

**PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL
COMMITTEE, ODISHA HELD ON 10TH MARCH 2023**

The SEAC met on 10th March 2023 at 10:30 AM in the Conference Hall of Odisha State Pollution Control Board, Bhubaneswar under the Chairmanship of Sri Sashi Paul. The following members were present in the meeting.

1. Sri Sashi Paul	-	Chairman
2. Dr. K. Murugesan	-	Member Secretary
3. Dr. Rabi Narayan Patra	-	Member (through VC)
4. Dr. Chittaranjan Panda	-	Member
5. Prof. (Dr.) H.B. Sahu	-	Member (through VC)
6. Prof. (Dr.) Abanti Sahoo	-	Member (through VC)
7. Dr. Ashok Kumar Sahu	-	Member
8. Er. Fakir Mohan Panigrahi	-	Member (through VC)
9. Prof. (Dr.) B.K. Satpathy	-	Member
10. Dr. K.C.S Panigrahi	-	Member
11. Shri Jayant Kumar Das	-	Member (through VC)

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

ITEM NO. 01

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR ALANA-2 DEVI RIVER SAND QUARRY, OVER AN AREA OF 14.00 ACRE OR 5.66HA HAVING KHATA NO.441, PLOT NO. 2(P) & 117(P) IN VILLAGE ALANA-2 UNDER NAUGAON TAHASIL OF JAGATSINGHPUR DISTRICT OF TAHASILDAR, NAUGAON- EC

1. This proposal is for environmental clearance for Alana-2 Devi River sand quarry, over an area of 14.00 Acre or 5.66 ha. having Khata No.441, Plot No. 2(P) & 117(P) in village Alana-2 under Naugaon Tahasil of Jagatsinghpur District of Tahasildar, Naugaon.
2. **Category:** As per the EIA Notification, 2006 and its subsequent amendments, this project falls under category B1 under Schedule of item 1(a)-Mining of Minerals.
3. The lease was initially granted in favour of Tahasildar, Naugaon, District -Jagatsinghpur (On behalf of Successful bidder). Quarry lease has not yet been auctioned.
4. Mining Plan with Progressive Mine Closure Plan has been approved by the Geologist, O/o Joint Director Geology, Zonal Survey, Dhenkanal, Odisha vide letter no. Memo no.-1157.Dt dated 19/10/2020.
5. This is a new mine and the mining lease is an identified sairat source in the DSR page no. 3 sl. 15 and Annexure II.
6. **TOR details:** Terms of Reference (ToRs) was granted by SEIAA vide ToR File No. 58824/97-MINB1/02-2021of dated 11.05.2021.

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7. **Public hearing details:** The public hearing was held on 29th June 2022 at 10:30 AM at ground near Shri Jagannath Temple of Alana-II village Devi River Sand Sairat over an area of 5.66 ha. under Naugaon Tahasil of Jagatsinghpur district. Issues raised at the public hearing meeting are transportation of sand and embankment repair. Activities for CER would be finalised based on outcome of Public Hearing and funds allocated is Rs. 40,000.00.
8. **Location and connectivity:** Alana-2 Devi River sand source area forms a part of Survey of India having Toposheet No. 73L/3(F45U3) bearing Khata No.441, Plot No.2(p),117(p), Alana-2 Village, Naugaon Tehsil, Jagatsinghpur District, Odisha State. The area is bounded between the latitudes of N20°06'54.9" to N20°06'41.7" and longitudes of E86°09'24.8" to E86°09'16.2". The area is connected by NH-16 is at 36.5 km from the lease area. The nearest railway station is Gorekhanath Railway station which is about 24 km from the mine lease area. The nearest airport facility is available at Biju Patnaik International Airport at about 59km from the mining site. NH-55 is 4km and SH-43 is 13.2km (SE). Dhaltangarh Reserve Forest is 23.7km (NNE) and Jagatsinghpur reserved Beach is 28 km (SSW). Nearest river embankment, electric transmission and road bridge is at 0.5km, 0.9km and 4.7km away from the proposed site. The area comes under Zone – III as per IS: 1893 (Part-I): 2002.
9. There is no National Park, Wildlife Sanctuary, and Biosphere Reserve, Wildlife Corridors, Tiger/Elephant Reserves, Protected Forest etc. within 10 km radius of the Mine site.
10. **Topography and drainage:** The lease area belongs to recent quaternary river bed deposits consisting of sand, silt, clay, gravel, and alluvial deposits. The sand bed is on the river Devi. The Alana-2 Devi River Sand bed deposit represents a gently sloping to almost flat terrain with highest altitude of 6mRL. The general slope is towards east. Vegetation is scanty with small bushes existing in the auction hold area. There is no human settlement within the area. Drainage pattern of the area is dendritic.
11. **Reserves and total production:** As estimated, geological reserve of the proposed project is 33993.6 cum and mineable reserve is 29143.2 cum. It is a new proposed sand mine project with the excavation capacity of 13600.2 m³/year sand.

Mining Lease	Year	Surface Area in m ²	Thickness in m	Recovery Factor (60%)	Production (m ³)
Alana-2 Devi River Sand Quarry	1st Year	22667	1	0.60	13600.2
	2nd Year	22667	1	0.60	13600.2
	3rd Year	22667	1	0.60	13600.2
	4th Year	22667	1	0.60	13600.2
	5th Year	22667	1	0.60	13600.2
Total					68001

12. **Replenishment Study Report:** Method adopted is Volumetric method by hand held GPS, Total station & measurement tape. Thickness have been finalized by digging of 22 no's of pits inside the lease area. Replenishment factor is finalized by digging of 4 no of trenches. Replenishment factor has been finalized by taking of replenishment factor of 4 numbers of trenches & nearby lease area around the Devi river i.e. Arakhakuda devi river sand quarry, Sikhar devi river sand quarry & Erada Devi river sand quarry. Amount of sand deposited within mining zone of the quarry area is 48572cum & proposed production is 13600cum per annum i.e. appox. 70% replenishment can

been done. After post- monsoon maximum 13600CuM of sand is extracted during the present plan period.

