15.045 Ha.
- Stage-I Forest clearance for diversion of 61.543 Ha. excluding the safety zone area has been obtained vide MoEF&CC, Govt. of India letter No. F No. 8-58/2008-FC dated 27.4.2009.
- On direction of Hon'ble Supreme Court to determine the existing land use within mining lease joint survey was conducted by officials of Revenue, Forest, Mining & ORSAC (from 12.07.2017-24.07.2017) comes to 17.50Ha.

**8. Following action has been taken against violation:**

Particulars	Remedial steps taken against violation		
	Concerned Authority	Directions	Remedial Steps
Violation under Environmental Protection Act	Hon'ble Supreme Court in W.P.(c) No. 114/2014	The State Govt. has raised demand of Rs.93.79 Cr. Under section 21(5) of the MMDR Act	The Project Proponent has committed to pay the said amount prior to operation of mining
	Violation U/s 19 of Environment Protection Act, 1986	Court of the Collector & District Magistrate, Keonjhar has file Misc. Case No. 31 of 2012 vide Show Cause notice dated 15.09.2012	The case is currently being heard in the Court of J.M.F.C, Barbil, Order No. 213/2018 to 266/2018 dated 26/11/2018

9. The MoEF&CC, Govt. of India vide letter dated 06.04.2020 have accorded Forest clearance U/s 2(ii) of the FC Act for diversion of 61.534 Ha. of Forest Land. The Department of Environment & Forest, Govt. of Odisha vide letter dated 19.11.2020 have accorded Forest Clearance U/s 2(iii) of the FC Act over 3.863 Ha. of forest land coming within the safety zone as lease.

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10. Mining will be carried out by open cast other than fully mechanized (Category-A) and the beneficiation process will be wet process. Mining will be eight hourly shift basis. Excavation, loading, sizing, (crushing & screening) and transportation are the various mining operations.
11. Total Mineable reserve for Iron is 8917500 T and Geological reserve is 11334100 T. The mining life will be considered 10 years i.e. July 2028 after obtaining Environmental clearance.
12. The existing 25 TPH crushing plant and 100 TPH & 50 TPH screening plants are proposed to be replaced by a 200 TPH mobile crusher and two nos. of 200 TPH mobile screens along with beneficiation plant of 100 TPH in order to improve the grade of iron ore to suit the market demand. Two mobile screening units of 200 TPH capacity each will be commissioned in the lease area where run-off mine will be screened into fines (-10mm) and two types of lumps such as +10-30mm and +30-80mm. Oversize iron ore obtained from the screens and run-off mine ore (+30mm-300mm) will be broken/crushed in the jaw crusher (200 TPH). Saleable ore in the form of product of the crusher will be in two forms i.e. lumps and fines.
13. The sub grade ore and low grade ore will be homogenously blended to form an ore mix of average 52 % Fe. This will be processed through a wet beneficiation flow sheet to yield a coarse concentrate with 5-18mm size and 62% Fe content which is saleable as preferred DRI feed material and a fine concentrate -150  $\mu$  in size and 62% Fe content which is saleable as good pellet feed material. Total recovery of concentrate will be 58% by weight and the tailings generated will be 42% by weight with 38.19% Fe content.
14. Mining activities will be carried out within the lease area of 65.397 Ha excluding safety zone. Type of land of the total lease area is Reserved Forest.
15. Total make up water requirement for both the mine and beneficiation plant will be 1920 m<sup>3</sup>/day. The source of water will be bore well and mining pit accumulated water. The water table in study area is 6-6.5 m bgl. The general elevation of mining lease is 490 MSL. Likely depth of water table is anticipated to be 450 MSL. Water table is anticipated to be 45 m bgl (at 450 MSL) in rainy season and 50 m bgl (445 MSL) in pre-monsoon.
16. The Central Ground Water Authority (CGWA) vide letter dated 19.12.2018 have accorded approval for usage of dewatered mine pit water and for extraction of ground water of 1920 KLD. Approval for extraction of additional water if required for mine pit head beneficiation plant when setup will be taken from the CGWA.
17. The total power requirement for the mines and beneficiation plant and is estimated to be about 3100 KVA.
18. Total manpower required during construction period of the beneficiation plant shall vary from 100 to 200. Most of the unskilled workers shall be from local area only. During Operation phase total 400 manpower will be required.
19. Estimated capital cost of the project is ` 80.00 Crores, which includes ` 75.00 Crores for Iron Ore Beneficiation plant and ` 5.00 crores for mining & its allied activities.
20. About 154960 cubic meter waste have been dumped over six nos. existing dumps namely D1, IA, IB, IC, ID & 2. About 622500m<sup>3</sup> solid waste will be generated during scheme period. Existing dump(1C) quality will be used for leveling of crusher unit. Existing dump (D1 will remain as such). Proposed quantity of waste dump will be adjusted in rest of existing dumps. Total dump area will be 5.306 Ha.
21. Green belt: 2588 saplings have been done over 1.6 ha. and 2500 sapling will be done over 1.5 ha. during scheme period.

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22. The project will benefit local people with respect to employment, as they will be preferred for project recruitments. They will also be benefited by indirect employment because of inflow of personnel to the area during project operation.
23. Total lease hold area of the mining project is entirely reserve forest. The lease hold area does not involve any house outsees or land outsees.
24. The mining project and proposed beneficiation plant will have following operational advantages:
  - Fulfill the raw material requirement of the existing and expanding steel units of the region.
  - Improve the existing environment which is degraded on continuous basis due to handling, storage and disposal of iron ore Sub grade and fines.
  - Increase in revenue in terms of taxes at local, state and national level;
  - Opportunity to create direct and indirect employment
25. The project proponent has already spent ` 2,79,86,162.00 and has proposed to spend ` 4,19,79,243.00 towards implementation of CSR / peripheral development activities.
26. Application for Environmental Clearance was submitted for the expansion of the project with Beneficiation Plant to MoEF&CC, Govt. of India in proper format on 24.01.2012.
27. ToR obtained on 19.07.2012 for the enhancement of production from 52531 TPA to 400120 TPA along with beneficiation plant with 2,10,000 TPA through put.
28. Public hearing was conducted accordingly on 20.02.2014.
29. The Final EIA/EMP report was submitted to MoEF&CC, Govt. of India on 17.7.2014 within prescribed time to the MoEF&CC, Govt. of India for consideration of Environment Clearance. However, the same was kept on hold due to non-acceptance of NEERI report on carrying capacity study of project affected area and due to the pendency of the W.P.(C) No. 114/2014 in the Hon'ble Supreme Court of India.
30. As per the MoEF&CC, Govt. of India notification dated 14.03.2017 this project comes under the violation for which an additional set of TOR conditions are to be issued in addition to existing Environment Clearance Letter or modification of Final EIA/EMP report if Environment Clearance is yet not obtained.
31. As per new notification S. O. 3977(E) dated 14.08.2018, the mining lease area less than 100 Ha. falls in Category B and the project has hence been submitted with the SEIAA/SEAC for consideration on issuance of additional TOR conditions.
32. The project proponent submitted the Affidavit in compliance with the MoEF&CC, Govt. of India OM no. 3-50/2017-IA-III (Pt.) dated 30<sup>th</sup> May 2018.
33. The project proponent requested to issue specific ToR as per MoEF&CC, Govt. of India notification dated 14.03.2017 "for preparing an independent chapter comprising assessment of ecological damage, remediation plan and natural & community resource augmentation plan through accredited consultants" and for submitting the same along with the Final EIA / EMP report already prepared and submitted with the public hearing held on 20.02.2014 for grant of Environmental Clearance.
34. The SEAC Odisha in its meeting dated 06.12.2018 had confirmed the case to be of violation

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of the EIA Notification, 2006 in terms of provisions of the MoEF&CC, Govt. of India Notification dated 14.03.2017 and had recommended issue of Standard Term of Reference, Specific Term of Reference along with additional specific conditions as recommended by CSIR-NEERI on carrying capacity study.