Category	Surface Area m ²	As per Mining Plan 100 % incidence		As per Replenishment Study at 70% incidence	
		Thickness of Deposit (m)	Extractable Volume	Thickness of Deposit(m)	Volume available for Excavation(m ³)
Proved Geological reserve	56656	1	56656	0.70	39659.2
Proved Minable Reserve	48572	1	48572	0.70	34000.4

13. **Method of mining:** Mining shall be undertaken to extract sand, mainly through an open pit (open cast manual method) spread over the river course devoid of water or nominal water that may be encountered. Benching pattern is not feasible in case of sand, as the angle of repose of sand is 35°. Based on this the Ultimate pit slope limits has been taken as 35°. The maximum depth of the mining will be of 1 m or upto water table, whichever is encountered first. The present level of the lease area is 6 mRL. During plan period, the quarry floor will be 5 mRL or up to water table whichever is less in Alana-2 Devi River Sand Quarry. Life of mine is estimated for five years taking 70% of sand replenishment during the flood.
14. **Baseline details:** Baseline study of the study area was conducted during pre-monsoon from 1st March 2021 to 31st May 2021 for Alana-2 Devi River Sand Quarry.
- a) **Ambient air quality:** The concentrations of PM₁₀ and PM_{2.5} for all the 8 AAQM stations were found between 60.1µg/m³ to 76.9µg/m³ and 20.6µg/m³ to 24.6µg/m³ respectively. The concentrations of SO₂ and NO_x were found to be in range of 6.9 µg/m³ to 9.5µg/m³ and 10.0 µg/m³ to 14.2µg/m³ respectively.
- b) **Noise levels:** Ambient noise levels were measured at 8 locations around the Mine site. Noise levels varied from 40.6 dB (A) Leq to 52.4 Leq dB (A) during daytime and 32.7 dB (A) Leq to 43.6 Leq dB (A) during night time.
- c) **Ground water:** The ground water analysis for all the 7 sampling stations shows that pH varied from 7.18 to 8.12, total hardness varied from 198 mg/L to 382 mg/L & total dissolved solids varied from 386 mg/L to 512 mg/L. The water samples contain chloride 36 mg/L to 94 mg/L, Ca from 44.8 mg/L to 85.6 mg/L, Magnesium varies from 20.9 mg/L to 43.7 mg/L.
- d) **Soil study:** Samples collected from 8 identified soil locations indicate pH value ranging from 6.8.-7.5. Organic Matter ranges from 0.93 % -2.83 % in the soil samples. Nitrogen is found to be in moderate amount as it ranges from 1100 mg/kg -1798 mg/kg and Phosphorous in less amount i.e. from 262 mg/kg- 428 mg/kg, whereas the Potassium is found to be ranging from 550 mg/kg -899 mg/kg.
15. **Water requirement:** Water requirement for the proposed project is 5 KLD which will be mainly utilised for drinking purpose, domestic use, green belt development and for sprinkling on mine

haulage roads. The water shall be drawn from nearby village through water tankers. The domestic wastewater shall be sent to septic tank followed by soak pit.

S. No.	Particulars	Quantity (KLD)	Source
1	Dust Suppression (on haul roads etc.)	2.0	Water requirement will be met from nearby available water resource and drinking water will be sourced from tanker.
2	Green Belt Development/ Plantation	2.07	
3	Drinking/Domestic & Sanitation	0.93	
Total		5.0	

16. **Greenbelt:** 50 plants per year will be planted as per the plantation program. Local plant species will be selected for the green belt development.

Year	Number of saplings purposed	Location	Type of saplings
1st Year	50	Plantation is carried out safety zone of the lease area (riverbank areas)	Teak, Mango, Jammu, Jhaun, Neem etc.
2nd Year	50		
3rd Year	50		
4th Year	50		
5th Year	50		
Total	250		

17. **Manpower requirement:** Total 31 nos. of mine workers will be engaged from the nearby villages or the proposed project.
18. **Project cost:** The estimated cost of the proposed project is approx. Rs.20 lakhs. The estimated cost of EMP for the proposed project is approx.. Rs.1,45,000 (Capital Cost) & Rs.75,000 (Recurring Cost). CER is 2% of the project i.e, Rs. 40,000/-.

S.no	Particulars	Capital Cost	Annual Recurring cost
1	Pollution Control	55,000	20,000
2	Pollution Monitoring	25,000	10,000
3	Afforestation along Approach Road and maintenance of Approach Road	35,000	25,000

4	Occupational health and safety	30,000	20,000
Total		1,45,000	75,000

19. **Environment Consultant:** The Environment consultant **M/s Green Circle, Inc, Gujarat** along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s Green Circle, Inc, Gujarat** along with the project proponent, the SEAC decided to take the decision on the proposal after receipt of the following from the proponent

- i) Exact distance of the site from the nearest river embankment.
- ii) During public hearing, most of the public objected that there is a legal case pending before the Hon'ble High Court, Orissa. Details of the case pending in Hon'ble High Court to be submitted.
- iii) Details/layout of replenishment report including pit size and dimension, distance between two consecutive points, benchmark/mRL and cross section details with erosion and accreditation levels.
- iv) Detailed transportation route with geotagged photos as KML file reveals transportation road is far away.
- v) Detailed geology report of the proposed terrain.
- vi) Details of river embankment with stability report.
- vii) Details of natural plantation/vegetation of the area.
- viii) NOC from concerned water resources department for construction of road on river bed.
- ix) Period of replenishment study and how they have arrived 70% replenishment will be there.

ITEM NO. 02

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR KATHAJODI RIVER SAND QUARRY, BAGULAPADA MINES ON RIVER KATHAJODI OVER AN AREA OF 5.26 HA./ 13.00 ACRE IN VILLAGE BAGULAPADA UNDER SADAR CUTTACK TAHASIL OF CUTTACK DISTRICT OF SRI RAJENDRA PRASAD SINGH - EC

1. This proposal is for environmental clearance for Kathajodi river sand quarry, Bagulapada mines on river Kathajodi over an area of 5.26 ha. /13.00 Acre in village Bagulapada under Sadar Cuttack Tahasil of Cuttack district of Sri Rajendra Prasad Singh.
2. **Category:** As per the EIA Notification,2006 and its subsequent amendments, this project falls in category B under Schedule of activity 1(a) - Mining of Minerals.
3. **Project details:** The proposed mining project is the river bed sand mining on Kathajodi River at village Bagulapada under Sadar Cuttack Tahasil of Cuttack District, Odisha, over an area of 5.26Ha. or 13.00Acres out of which 3.889 Ha. area will be used for excavation of sand within the plan period and 0.971 Ha. area dedicated for safety zone/plantation purpose. Earlier the mining was carried out in the lease area and obtained environment clearance from SEIAA Odisha vide letter no 3858/SEIAA dated 14.08.2015 for five years. The lease period for the

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previous lease has been completed and now the lease will be freshly auctioned by Tahasildar, Cuttack sadar after obtaining Environment clearance and thus considered as a new lease after auction.

4. The Quarry lease has been proposed to be granted by the Tahasildar, Sadar Cuttack to the applicant (successful bidder) for minor mineral (River Sand) for five years.
5. As per the Director of Geology, Odisha, the mining plan has been approved by the Deputy Director of Geology, Cuttack, Odisha vide memo no.3162DG on dated 21.05.2020.
6. The mining lease is an identified sairat source in the DSR Sl. 5 in Annexure I.
7. **TOR details:** The Terms of Reference (ToRs) has been issued by SEAC, Odisha vide Letter No. 9652/SEIA on dated 19.11.2020.
8. **Public hearing details:** Public hearing was conducted on Dtd.05/11/2021 at 11.30 A.M. at Mattagajpur Park, Mattagajpur under Cuttack Sadar Tahasil in Cuttack District, by SPCB, Odisha, Bhubaneswar with assistance of SPCB Regional Office, Cuttack and District Administration, Cuttack Dist., Govt. of Odisha. Issues raised were plantation, water sprinkling provision to control dust pollution, river embankment strengthening and employment. A total of 12.80 lakhs has been earmarked by the proponent for the environment and peripheral development work as per the demand raised during public hearing consultation.
9. **Location and connectivity:** The proposed project is located in survey of India toposheet no. (73 H/3) & bounded between latitude of 20°26'14.38N to 20°26'21.22.15"N and longitudes of 85°56'21.52"E to 85°56'33.57"E bearing Khata No. 25, Plot no-116, Kisam-Nadi. Nearest Railway station is Cuttack Railway station at 5km from the project site. The nearest road is Cuttack Paradeep Road located at 1km. The site is well connected to NH-5 at 5km. Nearest airport is Bhubaneswar airport at 20km from the mining lease area. Water reservoir (Taladanda canal) is 1.5km away from the site. From the site, the nearest road bridge and habitation is 5.5km and 3km away respectively. River embankment is 1.0km away from the site.
10. **Topography:** The land is the government land leased for excavation of river sand. There will be no change in land use pattern after the end of plan period as the land will remain as the part of Kathajodi river bed and the quarry area will be replenished during the rainy season. The sand bed is on the river Kathajodi. The Bagulapada sand bed deposit represents a gentle sloping to almost flat terrain with highest altitude of 21.5 mRL. The general slope is towards east. There is no human settlement within the area.
11. **Replenishment report:** Replenishment study was conducted for pre & post monsoon period on May 2021 and October 2021. Ground survey by Total Station on 5 numbers of cross sections for pre monsoon and post monsoon and 1 numbers of longitudinal sections. River bed RL at selected points in the dry portions of Kathajodi river was measured during Pre-monsoon period (May 2021) and again during post-monsoon period (October 2021). It was observed that there is an average increase of river bed RL by 0.65m due to sediment deposition during the monsoon. The average width of the river as measured in the lease area is 113m and length is about 270 m. So replenished quantity of sand available in each year within the sand bed is 20000m³. The recoverable sand depth in the area is 2.2m and the mining operation will go up to maximum depth of 1.5m.

12. **Reserves and total production:** The total geological resource and mineable reserve for the quarry lease period has been estimated as 151758Cum and 116670 Cum. Similarly, the extractable mineable reserve of river bed sand for the QL period is worked out to be 70002Cum. Total production of sand in the proposed project is 14000cum/annum.

Year	Production of Sand (m ³)
1 ST YEAR	14000
2 ND YEAR	14000
3 RD YEAR	14000
4 TH YEAR	14000
5 TH YEAR	14000
Total	70,000

13. **Mining method:** The method of excavation of sand from Bagulapada Sand quarry will be semi-mechanized open cast mining. The mode of the deposits, geomorphology of the area and its hydrological condition are some of the factors that favour the open cast method of mining. In this deposit, the mining is done by dry-pit method i.e., sand will be excavated within the active channel on dry intermittent or ephemeral stream beds. The excavator is used for removal of sand from the pits. The sands are extracted, loaded, and transferred from pits to the users through trucks and tractors. The mining is done on single shift basis. Benching pattern is not feasible in case of sand, as the angle of repose of sand is 35°, based on this the Ultimate pit slope Limit has been taken as 35°. The maximum depth of mining will be of 3 m or up to water table whichever is less.