35. The State Govt. in accordance with the judgement of the Hon'ble Supreme Court in W.P.(c) No. 114 of 2014 have levied a demand of ` 93.79 crores U/s 21(5) of the MMDR Act on the said mining lease. Accordingly, the project proponent has made partial payment of the said demand. The project proponent has submitted a sworn notarized affidavit to make complete payment of the said demand prior to operationalization of the project.
36. Assessment of ecological damage caused due to excess iron ore production post implementation of EIA 1994 cutoff date with respect to air, water, land and other environmental attributes has been done by NABET accredited consultant by field visits and collection of information from State Govt authorities, private institutions and the local population.
37. The total Environment/Ecological Damage has been assessed to be ` 2.2 Crores. Towards this the project proponent has already spent ` 2.8 Crores as CSR costs during the period of violation. However, the project proponent has proposed to submit a Bank Guarantee of an amount of ` 2.2 crores as per conditions of the ToR with the SEIAA. The equivalent amount has been proposed to be spent by the project proponent over three years post operationalization of the project subject to which the said Bank Guarantee will be released by the SEIAA.
38. The total cost of the project is ` 39.25 crores which is inclusive of capital cost of ` 37 crores and Environment Management & CER cost of ` 2.23 crores constituting 4% of the project cost. The Capital cost of implementing EMP is ` 68.25 Lakhs whereas the annual recurring cost for implementation of EMP is ` 16.75 Lakhs.
39. The project proponent along with the consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar** made a detailed presentation on the proposal.

Considering the information / documents furnished by the proponent and presentation made by the consultant, the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent.

- (i) FC details with copy of all FC.
- (ii) Copy of lease document.
- (iii) Details of continuous monitoring station installed in Joda/Badbil and additional air quality monitoring station to be installed at entry and exit of mines and haulage road, buffer zone and schools and habitations.
- (iv) Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage.
- (v) Details of silt, waste and water Management should include the design of drainage structures reworking stand alone for mines and beneficiation plant and then integration of both, starting with total water requirement, make up water recycling after necessary



treatment, usage of rain water harvesting and use of it to reduce the total water requirement with water balance diagram.

- (vi) Details of Rain water Harvesting and use of the harvested water.
- (vii) Details of year wise water consumption per tons of Iron production from 3<sup>rd</sup> year onwards with water balance diagram.
- (viii) Proposal for installation of STP and reuse of treated waste water details.
- (ix) Documents related to permission letter from WR Deptt, Govt. of Odisha for drawl of ground water.
- (x) Mitigation measures for dust suppression, environment protection in catchment area.
- (xi) Layout plan for parking plaza showing / calculating the parking area with respect to no. of vehicles to be parked dynamically with basic amenities / facilities.
- (xii) Progressive mine closure plan to be submitted.
- (xiii) Undertaking in form of legal affidavit by project proponent for payment of entire levy amount raised by the State Government for excess production before going for operation of the mine.
- (xiv) Periodical health checkup of employees due to Occupational Health Hazards by occupational health expert, at least once in six months, both for employees as well as people of neighboring habitation.
- (xv) Since, the River Baitarani is passing nearby, detailed measures to be taken to protect the River due to mining activity.
- (xvi) Details of Beneficiation plant along with technological support.
- (xvii) Details tailing management.
- (xviii) Land use breakup for Beneficiation Plant.
- (xix) Programme in details to address issues raised during public hearing.
- (xx) Undertaking in the form of legal affidavit that they will obtain Modified Mining Plan beyond 3 years as it will expire after 3 years.
- (xxi) Details of Corporate Environmental Responsibility (CER) beyond 3 years of expiry of mining plan.
- (xxii) Under taking in form of legal affidavit that No overlap of activities proposed for augmenting environmental loss with CER activities.
- (xxiii) Compliance to NEERI recommendations.
- (xxiv) Since the plant is located in Barbil, analysis of hexavalent chromium in the nearby drain, water body, effluent to be submitted with limit value.
- (xxv) The percentage of iron in the final waste generated and not used as iron ore or its upgradation.
- (xxvi) To submit "Zero dust Re-suppression Management" with SOP both inside the mines, screening / crushing plant, beneficiation plant and haulage road and all mineral carrying roads with SOP.
- (xxvii) To submit internal road network with dimensions.
- (xxviii) Disaster Management in case of intersection with ground water during mining and water logging thereof.

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(xxix) Details of plantation with species alongside the haulage road to be submitted

### **ITEM NO. 03**

#### **PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF B.D. PATNAIK MINERALS PVT. LTD FOR PRODUCTION OF 0.25 MILLION TPA LIMESTONE & DOLOMITE MINES OVER AN MINING LEASE AREA OF 44.742HA LOCATED AT VILLAGES - SARUMUHAN AND CHUNAGHUTI, TAHASIL- RAJGANGPUR, DISTRICT- SUNDERGARH, ODISHA OF SRI AJAY KUMAR PATNAIK (UNDER VIOLATION CASE) - EC**

1. This is a proposal for Environmental Clearance for Sarumuhan-Chunaghuti Limestone & Dolomite Mines of M/s B.D. Pattnaik Minerals (P) LTD. has proposed for production of 0.25 MTPA of limestone over an area of 44.742 ha. at Villages - Sarumuhan and Chunaghuti , P.S- Rajgangpur, Dist: Sundargarh, Odisha.
2. The mine is situated at Sarumuhan and Chunaghuti Villages, P.S. Rajgangpur in Sundargarh District of Odisha. The latitude is 22<sup>o</sup> 17' 25" to 22<sup>o</sup> 18' 10" N and longitude is 84<sup>o</sup> 36' 01" to 84<sup>o</sup> 36' 13" E. Mandira reservoir is situated at a distance of 0.3 km north side of the ML area. The mine is well connected by all weathered murram road diverted from the main road of Sundargarh- Raurkela on SH-10. The nearest railway station/bus stand is available at Rajgangpur (12km), the nearest airport is Jharsuguda (70 km) & the nearest city is Rourkela (23 km). Sundargarh is the district headquarters situated at 62 km & Bhubaneswar, state capital 260 Km in Odisha from the mines.
3. The Mining Lease of 173.087 ha was first granted in favour of M/s B. D. Patnaik on 02.09.2075 for a period of 20 years, which had expired on 01.09.1995. The Lessee submitted his application for 1st renewal of Mining Lease over a reduced area of 44.742 hectares which was granted by the collector, Sundargarh of Odisha vide letter no.7974/M dated on 16.8.1996 for a period of another 20 years i.e. 02.09.1995 to 01.09.2015. In the meantime, the said mining lease over an area of 44.742 hectares in village Sarumuhan and Chunaghuti was transferred from M/s B. D. Patnaik to M/s B. D. Patnaik Minerals (P) Ltd on 25.07.2000. The Mining Lease area involves Non Forest Govt. waste land.
4. As per amendment of MMDR Act 2015, the mining lease is now deemed to have been extended for a period of fifty years i.e. up to 01.09.2025. The total surface right granted to the lessee is to the tune of 27.22 acres and was available to the lessee in two phases.
5. The mine is closed by Deputy Director of Mines, Rourkela since November'2009 vide letter no - 14247 (25) on dated 07 11.2009 due to want of Environmental Clearance (EC) and noticed as violation.
6. The Application for Environmental Clearance was submitted by the proponent to SEIAA, Odisha on 24 01.2013 and accordingly, the ToR was issued on 27.11 2013 Base line data were generated from Dec' 2013 to Feb' 2014. Accordingly, draft EIA/EMP report has been prepared. The Public Hearing for the proposal has already been conducted on 24.06.2015.
7. Accordingly, the final EIA report submitted to SEIAA, Odisha for Environmental Clearance on 24.11.2016 But, in the meantime, a Notification was issued by the MoEF&CC on 14.03 2017 to apply the violation case at Central level and accordingly they had applied to the MoEF&CC, Govt. of India, New Delhi within the stipulated time.
8. Again on 16 03.2018, an OM was issued by the MoEF&CC, Govt. of India mentioning "All the proposals of category 'B' projects/activities pertaining to different sectors, received within six months only i.e. up to 13th September, 2017 on the Ministry's portal, but yet not

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considered by the EAC in the Ministry, shall be transferred online to the SEAC/SEIAAs in the respective States/UTs' and accordingly, the proposal was transferred to SELAA, Odisha for consideration.