14. **Water requirement:** For drinking & domestic purpose, water requirement will be 1 KLD, water requirement for green belt development and dust suppression will be 2 KLD. Ground water will be used for drinking and domestic purpose whereas surface water will be used for green belt development and dust suppression. So total water requirement for the proposed project is 3 KLD. A 10 KLD water tanker will be hired by the lessee for fulfilling both domestic and non-domestic water requirement for the mining.

15. **Baseline details:** The baseline information on ambient air quality, water quality, noise levels and soil quality have been generated for the period of October to December 2020.

a) **Water quality:** From the surface water quality results, it can be inferred that all the parameters analysed are under the prescribed limit as per IS 2296:1982 as per class C and the water does not contain any pollutants which would be hazardous for human, animal or crop health. Ground water quality pH ranges from 6.6 to 7.2. The pH of the surface water in the study area is almost neutral. Total Dissolved Solids ranges from 96-480 mg/l. This indicates the presence of lower amount of ionic substance in the water. Total Hardness ranges from 54 to 198 mg/l and turbidity ranges from 0.3 to 0.9 mg/l.

b) **Noise levels:** The study area includes industrial and residential areas. The ambient noise levels were measured in 8 sampling locations. In the project site the daytime noise level is 45.3 dB (A) and the nighttime noise level is 37.6 dB (A). The maximum noise level is 52.1dB (A) during the daytime at Purighat Village and minimum noise level is 32.3 dB (A) during the nighttime at Rajahansa Village.

c) Ambient Air Quality: In the study area, the observed source of particulate matter is material handling and vehicular movement. During the study period, the concentration of PM₁₀ varies from 50 to 58µg/m³; the concentration of PM_{2.5} varies from 20.1 to 27.2µg/m³. The concentration of SO₂ varies from 5.2-9.3 µg/m³ and the concentration of NO_x within the project site ranges between 11.8-20.5 µg/m³.

d) Soil quality: The soil analysis result shows that the pH of the soil is neutral (pH 6.7-7.9) range. Bulk density ranges from 1.11 to 1.18g/cc, ToC ranges from 0.64 to 1.60 %, Electrical conductivity ranges from 81 to 277 µs/cm, available phosphorous ranges from 13.2 to 41.3 Kg/Ha, available nitrogen content ranges from 50.2 to 125.5 Kg/Ha and available Potassium content varies from 26.9 to 80.6 Kg/ Ha. The soil texture is loamy sand and colour is light brown to brown. Soil analysis result shows that the soil is low in fertility.

16. **Greenbelt:** It is proposed for planting @100 saplings of suitable species per annum by the lessee in vicinity of the riverbank as avenue plantation which is to be undertaken in consultation with the concerned authority. There is the proposal for development of green belt on both sides of the riverbank. The riverbank plantation will be carried out in the 1st year of mining operation.

17. **Employment generation:** Due to the proposed sand mining, there will be generation of employment for 21 persons. Out of which, 4 nos. are skilled, 06 nos. are semi -skilled and 10 nos. are unskilled and 1 supervisor.

18. **Project cost:** The total cost estimated for the proposed project is 10 lakhs. Cost towards implementation of Environment Management Plan (EMP) is 4 lakhs per annum.

Sl. No.	Particulars	Cost/ Annum (Rs.)
1.	Environmental Monitoring: Air, Noise 3 Point each and Water 2 points (Twice yearly)	Rs. 1.50Lakhs
2.	Water sprinkling on the haul road	Rs. 1.00 Lakhs
3.	Green belt development in riverbank	Rs. 1.00 Lakhs
4.	Occupational health	Rs. 0.50 Lakhs
Total		Rs. 4.00 Lakhs

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

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

A) The proponent may be asked to submit the followings for further processing of EC application;

- i) Previous production figures as per Previous EC duly certified by concerned Tahasildar.
- ii) Permission/NOC from Irrigation Department for use of the approach road.
- iii) Traffic Study Report duly vetted by the reputed institution.

- iv) Number of cross sections taken for Replenishment Study Report with details of erosion and accreditation levels.

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

- i) Environmental settings of the lease area.
 ii) Mining activity, if any carried out in the lease area.
 iii) Sand deposit in lease area as KML file shows no sand deposit.
 iv) Road connectivity to the lease area.
 v) Distance of the road and railway bridge from the boundary of the lease area.
 vi) Distance of embankment from sand deposit.
 vii) Any other issues including local issues.

ITEM NO. 03

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR KUSUMI & MOHUDA STONE QUARRIES CLUSTER OVER AN AREA OF 27.258 ACRES OR 11.139 HECTARES IN VILLAGE KUSUMI & MOHUDA, TAHASIL KUKUDAKHANDI IN DISTRICT KUKUDAKHANDI OF TAHASILDAR, KUKUDAKHANDI (SUBMITTED UNDER CLUSTER APPROACH WITH TOTAL CLUSTER AREA 11.139 HECTARES WITH CONSISTING OF 5 STONE QUARRIES) - EC

1. This proposal is for environmental clearance for Kusumi & Mohuda stone quarries cluster over an area of 27.258 Acres or 11.139 hectares in village Kusumi & Mohuda, Tahasil Kukudakhandi in District Kukudakhandi of Tahasildar, Kukudakhandi (submitted under cluster approach with total cluster area 11.139 Hectares with consisting of 5 stone quarries).
2. **Category:** The proposed project is in cluster situation as other leases are within 500 m radius of lease & total lease area becomes greater than 5 ha. So, as per the EIA notification 2006 and its subsequent amendments, proposed project falls in category B1 under Schedule of item 1(a) - Mining of Minerals.

3. Mining plans approval details of Kusumi & Mohuda stone quarries:

S.No	Name and Address of the Mine	Khata No/Plot No	Lease Area	Mining Plan Approval	EC Status
1	Kusumi Stone Quarry Mouza-Kusumi Lessee- Sri Surya Narayan Swar	Khata No-325 Plot No-147/P	2.294 Ha	1019/SZ, 30.07.2022	Applied for Fresh EC (ToR Granted in Cluster)
2	Kusumi Stone Quarry Mouza-Kusumi Lessee- Smt. Swapna Behera	Khata No-325 Plot No-147	1.199 Ha	529/SZ, 22.04.2022	Applied for Fresh EC (ToR Granted in Cluster)
3	Kusumi Stone Quarry Mouza-Kusumi Lessee- Smt. Swapna Behera	Khata No-325 Plot No-166	2.472 Ha	527/SZ, 22.04.2022	Applied for Fresh EC (ToR Granted in Cluster)
4	Mohuda Stone Quarry Mouza-Mohuda Lessee- Smt. B.Sita Reddy	Khata No-669 Plot No-1978 (P)	4.284 Ha	905/SZ , 01.07.2020	Applied for new EC (ToR Granted in Cluster)
5	Mohuda Stone Quarry Mouza-Mohuda Lessee- Sri V.Budu	Khata No-669 Plot No-1978 (P)	0.890 Ha	531/SZ, 22.04.2022	Applied for Fresh EC (ToR Granted in Cluster)

4. There are two other identified sairat sources quarries present within 500 m of proposed cluster i.e.

S.No	Name and Address of the Mine	Khata No/Plot No	Lease Area	EC Status
1	Mohuda Stone Quarry Mouza-Mohuda Lessee- Sri Tushar Kanta Dash	Khata No-669 Plot No-1406	2.165 Ha.	EC Granted on Date: 30.07.2022 from SEIAA & Running till 27.05.2025
2	Mohuda Stone Quarry Mouza-Mohuda Lessee- Sri B. Balaji Reddy	Khata No-669 Plot No-1978 (P)	2.165 Ha.	EC Granted on Date: 10.8.2021 from SEIAA & Running till 21.08.2026

5. **DLC details:** -The proposed Sairat source under Kukudakhandi Tehsil is not coming under DLC land vide Letter no-5001 dated 03 June 2022.
6. **TOR details:** Terms of Reference (TOR) has been prescribed by SEIAA, Odisha vide Reference No: 5157/ SEIAA; File no. SIA/OR/MIN/81911/2022 dated 19.08.2022.
7. **Public hearing details:** Public hearing was successfully conducted on date 23.11.2022 at village-Kusumi, Tehsil-Kukudakhandi, District- Ganjam, Odisha. Issues raised during public hearing are local employment, local development, construction material availability for developmental works, assistance to local people, plantation, and control blasting. Funds allocated for Public Hearing issues are: Rs.89000.00 for plantation, 0.20lakhs for medical camp and 0.50lakhs for distribution of books and educational awareness campaign.
8. **Location and connectivity:** The Kusumi & Mohuda Stone Quarry lease is located at Village-Kusumi & Mohuda, Tehsil- Kukudakhandi, District-Ganjam, Odisha. The area falls in Survey of India topo sheet No. 74A/11, 74A/12, 74A/15& 74A/16. Kusumi stone quarry bears Khata no.325 plot nos.147/P (2.294 ha.),147(2.472 ha.) and 166(1.199 ha.) while Mohuda stone quarry bears Khata no 669, Plot no 1978(P) with 0.890 and 4.284 hectares. The quarry area bounded between the Latitude -19°16'37.96" N to 19°17'5.62" N and Longitude - 84°44'08.06" E to 84°44'36.64" E with an elevation of about 60m RL to 38 mRL. Nearest railway line is Berhampur Railway station at 6.0 Km NE, NH-16 is at 4.50 km in SE, SH- 22 is at 1.20 km in NW. Nearest road bridge is at Haladiapadara over bridge at a distance of 4.50km SE and nearest river embankment is at 20km in SW. Nearest reserve forest is Ramagurha reserve forest at a distance of 3.30 km in SW.
9. There is no National Park or Biosphere Reserve within 10 km distance from the lease area. The life of the mine will be 27 years for cluster.
10. **Topography and drainage:** The area falls in Eastern Ghats of Odisha in Ganjam district. This group of formation comprises of granitic gneisses, granites, khondalites, chanockites and granitoids. A variety of Granite Gneiss forming peneplains ground occurs at geomorphic levels above 100- 150MSL. They are believed to be late proterozoic age. The quarry lease has highest

elevation of about 60m RL and lowest elevation of 38 mRL. There is no stream crossing in the mine lease area. Dakhinapur Reservoirs is at approx 5.60 km towards NE direction.

11. Reserves and total production: As estimated, reserves of Kusumi and Mohuda stone mining lease is presently spanning over an area of 11.139ha. (Cluster area). The proposed project is to mine Kusumi & Mohuda Stone Quarry (Cluster Area 11.139ha.) for proposed production of 37,364 cum/year (under cluster approach).

Name of The Mine	Production (cum)
Kusumi Stone Quarry (2.294 ha.)	8015
Kusumi Stone Quarry (2.472 ha.)	10098
Kusumi Stone Quarry (1.199 ha.)	6148
Mahuda Stone Quarry (0.890 ha.)	3015
Mahuda Stone Quarry (4.284 ha.)	10088
Total	37,364

Name of The Mine	Geological Reserves (cum)	Mineable Reserves (cum)
Kusumi Stone Quarry (2.294 ha.)	308307	219675
Kusumi Stone Quarry (2.472 ha.)	338138	188865
Kusumi Stone Quarry (1.199 ha.)	76976	51516
Mahuda Stone Quarry (0.890 ha.)	86197	47466
Mahuda Stone Quarry (4.284 ha.)	637641	507237

12. Mining method: Mining will be done by semi-mechanized method. Mining will be done by deploying machines like jackhammer, drill compressor, rock breaker, excavator and tractors/trucks. Tipper and trucks will be used for transporting stone and waste. Drilling & blasting will be carried out as & when required. In a month, around 57- 63 no. of drill holes will be made. On monthly basis around 24kg of non-explosive blasting material will be consumed. Blasting will be carried out by an employed blaster. Short hole blasting will be practiced. Bench height will be 5.0 m and Width 5.0m. Ultimate pit slope will be 45°.