9. This is a case of violation due to production of 637 MT of limestone during 2008-09 and 2009-10 without Environmental Clearance.
10. Deputy Director of Mines, Rourkela vide letter no-2992 on dated 15.11 2017, noticed to show cause for payment of ` 1,78,020/- towards compensation under section 21 (5) for production in violation of Act.
11. The project falls under Category" B" as per MoEF&CC, Govt. of India Notification as the Mining Lease Area is less than 100 ha (as per S.O. 3977, dt.14.08.2018).
12. The SEAC confirmed the case to be of violation of the EIA Notification and recommended for issuing Standard Term of Reference with specific Term of Reference and additional specific conditions as recommended by CSIR-NEERI on carrying capacity study for undertaking EIA and preparation of Environmental Management Plan (EMP).
13. **Method of Mining** - Mining activities in the lease area is proposed to be worked out by Semi mechanized method of mining under OTFM-A category to produce required production target in the ensuing modified plan period. At first to exploit the limestone from the quarry top soil will be removed by scrapping using excavators. The topsoil will be stacked at the earmarked site for future use. Limestone will be loosened through drilling & blasting. Rock breaker will be used to avoid secondary blasting. Controlled blasting technique will be practised by using delay detonators.
14. After blasting, ROM will be crushed and screened to various sized ore as per the buyer's specification by the proposed 30 TPH crusher-cum-screening plant. All the mining activities like drilling, blasting, excavation, loading and transportation will be carried out by using heavy earth moving machineries to produce 2,50,399 MT (maximum) limestone per annum.
15. Drilling & Blasting: Drilling of the blast holes is proposed to be done by a compressed air jack hammer. Hence 6 nos. of jackhammer are required of which 5 will be in operation & the 6th one will be kept as stand by. The diameter of the drill rod is 32mm. To carry on blasting operation, class III explosive (special gelatine) 80% strength & class VI (detonator and safety fuse of standard length) will be used in the mine.
16. Loading & Transportation: The generated ROM ore will be transported to the crusher site by the 10 T capacity tippers. A total of eleven nos. of 10-tonne capacity tippers will be required to transport the ROM ore to the crusher plant side. The generated waste will be dispatched to the nearby proposed dump. Total trucks required per day is 8.
17. Nature of waste: The limestone deposit of the area is associated with a topsoil of thickness 0.5-1.0 meter. The soil found in the area is fertile in nature. During the development period, some amount of OB will also be generated mainly in the form of phyllite & slate. During the mining activities, there will also be waste generated mainly as an inter burden. As revealed from the quarry sections, bands of phyllite and slate would constitute the inner burden apart from limestone having CaO < 35%.
18. Dumping site: In the ensuing modified plan period, the total quantity of waste as IB and OB to be dumped from the limestone quarries in the year 2020-21 to 2024-25 would be about 1,13,014 m3. It has been proposed to dump this generated waste at the northwestern side of the lease area. This quantity of waste will be stacked in an area of 1.866 hectares with a

dump height of 23 m with 3 nos of terraces. At the end of the plan period, the proposed dump will be maintained at 291.7 MRL.

19. Green belt: Enhancement of Green belt development/ plantation will be developed in the project site and in the periphery of the project boundary, which will improve the floral and faunal diversity of the project area. A belt of trees with a thick canopy will be created to intercept dust, gaseous pollutants, and noise.
20. Water Requirement: There will be no use of water in the mining operation. Water will be required for domestic purposes, sprinkling for dust suppression, and green belt development only. The total water requirement for the proposed project will be about 10 m<sup>3</sup> /day during Non-monsoon as follows. This quantity of water will partly be sourced from the three water storage tanks (Total Capacity of these Three Tanks will be 450 m<sup>3</sup>) proposed within the lease area to store harvested rainwater through rainwater harvesting system and partly from the nearby ponds. No groundwater will be used for the purpose.
21. Power requirement: The mining operations will be carried-out by machinery which is run by diesel. No powered equipment will be deployed.2 No of DG sets 60 and 150KVA will be used.
22. Employment Generation: The total manpower requirement for this mining project is 95 persons. Preference for employment will be given to locals. The project will also generate indirect employment opportunities for the locals. .
23. The total cost of the project is ` 3.09 Crores.
24. The consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar** made a detailed presentation on the revised project before the SEAC on behalf of the project proponent.

Considering the information / documents furnished by the proponent and presentation made by the consultant, the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent followed by visit of sub-Committee of the SEAC to the mining site to ascertain possible damage to Mandira Dam and to decide specific conditions for the purpose.

- (i) Plot wise kissam of land duly certified by concerned Tahasildar.
- (ii) Details of case registered by the State Government under section 19 of Environment (P) Act, 1986 for violation and its current status with supporting documents.
- (iii) Mitigation measures to be undertaken during mining to protect Mandira Dam.
- (iv) Identification of occupational health hazards and mitigation measures towards it including periodical visit / health check up by trained occupational health expert, both for employees / workmen / and people of neighboring habitation.
- (v) Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage.
- (vi) Details of Top soil generation and its utilization.
- (vii) Documents related to permission letter from WR Deptt, Govt. of Odisha for mining activity near to Mandira Dam.
- (viii) Total Plantation should be carried out within 2 years and maintenance to be continued in remaining years. Trees present in mining area should be uprooted & transplanted in safety zone.
- (ix) Copy of modified mining plan incorporating progressive mine closure plan.

- (x) Undertaking in form of legal affidavit by project proponent for payment of entire levy amount raised by the State Government for excess production before going for operation of the mine.
- (xi) Compliance to issues raised in public hearing conducted on 24.06.2015 along with proposed actions to be taken in physical terms on the environmental issues raised during Public Hearing.
- (xii) The cost of ecological damage assessment is seemed to be very less. This should to be re-calculated with sufficient justification and revised document to be submitted.

#### **ITEM NO. 04**

#### **PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR ROIDA-II IRON ORE MINE OF PRODUCTION CAPACITY 3.5 MTPA HA. OVER MINING LEASE AREA OF 74.702 HA., LOCATED AT- TANTO & SIDHAMATH RF, TAHASIL - BARBIL, DISTRICT – KEONJHAR, NARBHERAM POWER AND STEEL PRIVATE LIMITED – 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. As per EIA Notification dated 14.09.06 and its subsequent amendments S.O. 3977(E) dated 14.08.2018, the project falls under, Category “B”.
3. Initial grant of Roida II Iron Ore lease was for 30 years i.e. from 03.09.1957 to 02.09.1987. Lease was put up for auction vide NIT dated 06.12.2019 as the validity was expiring on 31.03.2020. Govt. of Odisha issued notice inviting tender dated 06.12.2019 to commence auction process for grant of lease. Letter of Intent (LoI) was issued to Narbheram Power and Steel Private Limited (NPSPL) vide letter No. 3010/SMdt. 18.03.2020 over an area of 74.702 Ha. for a period of 50 years. Subsequently, it is deemed to have acquired all valid rights, approvals, clearances, licenses and the like vested with the previous lessee for a period of two years from the date of execution of the lease deed or till the date of getting fresh approvals, clearances, licenses, permits and the like whichever is earlier vide Letter No 4239/SM dated 30.05.2020. State Government executed & registered Mine Development and Production Agreement (MDPA) on 27.06.2020 and issued grant order vide letter No. 4479/DM, dated 29.06.2020 and executed the Mining Lease deed on 29.06.2020 for a period of 50 years over the said area.
4. Production capacity of 3.5 Million TPA (RoM) / 74.702 Ha (EC granted to the previous lessee vide letter no. 6632/SEIAA dated 18.04.2019 and vested to the present lessee in terms of section 8B(2) of MM(D&R) Act, 1957 read with rule 9A(4) of MCR, 2016.
5. The Roida-II Iron ore mine of M/s Narbheram Power and Steel Private Limited is proposed over an area of 74.867 hectares (ha) which involves 70.90 Ha of forest land, 2.378 Ha of Non Forest Govt. Land and 1.424 Ha of non-forest private land, District Keonjhar. The Mining area is situated villages Tanto & Sidhamatha R.F, Tehsil- Barbil, District- Keonjhar, Odisha.
6. The lease area is bounded by Latitude- 22° 01' 51.88" to 22° 02' 35.78" N and Longitude- 85° 21' 34.86" to 85° 22' 24.14" E comes under Toposheet no. 73F/8. The mine is well connected by NH-215, which is about 0.4 km in W. Nearest Railway Station is Barbil which is about 7.0 Km in N direction. Rourkela Airport at 62.77 Km NW, Barbil-Tanto Airstrip is 0.4 km NNE, Jharsuguda Airport 137.13 km W and Biju Patnaik International Airport, Bhubaneswar is about 203.46 Km in SSE direction from the project site.

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7. **Method of Mining:** The Lease area has no mining activity carried out in the past. Opencast Fully Mechanized Mining (OTFM) method has been proposed. As per modified mining scheme, mineable reserve is of 21604350 T. Height and width of bench will be kept at 6m and 8-14m respectively. The slope of the individual bench will be 700 - 800 while the overall pit slope will be around 30° - 45°.
8. In the plan period a maximum quantity of about 3.5 MTPA on an average, has been proposed for production. As the mining activities in the lease area is to be commenced, activities connected with development of the mine such as scrapping of weathered zones, cutting of trees/bushes, making of access roads, infrastructure development etc will be given prime preference. After the development of an access road to the targeted area a box cut will be opened and thereafter, it will be expanded both laterally and depth- ward to fulfil the required production target.
9. **Drilling & Blasting:** Drilling and blasting shall be required for loosening of the rock mass for ease in excavation. Controlled blasting technique will be adopted to minimize the ground vibration and to avoid flying of rocks. During the blasting, in case of formation of a large boulder, rock breaker will be used for breaking the same to avoid secondary blasting.
10. **Loading & transportation:** Blasted material will be loaded with hydraulic excavators of bucket capacity of 3 cum into 35 ton capacity dumpers and will be transported to a screening & crushing plant for sizing of ore. Dumpers of 35T capacity would be utilized for shifting of crushed ore to the stack-yard. Waste generated will be transported to the proposed waste dump. Ore shall be transported to end use plants by road and rail. However the lessee also proposes to develop conveyor system for transportation of ore.
11. **Nature of Waste:** The iron ore deposits of the area are associated with BHQ/BHJ, Laterite, lateritic soil and shale. These will be generated from the lease area as waste with iron ore. No top-soil will be generated in the ensuing plan period.
12. **Dumping Site:** Overall slope of the dump shall be approximately 35°. At the base of the dump retaining walls of 1 m visible height x 0.5 m thick shall be constructed to check rolled down debris from side wall of the dump. A garland drain of approximately 1 m width x 0.5 m deep with appropriate settling pond shall be maintained. After settling of silt in settling pond, the clear water shall be channelized to the bottom of the mine pit. No surface run off from the dump shall be allowed to go outside the lease.
13. **Water Requirement:** Total water requirement for the project is 110 KLD, out of which 40KLD for dust suppression at screening & Crushing, 25 KLD for plantation, 30 KLD for Sprinkling and 15 KLD for Domestic/drinking purpose. The requirement shall be met from the ground water source.
14. **Power Requirement:** The fully mechanized mining shall be done in 3 shifts. The mining equipment will be operated through Electrical and Diesel supplies. The use of electricity will also be used for lighting/illumination purposes in mining operations and shall be sourced from existing electric supply of NESCO.
15. **Employment Potential:** Total number of employees will be around 217 in the mine.
16. The project cost is ` 277 crores.
17. The consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar** made a detailed presentation on the project before the SEAC on behalf of the project proponent.
18. The project proponent made an appeal during presentation for exemption of public hearing for the following ground.

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- i) Public hearing carried out for the same production capacity on 09.11.2018 i.e., within 3 years' time period.
- ii) There is no change in mining methodology as per earlier Environmental Clearance.
- iii) There is no change in production capacity and mining lease as per earlier Environmental Clearance.
- iv) The MoEF&CC, Govt. of India exempted public hearing in the similar situation as per OM No. 22/04/2020-IA.III, dated 16.02.2021.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Visiontek Consultancy Services Pvt. Ltd., Bhubaneswar**, the SEAC recommended the following:

- a) Public hearing may be exempted as requested by the proponent for the following reasons.
  - i) Public hearing carried out for the same production capacity on 09.11.2018 i.e., within 3 years' time period.
  - ii) There is no change in mining namely, mining method, mining plan, mineral transportation, water requirement, reclamation plan as per earlier Environmental Clearance.
  - iii) There is no increase in the production capacity and mining lease as per earlier Environmental Clearance.
  - iv) The MoEF&CC, Govt. of India exempted public hearing in the similar situation as per OM No. 22/04/2020-IA.III, dated 16.02.2021.
- b) The following specific ToRs in addition to standard ToRs as per **Annexure – A** may be issued for conducting detailed EIA study.
  - i) The Project Proponent shall submit the present state of mine including primary environmental baseline data along with TOR application in order to assess the status and level of environmental compliance while transfer of lease. The Project Proponent must show any non-compliance of earlier EC by previous occupier so that the same can be considered at the time of appraisal for grant of Environmental Clearance.
  - ii) The TOR should also include damage assessment due to such noncompliance as one of the activities. In absence of such disclosure by Project Proponent, any subsequent identification of environmental non-compliance would be liability of new Project Proponent. The information to be submitted may be related to, but not limited to,
    - a) Compliance of mining plan, including waste and OB dump management, mine closure plan etc.
    - b) Compliance to Common cause judgment
    - c) Status of R&R
    - d) Compliance of plantation
    - e) Compliance of public hearing issues
    - f) Status of complaints/ court cases/legal action
    - g) Compliance of specific conditions of earlier EC
    - h) Any other relevant environmental issue / parameter.

- iii) MoEF&CC Regional Office shall preferably conduct visit of each of such mine lease/s where e-auction have been conducted to document the compliance status of existing Environmental Clearance at such leases, at earliest. Such document be submitted
- iv) The Project Proponent shall undertake the peripheral plantation and closed areas as well as gap plantation within 6 months with the seedling of 6-8 ft height having atleast 90% survival rate. An undertaking for the same also needs to be submitted by Project Proponent.
- v) New lessee shall take possession of all records and documents related to EC and consent form the earlier lessee, including EIA reports, EC, consent, correspondence with SEIAA, Odisha / MOEF&CC, Govt. of India and SPCB/CPCB etc.
- vi) The new lessee shall provide the NRSC certified imaginary of the project site, depicting the real status of land use, canopy coverage, level of plantation, land degradation etc., one at the time of taking possession of lease and second after 6 -12 months to assess changes effected by present occupier.
- vii) Cost of the CER calculated shall be utilized for the concerns of the people in terms of health, education, and infrastructure and environment protection. Project Proponent also shall include the budget for the betterment of schools nearby and to facilitate the online education system by providing Wi-Fi connectivity and desktops/tablets.
- viii) The project proponent should provide in the EIA Report details of all the statutory clearances, permissions, no objection certificates, consents etc. required for this project under various Acts, Rules and regulations and their status or estimated timeline after grant of EC.
- ix) The project proponent should submit the revenue plan for mining lease, revenue plan should be imposed on the satellite imaginary clearly demarcate the Govt. land, private land, agricultural land etc.
- x) The project proponent should submit the real-time aerial footage & video of the mining lease area and of the transportation route. The project proponent should submit the detailed plan in tabular format (year-wise for life of mine) for afforestation and green belt development in and around the mining lease. The project proponent should submit the number of saplings to be planted, area to be covered under afforestation & green belt, location of plantation, target for survival rate and budget earmarked for the afforestation & green belt development. In addition to this the project proponent should show on a surface plan (5-year interval for life of mine) of suitable scale the area to be covered under afforestation & green belt clearly mentioning the latitude and longitude of the area to be covered during each 5 years. The capital and recurring expenditure to be incurred needs to be submitted. Presently in India there are many agencies which are developing forest in short interval of time. Thus, for the plantation activities details of the experts/agencies to be engaged needs to be provided with budgetary provisions.
- xi) The project proponent should submit the quantity of surface or ground water to be used for this project. The complete water balance cycle needs to be submitted. In addition to this PP should submit a detailed plan for rain water harvesting measures to be taken. PP should submit the year wise target for reduction in consumption of the ground/surface water by developing alternative source of water through rain water harvesting measures. The capital and recurring expenditure to be incurred needs to be submitted.