13. Waste generation: About 10% of mine waste will be generated which is mineral fines along with undersized material & other intermediate weathered products. These wastes will be disposed to the proposed dump yard in NW part of lease area. These wastes will be used for the construction of mine road. The retaining wall around the dump will be constructed to prevent the wash off dump. Around the retaining a garland drain and settling tank will be provided to prevent the possible transportation of mine dust or fines. Garland drain will be provided in 522m boundary of section 2.0m x 1.5m. The protective bound will also be prepared around the periphery of the ML area in 5m width.

Year	Waste Generation (cu.m.)				
	Kusumi Stone Quarry (2.294 ha.)	Kusumi Stone Quarry (2.472 ha.)	Kusumi Stone Quarry (1.199 ha.)	Mohuda Stone Quarry (0.890 ha.)	Mohuda Stone Quarry (4.284 ha.)
1 st	3435	1122	1537	335	2522
2 nd	3435	1122	1537	335	2522
3 rd	3435	1122	1537	335	2522
4 th	3435	1122	1537	335	2522
5 th	3435	1122	1537	335	2522

14. Baseline study: Study at the site was monitored during pre-monsoon season March 2022 to May, 2022. Following observations were made:

- Ambient Air quality:** The minimum and maximum level of PM_{2.5} recorded within the study area was in the range of 25.23µg/m³ to 43.51µg/m³ with the 98th percentile ranging between 38.44µg/m³ to 43.35µg/m³. The 24 hourly average values of PM_{2.5} were compared with the National Ambient Air Quality Standards (NAAQS) and found that all sampling stations recorded in the study area are within the applicable limits i.e., 60 µg/m³ for PM_{2.5} in rural areas. The minimum and maximum level of PM₁₀ recorded within the study area was in the range of 51.28µg/m³ to 78.13µg/m³ with the 98th percentile ranging between 72.38µg/m³ to 77.58µg/m³. The minimum and maximum concentration of SO₂ recorded within the study area was 6.23 µg/m³ to 9.78 µg/m³ with the 98th percentile ranging between 7.74µg/m³ to 9.77µg/m³. The minimum and maximum level of NO₂ recorded within the study area was in the range of 8.03µg/m³ to 15.21µg/m³ with the 98th percentile ranging between 10.49µg/m³ to 15.21µg/m³.
- Water quality:** During the study period, the pH was varying for ground waters from 7.15 to 7.48 & in Surface water from 7.57 to 7.62. The total dissolved solids are varying from 275 mg/l to 303 mg/l. Hardness of ground water varies from 114 mg/l to 135 mg/l. Concentration of Fluorides is less than <0.01mg/l.
- Noise levels study:** The values of noise observed in some of the areas are primarily owing to vehicular traffic. Assessment of hourly night time Leq (Ln) varies from 37.6 to 44.3dB (A) and the hourly daytime Leq (Ld) varies from 48.7 to 59.2dB (A) within the study area.
- Soil:** In the study area, variations in the pH of the soil were found to be slightly alkaline (7.32 to 8.05).

15. Water requirement: A total of 17 KLD water will be required for Cluster applied area. The water will be supplied from available sources from nearby village.

Purpose	Water requirement (KLD)					Total
	Kusumi Stone Quarry (2.294 Ha.)	Kusumi Stone Quarry (2.472 Ha.)	Kusumi Stone Quarry (1.199 Ha.)	Mohuda Stone Quarry (0.890 Ha.)	Mohuda Stone Quarry (4.284 Ha.)	
Domestic &	0.85	1.03	0.67	0.67	0.85	4.07

drinking					
Dust suppression	9.2				9.2
Green belt development	2.75				2.75
Total					16.02 ~ 17 KLD

16. Wastewater management: The wastewater generation from the above consumption is mainly from domestic consumption i.e., the wastewater generated from the domestic front is mainly from toilets. This water will be treated in septic tank followed by soak pit.

17. Power supply: Electrical power will be required only for site office and will be obtained from Solar energy. Transportation will be done through dumpers or trucks operating on diesel. No storage for diesel is proposed.

18. Greenbelt: The entire plantation will be done on the periphery of the reclaimed area. Precautionary measures will be taken for care of the forestation made by regular watering in the afforested area, to protect from grazing animals.

Year	Total Plantation	Green belt Nos.				
		Kusumi Stone Quarry (2.294 Ha.)	Kusumi Stone Quarry (2.472 Ha.)	Kusumi Stone Quarry (1.199 Ha.)	Mohuda Stone Quarry (0.890 Ha.)	Mohuda Stone Quarry (4.284 Ha.)
1 st year	1377	189	438	250	250	250
2 nd year	1377	189	438	250	250	250
3 rd year	1377	189	438	250	250	250
4 th year	1377	189	438	250	250	250
5 th year	1377	189	438	250	250	250
Total	6890	945	2190	1250	1250	1250

19. Employment generation: The total manpower requirement for the proposed project is 91 persons.

20. Project cost: The estimated cost of the project is 2.6 Crores (Cluster).

S.No	Name and Address of the Mine	Applicant	Total Cost (Rs)	CER 2% of Total Cost in Rs)
1	Kusumi Stone Quarry Khata No 325, Plot No 147/P, Mouza-Kusumi	Sri Surya Narayan Swar	60 Lakhs	Rs 1,20,000
2	Kusumi Stone Quarry Khata No 325, Plot No 166, Mouza-Kusumi	Smt. Swapna Behera	50 Lakhs	Rs 1,00,000
3	Kusumi Stone Quarry Khata No 325, Plot No 147, Mouza-Kusumi	Smt. Swapna Behera	50 Lakhs	Rs 1,00,000
4	Mohuda Stone Quarry Khata No 669, Plot No 1978/P, Mouza-Mohuda	Smt. B. Sita Reddy	50 Lakhs	Rs 1,00,000
5	Mohuda Stone Quarry Khata No 669, Plot No 1978(P), Mouza-Mohuda	Sri V. Budu	50 Lakhs	Rs 1,00,000

The EMP (For Cluster) cost includes capital cost of Rs 20.02 Lakhs and recurring cost of 12.50 Lakhs.