- xii) The project proponent should clearly bring out the details of the manpower to be engaged for this project with their roles /responsibilities/designations. In addition to this the project proponent should mention the number and designation of person to be engaged for implementation of environmental management plan (EMP). The capital and recurring expenditure to be incurred needs to be submitted.
- xiii) The project proponent should submit the year-wise, activity wise and time bound budget earmarked for EMP, occupational health surveillance & Corporate Environmental Responsibility. The capital and recurring expenditure to be incurred needs to be submitted.
- xiv) The project proponent should submit the measures/technology to be adopted for prevention of illegal mining and pilferage of mineral. The project proponent should submit the detailed mineralogical and chemical composition of the mineral and percentage of free silica from a NABL/MoEF&CC accredited laboratory.
- xv) The project proponent should clearly show the transport route of the mineral and protection and mitigative measure to be adopted while transportation of the mineral. The impact from the center line of the road on either side should be clearly brought out supported with the line source modelling and isopleth. Further, frequency of testing of Poly Achromatic Hydrocarbon needs to be submitted along with budget. Based on the above study the compensation to be paid in the event of damage to the crop and land on the either side of the road needs to be mentioned. The project proponent should provide the source of equations used and complete calculations for computing the emission rate from the various sources.
- xvi) The project proponent should clearly bring out that what is the specific diesel consumption and steps to be taken for reduction of the same. Year-wise target for reduction in the specific diesel consumption needs to be submitted.
- xvii) The project proponent should bring out the awareness campaign to be carried out on various environmental issues, practical training facility to be provided to the environmental engineer/diploma holders, mining engineer/diploma holders, geologists, and other trades related to mining operations. Target for the same needs to be submitted.
- xviii) The budget to be earmarked for the various activities shall be decided after perusal of the Standard EC Conditions published by the Ministry, Odisha. After perusal of Standard EC conditions if agreed the project proponent should also submit an undertaking by the way of affidavit for Compliance of Standard EC conditions already prescribed by the Ministry vide O.M. No and Specific condition if prescribed by the SEAC/SEIAA, Odisha.
- xix) The project proponent should ensure that only NABET accredited consultant shall be engaged for the preparation of EIA/EMP Reports. The project proponent shall ensure that accreditation of consultant shall be valid during the collection of baseline data, preparation of EIA/EMP report and during the appraisal process. The project proponent and consultant should submit an undertaking the information and data provided in the EIA Report and submitted to the SEIAA, Odisha are factually correct and the project proponent and consultant are fully accountable for the same.
- xx) The project proponent should submit the photograph of monitoring stations & sampling locations. The photograph should bear the date, time, latitude & longitude of the monitoring station/sampling location. In addition to this the project proponent should submit the original test reports and certificates of the labs which will analyze the samples.
- xxi) Kissam wise/plot wise details of 4ha private non forest land duly certified by Tahsildar with

copy of agreement with owners for use of their land for mining purpose.

- xxii) Since the plant is located in Barbil, analysis of hexavalent chromium in the nearby drain, water body, effluent to be submitted with limit value.
- xxiii) The percentage of iron in the final waste generated and not used as iron ore or its upgradation.
- xxiv) Compliance to NEERI recommendations.
- xxv) Slope study for both mines and OB /wastes through domain expert to be undertaken and blasting study as well.
- xxvi) Traffic density study, both inside the mines and at haulage road intersecting points of haulage road with public road be undertaken by domain expert.
- xxvii) “zero discharge” management & “Zero Dust Re-suppression” management with SOP be submitted.
- xxviii) Internal roads, drain management with network of the drain, retaining walls and settling tanks / Tailing ponds with ETPs be submitted.
- xxix) Details of air quality monitoring stations of the area and additional stations at entry and exit of mines and haulage roads, habitation to be considered.
- xxx) Construction and perennial maintenance of haulage road with details of plantation and the species thereof to be submitted.
- xxxi) Parking plaza layout with maximum no. of vehicles and types of vehicles that can be parked with basic amenities and facilities.

#### **ITEM NO. 05**

#### **PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR ESTABLISHMENT OF 45.0 KLD GRAIN-BASED DISTILLERY ALONG WITH 1.5 MW CO-GENERATION POWER PLANT, LOCATED IN - MANOHARPALI, TAHASIL- BIJEYPUR, DIST- BARGARH OF M/S BARGARH BIO FUELS DEVELOPMENT FOUNDATION – ToR.**

1. The proposal was considered by the committee to determine the “Terms of Reference (ToR)” for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA Notification, 2006 and amendment thereafter.
2. The proposed project falls under the item no. 5 (g) i.e. Distilleries and Category B ( $\leq$  200 KLD non molasses-based distilleries).
3. M/s Bargarh Bio-Fuels Development Foundation proposes a green field, Grain based 45 KLD fuel grade Ethanol and cogeneration power plant of 1.5 MW on 14.84 Ac of land at Manoharpali, Tehsil- Bijeypur, in Bargarh district of Odisha. Sri Sanjay Sharma is the Director of the unit.
4. The Project will be setup in PPP mode where in the Govt. of Odisha through Director of Industries will be investing ` 3,00,00,000 and Govt. Of India through MSME Department will be investing ` 10,50,00,000 and balance ` 3,50,00,000 will be promoter’s contribution. So total Project cost will be ` 17 Crore.
5. Ministry of Petroleum and Natural Gas, on 1st September, 2015, has asked Oil Marketing Companies (OMCs) to target 10% blending of ethanol in Petrol in as many States as possible. Government of India has approved “National Policy on Biofuels - 2018”.

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6. **Location and Connectivity** – The site is located at Latitude: 21°12'42.83" to 21°12'47.70"N and Longitude: 83°28'45.56" to 83°28'55.22"E on Khata no - 62/97, Plot no - 2,3,4,5,6,9,45,46 comes under Toposheet no. F44R8. NH-201 highway is at a distance of 10 km. Nearest town is Manoharpali at 0.21km and nearest city is Bargarh 26km. Nearest Railway station is Bargarh Railway station at 27.7km. Nearest airport is Jharsuguda Airport at 132km. Nearest water body is Rani river 1.2km. There are no National Parks, Wildlife Sanctuaries, Biosphere Reserves, Tiger/Elephant Reserves, Wildlife Corridors etc. within 10 km distance from the project site.

7. **Process of Ethanol & DDGS production** - Broken otherwise not eatable rice grains will be procured, cleaned of dust and husk and will be milled to obtain flour. Grain flour and process water in 1:2 ratio with 20-25% enzyme will be made slurry and cooked by jet of steam to open up the crystalline structure of starch. Starch will be hydrolyzed to dextrin with second enzyme, Amylo-glucosidase in liquefaction section/ Pre-Fermenter. pH 4-5 and temperature 30-350C to be maintain here with retention time and then contents of the Pre-Fermenter are then transferred to Fermenter.

During Fermentation, sugars are broken down into alcohol and carbon-dioxide. Significant heat release takes place during Fermentation. The Fermenter temperature is maintained at around 30° –32° C by forced recirculation flow through plate heat exchangers. Fermentation will continue for 50 hours with addition of Yeast culture.

**Fermented slurry will be fed to multi pressure distillation column. Steam and dilation water will be added to distillation column and product Ethanol and spent wash will be produced. Product Ethanol will be stored for sale.**

8. Decantation section comprises of a Centrifuge Decanter for separation of suspended solids from Spent Wash coming out of Grain Distillation Plant. Wet cake has 30-32% w/w solids as removed from bottom of Decanter which can be sold directly in wet form as cattle feed (DWG). Thin slops coming out of Decanter are collected in a tank and partly recycled into the process & further for Evaporation for concentration up to 35-40% w/w solids. The concentrated thin slops called as Syrup is mixed with Wet cake and sold in wet form as cattle feed (DWGS) or the entire mixture can be dried in a DDGS Dryer and then sold in dry form as Cattle feed (DDGS).

9. CO-GENERATION POWER PLANT - Distillation of Ethanol requires steam of medium pressure. Hence an AFBC of capacity 15 TPH will be set up using rice husk as fuel, which generated during cleaning if rice grain and otherwise purchased. Steam will be produced at 45 kg/cm<sup>2</sup> superheated to 550°C. Steam will be used in the process of distillation and generation of 1.5 MW power. Condensate will be used in process and as BFW for AFBC.

10. **Raw Materials** - Daily consumption of the raw material required to manufacture are Broken rice, Liquefying Enzyme, Saccharifying Enzyme, Viscosity Reducing Enzyme, Yeast, Anti-Bacterial Agent, Sodium Hydroxide Lye, Sulphuric Acid, Urea, Antifoaming Agent, Sulphamic Acid and Nitric Acid.

Sl. No	Material	Quantity (TPA)	Source	Mode of transport
1	Broken rice, and other starch containing grains	34,500	Local market	Road
2	Enzyme	27.00	Local market	Road
3	Sodium Hydroxide	13.5	Local market	Road
4	Urea	3.6	Local market	Road
5	Anti foam agent	6.6	Local market	Road
6	Yeast	4.5	Local market	Road

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Sl. No	Material	Quantity (TPA)	Source	Mode of transport
7	Rice Husk (for Boiler)	18,000	Local market	Road

11. **Water Requirement** - For distillation process, steam and 1.5 MW power generation the requirement of fresh make up water will be 255 m<sup>3</sup>/day and for domestic use 5 m<sup>3</sup>/day. Water will be drawn from ground through bore well and rain water harvesting.
12. **Power Requirement** - Total requirement of power for the project will be 1.5 MW, which will be generated captive.
13. **Employment Generation** - Direct employment 85 and indirect employment 150 has been envisaged for the project.
14. The Environment Consultant **M/s Global Tech Enviro Experts Pvt. Ltd.** made a detailed presentation on behalf of the proponent.
15. The project proponent intimated during presentation that total product will be used as additive to automotive gasoline and requested that the project which has about 80% Govt. share and intended to manufacture Ethanol exclusively for blending with Petrol in the interest of the country to save foreign exchange and save the environment due to clean fuel, may be treated as Category B2 project or at least Public hearing to be exempted in view of Extra ordinary Gazette of India, dated 17th February, 2020 and as per MoEF&CC, Govt. of India OM No. F. No. 22-33/2019-IA.III, dated 28.01.2021.
16. For the purpose of Ethanol Blending Programme (EBP) with Petrol, a special dispensation was provided by the MoEF&CC, Govt. of India for expansion of sugar manufacturing or distillery units, intended for production of Ethanol vide notification no. S.O. 345 (E), dated 17.01.2019, notification no. S.O. 750 (E), dated 17.02.2020 and OM No. F. No. 22-33/2019-IA.III, dated 28.01.2021. These notifications and OM of MoEF&CC, Govt. of India stipulates consideration of expansion projects of sugar manufacturing or distilleries intended to produce Ethanol for EBP with Petrol as category B2 projects subject to a certificate from any competent authority stating that the end use of Ethanol produced is for the purpose of blending with petrol.
17. The proponent has produced a certificate from Industries Department, Govt. of Odisha that the Ethanol produced from the unit will be used for blending of petrol.
18. The proponent has also informed that they have already requested to MoEF&CC, Govt. of India for exemption of public hearing for this new project as they will use the Ethanol for blending of petrol purpose and clarification of MoEF&CC, Govt. of India is yet to be received.
19. The SEAC opined that the notification of MoEF&CC, Govt. of India for consideration of category B2 project is meant for expansion of sugar manufacturing / distillery units intended for production of ethanol for the purpose of EBP with petrol and not for the new sugar manufacturing / distillery unit.
20. Some of the members of SEAC also pointed out that this type of new project may be exempted from conducting public hearing for the following reasons.
  - a) It is a Bio Fuel
  - b) It is a waste utilization project
  - c) It will convert broken/ waste dumps of 800 MT/Day of Rice collected from 70 nearby Rice mills
  - d) The waste husk dumps to be used as fuel for Boiler to produce 1.5 MW power from TG

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- e) This Will be blended upto 60% with Fossil fuel like Petrol & Diesel & thereby reduce Vehicular Air Pollution.
- f) The recent OM of MoEF&CC have notified to treat the expansion of Ethanol project as B-2 category.
- g) when 10 times capacity expansion will be treated as B-2, how come the Original Project will not be treated as B-2.
- h) This project has 80% stacks by MSME, Govt. of India- 10%, Dept. of Industry, MSME, Govt. of Odisha & remaining 10% by a SPV of Rice Mills.
- i) In view of the above points on Environment Friendly Activities, this project should be treated as B-2 with exemption of Public Hearing.
- j) If there is any doubt, we should seek written clarification from MoEF&CC, Govt. of India.

Considering the information / documents furnished by the proponent and presentation made by the consultant **Global Tech Enviro Experts Pvt. Ltd.**, the SEAC recommended the following:

- a) SEIAA, Odisha may consider to seek a clarification from MoEF&CC, Govt. of India for exemption of public hearing for this type of project basing on the views of the members of SEAC at para 21 above. Decision on conducting public hearing for the project to be taken after receipt of clarification from MoEF&CC, Govt. of India.
- b) The project proponent may be issued following specific Terms of References and Standard Terms of References as per **Annexure-B** for conducting EIA study.
  - (i) Details of zero discharge with water balance to be adopted in plant.
  - (ii) Detailed time schedule for implementation of project.
  - (iii) Material flow and balance in the Flowsheet (box diagram) to be given along with units for better understanding.
  - (iv) Source of technology and whether it is proven and approved by appropriate authority. Any other plant in India operating with same technology? Provide details.
  - (v) The quality control measures for Ethanol.
  - (vi) Odour control measures specifically during evaporation and distillation etc.
  - (vii) Quantity of DDGS and final effluent (re-used in plant) generation per day along with their Composition.
  - (viii) Waste water management from ETP
  - (ix) Details of Fly ash storage, utilization and disposal.
  - (x) Govt. of Odisha proposed to construct Gangadhar Meher Mega Lift scheme in Bijepur area which in advance stage. Hence, the project proponent may obtain certificate from concerned Chief Engineer, Water Resources Department, Burla for any interference.

#### **ITEM NO. 06**

#### **PROPOSAL FOR EXTENSION OF VALIDITY OF ENVIRONMENTAL CLEARANCE FOR DINDIPALLI DECORATIVE STONE MINES OVER AN AREA OF 4.055 HA LOCATED IN VILLAGE - DINDIPALLI, TAHASIL - BHANJANAGAR, DIST- GANJAM OF SMT. RANJULATA SWAIN – EXTENSION OF EC.**

1. This proposal is for Extension of validity of Environmental Clearance for Dindipalli Decorative Stone Mines over an area of 4.055 Ha located in village - Dindipalli, Tahasil - Bhanjanagar,

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SEAC at para 21 above. Decision on conducting public hearing for the project to be taken after receipt of clarification from MoEF&CC, Govt. of India.

- b) The project proponent may be issued following specific Terms of References and Standard Terms of References as per **Annexure-B** for conducting EIA study.
- (i) Details of zero discharge with water balance to be adopted in plant.
  - (ii) Detailed time schedule for implementation of project.
  - (iii) Material flow and balance in the Flowsheet (box diagram) to be given along with units for better understanding.
  - (iv) Source of technology and whether it is proven and approved by appropriate authority. Any other plant in India operating with same technology? Provide details.
  - (v) The quality control measures for Ethanol.
  - (vi) Odour control measures specifically during evaporation and distillation etc.
  - (vii) Quantity of DDGS and final effluent (re-used in plant) generation per day along with their Composition.
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  - (ix) Details of Fly ash storage, utilization and disposal.
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1. This proposal is for Extension of validity of Environmental Clearance for Dindipalli Decorative Stone Mines over an area of 4.055 Ha located in village - Dindipalli, Tahasil - Bhanjanagar, Dist- Ganjam of Smt. Ranjulata Swain.
2. Environmental Clearance was granted by the District Environmental Impact Assessment (DEIAA), Odisha vide Letter no. 1738/ DEIAA dated 20.12.2016 valid till 31.03.2020.
3. The lease of Dindipalli Decorative Stone Mines of Smt. Ranjulata Swain over an area of 4.055Ha was granted by Steels & Mines Dept., Govt. of Odisha vide letter no. 3033/SM, dated 10.04.2015.
4. The lease was executed on 19.12.2017 and based on the execution the validity of mining plan is up to 2022.
5. Consent to Operate obtained from Odisha state pollution control board vide letter no 1685/CTO-1653/2018 dated 24.04.2018 valid till 31.03.2020.
6. Though the opening notice has been given to mining office on 02.08.2018 due to local transportation issue mining could not initiated till March 2020. Further the mining activity initiated in 17th March 2020 and a total of 117.218 m<sup>3</sup> decorative stone was excavated and again mine was closed from 22.03.2020 due to COVID-19 Pandemic situation.
7. The EC was granted for 5 years i.e. upto 31.03.2020. As per MoEF&CC, Govt. of India circular J-11011/15/2012-IA(II)M dated 20.03.2015 the validity of EC will be for 30 years irrespective of mining lease renewal