Sl. No.	Measures	Capital Cost (In Rs.)	Recurring Cost (In Rs.)
1	Water Sprinkling/Air Pollution Control (Dust Suppression along haulage road and mine)	--	5,00,000
2	Greenbelt development safety zone 7.5 mtr and along the road (for each plants including hedges and fences)	13,77,000	2,50,000
3	Environment Monitoring (Air, Water, Noise & Soil Monitoring)	--	2,50,000
4	Construction and Maintenance of Haul Road	6,25,000	2,50,000
Total		20,02,000	12,50,000

21. Environment Consultant: The Environment consultant **M/s P & M Solution, Noida** along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s P & M Solution, Noida** along with the project proponent, the SEAC recommended the following:

A) The proponent may be asked to submit the followings for further processing of EC application;

- i) There are 7 quarries in cluster, out of which EC has been granted by DEIAA to 2 quarries. Clarification how DEIAA has granted EC to 2 quarries when total cluster area was more than 5 ha. Further, proper justification/Clarification through a write-up from district authority that why it should not be considered as violation.
- ii) Copies of Environmental Clearance of 2 quarries granted by DEIAA.
- iii) Mitigation plan for flying rocks during blasting in cluster.
- iv) Layout plan of garland drain and settling pond and silt management.
- v) Details of nearby structures in tabulated form.
- vi) Mohuda Solid Waste Management Plant of Berhampur Municipal Corporation is located around 170 meter away from the quarries. Permission from Berhampur Municipal Corporation for operation of stone quarries near to Mohuda Solid Waste Management Plant.

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

- i) Environmental settings of the lease area.
- ii) Cluster situation of the total lease area.
- iii) Mining activity, if any carried out in the lease area.
- iv) Road connectivity to the lease area.
- v) Possible impact of mining activity on the Common Solid Waste Management Plant (Mohuda) of Berhampur Municipal Corporation.

vi) Any other issues including local issues.

ITEM NO. 04

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR BAITARINI SAND BED, PANCHUPALLY OVER AN AREA OF 5.058 HA. AT MOUZA - PANCHUPALLY UNDER ANANDAPUR TAHASIL OF KEONJHAR DISTRICT OF SMT. JYOTSHNA PANDA - EC

1. This proposal is for environmental clearance for Baitarini sand bed, Panchupally over an area of 5.058 ha. at Mouza - Panchupally under Anandapur Tahasil of Keonjhar district of Smt. Jyotshna Panda.
2. **Category:** As per the EIA Notification, 2006 and its subsequent amendments, this project falls in category B1 under Schedule of activity 1(a)- Mining of Minerals.
3. Smt. Jyotsna Panda has been selected as successful bidder by Tahasildar, Anandapur vide letter no – 6454 on dated 29.06.2021.
4. The Mining plan has been approved for a period of five years by The Joint Director of Geology, Keonjhar. Vide letter no – 703/CZ, on dated 28.04.2021 in favour of Tahasildar, Anandapur. The area over 5.058ha. is a non-forest Govt. land of Nadi kissam, having ground elevation of 38 mRL.
5. The District Survey Report for River Sand in respect of Keonjhar district has been prepared in accordance with Appendix – x, Para – 7 (iii) (a) of S.O. No – 3611(E) dated 25.07.2018 of MoEF & CC, New Delhi and approved by Collector, Keonjhar on dated 28.01.2020.
6. The mining lease is an identified sairat source in DSR bearing Page no-4, Sl. No-32, Annexure II.
7. **TOR details:** Terms of Reference (TORs) has been granted by SEIAA, Odisha vide letter no – 3511/SEIAA on dated 25.11.2021
8. **Public hearing details:** Public hearing of Baitarini Sand bed, Panchupally for production of river sand over an area of 5.058ha. at Panchupally village under Anandapur tahasil of Keonjhar district was conducted on 29.09.2022 at 11.00AM at Khata no – 1112 (Rakhita), Plot no- 603 of Panchupally village of Keonjhar district. Issues raised were no transportation of vehicles carrying sand on the Baitarani River dyke near village Panchupally, safety measures for protection of the river dyke of Baitarani of Panchupally village, finding alternate route for transportation of sand from mines avoiding dyke road. A budget of 2 lakhs is earmarked for the action plan for issues in public hearing.
9. **Location and connectivity:** The Baitarini Sand Bed, Panchupally is in survey of India Topo Sheet No. F45 O/4, bounded by Latitude: 21⁰09'51.8" to 21⁰10'1.3" N, Longitude: 86⁰11'30.6" to 86⁰11'44.9" E bearing Khata no 1115, Plot no 6203/1. The Lease area is accessible from Tukuna - Panchupally PWD road at 0.20 km, which is well connected to Highways. The nearest railway station is Sagadapata at distance 25 km from the lease area. The area over 5.058 ha is a non-forest Govt. land of Nadi kissam, having ground elevation of 38 mRL. Nearest river bridge and the nearest river embankment is located 8 Km and 0.6 Km respectively away from the proposed site. Hadagarh Sanctuary is at 20Km away at North of the proposed site. Ratibandh reserve forests is at 4.0km at North of the proposed site.