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*J Nayak*  
Environmental Scientist, SEAC



8. The entire Mining Lease area of 4.055 hectares comprises of non-forest land.
9. There is no sensitive ecological habitat like National Parks, Sanctuaries, Biosphere Reserves, Wildlife corridors, Tiger/Elephant reserves within 10 km radius of ML area. No Schedule I species are found within the study area.
10. The Environment consultant **M/s Kalyani Laboratories (Pvt) Ltd. Pahala, Bhubaneswar** along with the proponent has made a briefing on the proposal before the Committee.

Considering the information / documents furnished by the proponent and presentation made by the consultant, the SEAC decided to take decision on the proposal after receipt of the following information / documents from the proponent.

- (i) Certified copy of half yearly condition wise compliance Report on Environmental Clearance conditions submitted to MoEF&CC, Regional Office, Bhubaneswar
- (ii) Copy of lease sanctioned by the Steel and Mines Department, Govt. of Odisha.
- (iii) No interference with ongoing LI project in area- a certificate regarding from concerned Executive Engineer, Water Resources Deptt.
- (iv) Year wise production details duly certified by Mining Officer.

**Secretary, SEAC**

**Chairman, SEAC**

*08.03.2021*

**TERMS OF REFERENCE (ToR) FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT FOR ROIDA-II IRON ORE MINE OF PRODUCTION CAPACITY 3.5 MTPA HA. OVER MINING LEASE AREA OF 74.702 HA., LOCATED AT- TANTO & SIDHAMATH RF, TAHASIL - BARBIL, DISTRICT – KEONJHAR, NARBHERAM POWER AND STEEL PRIVATE LIMITED – TOR**

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**A. STANDARD TOR FOR MINING PROJECT**

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



of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the proposed safeguard measures in each case should also be provided.

10. The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
11. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.
12. Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
13. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
14. Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
15. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
16. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
17. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
18. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
19. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan 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 failing under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
22. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine (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  $PM_{10}$ , particularly for free silica, should be given.
24. Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
25. The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.
26. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
27. Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be

provided,

28. Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.
29. Based on actual monitored data, it may clearly be shown whether working will intersect groundwater, Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter- alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.
30. Details of any stream, seasonal or otherwise, passing through the tease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be.
31. Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.
32. A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.
33. Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.
34. Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
35. Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.
36. Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
37. Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

38. Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
39. Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
40. Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
41. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
42. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
43. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
44. Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
45. The activities and budget earmarked for Corporate Environmental Responsibility (CER) shall be as per MoEF&CC, Govt. of India O.M No 22-65/2017-IA. II (M) dated 01.05.2018 and the action plan on the activities proposed under CER shall be submitted at the time of appraisal of the project included in the EIA/EMP Report.
46. The Action Plan on the compliance of the recommendations of the CAG as per MoEF&CC, Govt. of India Circular No. J-11013/71/2016-IA.I (M), dated 25,10.2017 needs to be submitted at the time of appraisal of the project and included in the EIA/EMP Report.
47. Compliance of the MoEF&CC, Govt. of India Office Memorandum No. F: 3-50/2017-IA.III (Pt.), dated 30.05.2018 on the judgement of Hon'ble Supreme Court, dated the 2nd August, 2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause versus Union of India needs to be submitted and included in the EIA/EMP Report.

**B. 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, all the working mines can continue to operate with strict compliance to monitoring of environmental quality parameters as per EC and CTE/CTO conditions of the respective mine, and implementation of suggested measures for control of road dust and air pollution. Odisha State Pollution Control Board has to ensure the compliance of CTE/CTO. Regional office of the MoEF&CC, Bhubaneswar shall monitor the compliance of the EC conditions. Regional office of the Indian Bureau of Mines (IBM) shall monitor the compliance of mining plan and progressive mine closure plan. Any violation by mine lease holder may invite actions per the provisions of applicable acts.

4. Considering the existing environmental quality, EC capacity, production rate, iron ore resources availability and transport infrastructure availability, the share of Joda and Koira sector works out to be 70% and 30% respectively for the existing scenario for the year 2015-16. However, for additional EC capacity, it can be 50:50 subject to commensurate infrastructure improvement (viz. SOTM. pollution free road transport, enhancement of rail network etc.) in the respective regions.
5. Continuous monitoring of different environmental quality parameters as per EC and CTE/CTO conditions with respect to air, noise, water (surface and ground water) and soil quality in each region shall be done. The environmental quality parameters should not indicate any adverse impact on the environment. Monitoring within the mines should be done by individual mine lease holders, whereas outside the mine lease area, monitoring should be done by the Govt, of Odisha through various concerned departments/ authorized agencies. Various monitoring/ studies should be conducted through national reputed institutes, NABET/ MoEF&CC accredited laboratories/organizations. The reports submitted by individual mine lease holders and study reports prepared by other concerned departments/agency for each of the regions should be evaluated and examined by SPCB/ MoEF&CC.
6. Construction of cement concrete road from mine entrance and exit to the main road with proper drainage system and green belt development along the roads and also construction of road minimum 300 m inside the mine should be done. This should be done within one year for existing mines and new mine should have since beginning. The concerned departments should extend full support; wherever the land does not belong to the respective mine lease holders. The Department of Steel & Mines, Govt, of Odisha should ensure the compliance and should not issue the Mining Permits, if mine lease holder has not constructed proper cement concrete road as suggested above.
7. In view of high dust pollution and noise generation due to road transport, it is proposed to regulate/guide the movement of iron and manganese ore material based on the EC capacity of the mines. Accordingly, ore transport mode has been suggested, as given below in Table.

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

<b>Code</b>	<b>EC</b>	<b>Suggested Ore Transport Mode</b>
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	Minimum 70% by public railway siding, through conveyor belt and maximum 30% by road - direct to destination or other

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

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

In view of present ore transport practices and practical limitations, all the existing mines should ensure adoption of 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 fas per the provisions of EIA Notification 2QQ6, as amended time to time1) with

proper justification on demand scenario for iron ore requirement and availability of pollution free transport network in the region. Responsibility: IBM, Department of Steel & Mines and MoEF&CC, New Delhi.

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

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

Mine Lease	EC Capacity (MTPA)	Suggested Annual Production (MT)				
		2016-17	2017- 18	2018-19	2019-20	2020-21
		Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Mine 1	X1					
Mine 2	X2					
Mine 3	X3					
Mine n	Xn					
Total	160 +	105	129	153	177	201
<b>Next year allocation = Average of EC Capacity and Last year production</b>						

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, SO<sub>2</sub>, NO<sub>x</sub> 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, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub> 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 ground water level and its quality should be carried out within the mine lease area by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring should be carried out on monthly basis, (iv) In order to optimize water requirement, suitable conservation measures to augment ground water resources in the area should be undertaken in consultation with Central Ground Water Board (CGWB). (v) Suitable rainwater harvesting measures on long term basis should be planned and implemented in consultation with CGWB, to recharge the ground water source. Further, CGWB can prepare a comprehensive plan for the whole region, (vi) Appropriate mitigation measures (viz. ETP, STP, garland drains, retaining walls, collection of runoff etc.) should be taken to prevent pollution of nearby river/other water bodies. Water quality monitoring study should be conducted by State Pollution Control Board to ensure quality of surface and ground water sources on regular basis. The study can be conducted through NABL/ NABET approved water testing laboratory. However, the report should be vetted by SPCB. (vii) Industrial wastewater (workshop and wastewater from the mine) should be properly collected, treated in ETP so as to conform to the discharge standards applicable, (viii) Oil and grease trap should be installed before discharge of workshop effluents. Further, sewage treatment plant should be installed for the employees/colony, wherever applicable, (ix) Mine lease holder should ensure that no silt originating due to mining activity is transported in the surface water course or any other water body. Appropriate measures for prevention and control of soil erosion and management of silt should be undertaken. Quantity of silt/soil generated should be measured on regular basis for its better utilization, (x) Erosion from dumps site should be protected by providing geo-textile matting or other suitable material, and thick plantation of native trees and shrubs should be carried out at the dump slopes. Further, dumps should be protected by retaining walls.(xi) Trenches / garland drain should be constructed at the foot of dumps to arrest silt from being carried to water bodies. Adequate number of check dams should be constructed across seasonal/perennial nallas (if any) flowing through the mine lease areas and silt be arrested. De-silting at regular intervals should be carried out and quantity should be recorded for its better utilization, after proper soil quality analysis, (xii) The water so collected in the reservoir within the mine should be utilized for the sprinkling on hauls roads, green belt development etc. (xiii) There should be zero waste water discharge from the mine. Based on actual water withdrawal and consumption/ utilization in different activities, water balance diagram should be prepared on monthly basis, and efforts should be made to optimize consumption of water per ton of ore production in successive years. Responsibility: Individual Mine Lease Holders, SPCB and CGWB.

25. **Land/ Soil/ Overburden Related** : (i) The top soil should temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long (not more than 3 years or as per provisions mentioned in the mine plan/ scheme). The topsoil should be used for land reclamation and plantation appropriately, (ii) Fodder plots should be developed in the

non-mineralised area in lieu of use of grazing land, if any. (iii) Over burden/ low grade ore should be stacked at earmarked dump site(s) only and should not be kept active for 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 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, PMin should be monitored near the roads towards entry & exit gate on regular basis, and be maintained within the acceptable limits. Responsibility: Individual Mine Lease 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	SPCB	Continuous Annually

Sl. No.	Study component / Action Plan	Responsibility	Monitoring and Reporting Time Frame (Approx.)
	<p>specified frequency shall be done by a third party (preferably Govt.) and/or laboratory approved/ recognized by NABET/ CPCB/ SPCB/ MoEF&amp;CC.</p> <p>All the water bodies (rivers, nalias, ponds etc.) shall be monitored. National/State level research/ academic institutes may be involved initially for couple of years to streamline the activity. The report shall be brought out annually by June each year. The study shall be conducted in consultation with MoEF&amp;CC-RO.</p>		
	Installation of online ambient air quality monitor for PM10, PMP.S, SOx and NOx within the mine havina more than 3 MTPA EC Caoacitv	Respective Mine Lease Holders	Continuous Annually
	Installation of online ambient air quality monitor for PM <sub>10</sub> , PM <sub>2.5</sub> , SOx and NOx in the Joda and Koira Region (total 11 locations).	SPCB	Continuous Annually
2.	Status of flora and fauna in each of the regions shall be assessed on annual basis. Changes, if any, taking place in the region shall be brought out clearly. The study shall be conducted in consultation with State Forest and Wildlife Department.	State Forest & Wildlife Dept.	Annually in mining zone and once in 3 years in the region
3.	Socio-economic study incorporating developments taking place in each of the region, CSR initiatives made by the mining companies shall be conducted on annual basis. Further, micro level developmental needs shall be clearly brought out in the report for each region. The study shall be conducted in consultation with district administration.	Respective District Administration	Annually
4.	A detailed hydro-geological study in each of the regions shall be conducted in an integrated manner in consultation with Regional Director,	SPCB	Once in 2 years

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

The data so generated for the region should be made available on the website of Department of Steel & Mines and also at MoEF&CC website, so that it can be effectively utilized by Individual Mine Lease Holders for preparing EIA/ EMP reports. This will meet the requirement for separate one season baseline environmental quality data collection by the individual proponents, if the mine proposed is in the same study region. Further, MoEF&CC 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 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 three years for submission of the EIA/EMP report, as per the O.M. No. J-11013/41/2006-IA. II (I) (Part) dated 29.08.2017.**

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

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**A. STANDARD TERMS OF REFERENCE**

- 1) Executive Summary
- 2) Introduction
  - i) Details of the EIA Consultant including NABET accreditation
  - ii) Information about the project proponent
  - iii) Importance and benefits of the project
- 3) Project Description
  - i) Cost of project and time of completion.
  - ii) Products with capacities for the proposed project.
  - iii) If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
  - iv) List of raw materials required and their source along with mode of transportation.
  - v) Other chemicals and materials required with quantities and storage capacities
  - vi) Details of Emission, effluents, hazardous waste generation and their management.
  - vii) Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
  - viii) Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided
  - ix) Hazard identification and details of proposed safety systems.
  - x) Expansion/modernization proposals:
    - a. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing /existing operation of the project from SPCB shall be attached with the EIA-EMP report.
    - b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA

Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

#### 4) Site Details

- i) Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.
- ii) A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places)
- iii) Details w.r.t. option analysis for selection of site
- iv) Co-ordinates (lat-long) of all four corners of the site.
- v) Google map-Earth downloaded of the project site.
- vi) Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
- vii) Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
- viii) Land use break-up of total land of the project site (identified and acquired), government/ private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)
- ix) A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area
- x) Geological features and Geo-hydrological status of the study area shall be included.
- xi) Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)
- xii) Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
- xiii) R&R details in respect of land in line with state Government policy

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

- i) Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable)
- ii) Land use map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (in case of projects involving forest land more than 40 ha)

- iii) Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.
  - iv) The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon
  - v) Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area
  - vi) Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife
- 6) Environmental Status
- i) Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
  - ii) AAQ data (except monsoon) at 8 locations for PM10, PM2.5, SO<sub>2</sub>, NO<sub>x</sub>, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.
  - iii) Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with - min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.
  - iv) Surface water quality of nearby River (100m upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.
  - v) Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.
  - vi) Ground water monitoring at minimum at 8 locations shall be included.
  - vii) Noise levels monitoring at 8 locations within the study area.
  - viii) Soil Characteristic as per CPCB guidelines.
  - ix) Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
  - x) Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.
  - xi) Socio-economic status of the study area.

## 7) Impact and Environment Management Plan

- i) Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.
- ii) Water Quality modelling - in case of discharge in water body
- iii) Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.
- iv) A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.
- v) Details of stack emission and action plan for control of emissions to meet standards.
- vi) Measures for fugitive emission control
- vii) Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
- viii) Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.
- ix) Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.
- x) Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.
- xi) Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
- xii) Action plan for post-project environmental monitoring shall be submitted.

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

8) Occupational health

- i) Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers
- ii) Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.
- iii) Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,
- iv) Annual report of health status of workers with special reference to Occupational Health and Safety.

9) Corporate Environment Policy

- i) Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
- ii) Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
- iii) What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.
- iv) Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report

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

11) Enterprise Social Commitment (ESC)

- i) Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details

along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.

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

## **B. SPECIFIC TERMS OF REFERENCE FOR EIA STUDIES FOR DISTILLERIES**

1. List of existing distillery units in the study area along with their capacity and sourcing of raw material.
2. Number of working days of the distillery unit.
3. Details of raw materials such as molasses/grains, their source with availability.
4. Details of the use of steam from the boiler.
5. Surface and Ground water quality around proposed spent wash storage lagoon, and compost yard.
6. Plan to reduce spent wash generation within 6-8 KL/KL of alcohol produced.
7. Proposed effluent treatment system for molasses/grain-based distillery (spent wash, spent lees, condensate and utilities) as well as domestic sewage and scheme for achieving zero effluent discharge (ZLD).
8. Proposed action to restrict fresh water consumption within 10 KL/KL of alcohol production.
9. Details about capacity of spent wash holding tank, material used, design consideration. No. of piezometers to be proposed around spent wash holding tank.
10. Action plan to control ground water pollution.
11. Details of solid waste management including management of boiler ash, yeast, etc. Details of incinerated spent wash ash generation and its disposal.
12. Details of bio-composting yard (if applicable).
13. Action plan to control odour pollution.
14. Arrangements for installation of continuous online monitoring system (24x7 monitoring device)

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