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10. There are no National parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors; Tiger/Elephant reserves (existing as well as proposed) present within 10 km of the applied mine lease area
11. **Topography and drainage:** The Sand bed is on the river Baitarini. The Panchupally sand bed deposit represents a gentle sloping to almost flat terrain with highest altitude of 38 mRL. The general slope is towards east. Vegetation is scanty with small bushes existing in the auction hold area. There is no human settlement within the area. The Baitarini River along with its distributaries controls the drainage system of the area and traverses the area from north-west to south. There are several water bodies in the buffer zone.
12. **Reserves and total production:** The total geological resource has been estimated as 50580cum. Similarly, the mineable reserve of riverbed sand is worked out to be 42925cum. 8585 cum/annum total production of River Sand is proposed as per approved Mining Plan.

Year	SURFACE AREA (m ²)	THICKNESS	PRODUCTION (m ³)
1 st year	8585	1m	8585
2 nd year	8585	1m	8585
3 rd year	8585	1m	8585
4 th year	8585	1m	8585
5 th year	8585	1m	8585
TOTAL	42925		42925

13. Total lease area is 5.058ha. of non-forest Govt. land of "Nadi" kisam. And the lessee is going to work within the said area for 5 years from 2021-22 to 2025-26 with a maximum production of 8585cum per annum with a total production of 42925cum during plan period. The land belongs to Baitarini River bed area and got huge amount of sand deposited at the site. Mining operation shall be carried out 240 days in a year excluding monsoon period. The study area falls under zone-II of seismic zone.
14. **Replenishment Study Report:** The replenishment study has been done by UAV/Drone survey (volumetric survey) method. Two surveys were carried out for data acquisition, the first one for pre-monsoon data on 15.06.2022 and the second one for post monsoon data on 12.11.2022 by using UAV/ Drone. Considering a common safe workable area of 2055.2 m², it is observed that replenishment of 838.96m³ has been done with an average thickness of 0.408m. The safe workable area for pre- monsoon survey was 3101.62 m² and for post-monsoon survey was 8652.43 m².The volume of sand available during post monsoon and pre-monsoon survey around 6813.16 m³ and 1496.55 m³, which can be treated as safe extractable within the framework of the study.
15. **Method of mining:** As per the Approved Mining Plan, the mining of sand will be done by open cast manual method for excavation & then loading into dumpers/ tractors/tippers for transport to the user's destination. The quarry will be mined for five years. The maximum depth of mining will be of 1m or up to water table whichever is less. Mine is planned to produce 8585cum of sand annually. Since the riverbed sand deposit is devoid of any over

burden, development for over-burden does not arise. Mining will be carried out in lean period only, during monsoon the mining will be stopped.

16. **Baseline details:** To depict the present environmental scenario, data on environment factors like air, water, soil, have been collected & analysed during the Winter season starting from December 2021 to February 2022.
17. **Air Environment:** Ambient air quality of the study area has been monitored at 6 locations for 12 air quality parameters. The AAQ analysis indicates that the concentration of PM₁₀ varied from 19 µg/m³ to 48 µg/m³, PM_{2.5} from 08 µg/m³ to 30 µg/m³, SO₂ from BDL to 6.5 µg/m³, NOx from BDL to 13.6 µg/m³. Benzene, BaP, Ni, As, & Pb were found below detection limit.
18. **Surface water:** pH values varied between 6.9 to 7.2 while Turbidity varies from 13 to 14.0 NTU, Dissolved Solids varied from 102 mg/L to 124 mg/L, Dissolved oxygen varies from 6.2 mg/L to 7.0 mg/L, BOD varied from 1.4 mg/L to 1.8 mg/L and Chloride values varied between 9.5 mg/L to 10 mg/L. Iron values varied from 0.28 mg/L to 0.44 mg/L, Manganese values varied from 0.02 mg/L to 0.04 mg/L. Sulphate values varied from 3.2 mg/L to 5.0 mg/L and Nitrate values varied from 3.0 mg/L to 3.3 mg/L. Zinc 0.1 mg/L to 0.12 mg/L. Copper BDL to 0.002. Fluoride, Arsenic, Lead, Chromium, Cyanide, Selenium, Fluoride, Phenolic compound, and Cadmium have been observed below detection limit and Total Coliform varies from 989 to 1118 MPN/100 ml.
19. **Ground water:** pH values varied between 6.9 to 7.3 while Turbidity ranged from 2.6 to 2.8 NTU. Dissolved Solids varied between 96 mg/L to 118 mg/l and total hardness varied from 80 mg/L to 99 mg/l. Chloride values varied between 7 mg/L to 10.7 mg/l. Calcium values varied between 17.1 mg/L to 18 mg/l while Magnesium values varied between 8.6 mg/L to 10 mg/l, Sulphate values varied from 2.3 mg/L to 3.1 mg/l and Nitrate values varied from 2 mg/L to 3.6 mg/l. Zinc values varied from 0.16 mg/l to 0.2 mg/l & Boron from 0.10 mg/l to 0.21 mg/l. Lead, Copper, Manganese, Fluoride, Mercury, Cadmium, Cyanide, Arsenic, Selenium, Chromium, Phenolic compounds and Aluminium have been observed below detection limit.
20. **Soil study:** Soil of the study area is acidic in nature. The bulk density of soil samples varies from 1.4 gm/cm³ to 1.6 gm/cm³, while porosity varies from 40 to 44 %.
 - a) **Noise Environment:** Noise monitoring was carried out at 6 locations as per the standard prescribed by CPCB. Noise level monitoring was carried out continuously for 24 hours at one hour interval starting at 06:15 hrs to 05:15 hrs next day once in a month for 3 months during the study period, at all locations. Noise level varies from 49 to 54 dB (A) during Day time and 38 to 42 dB (A) during Night time, which are below the prescribed limits of CPCB.
21. **Water requirement:** Total water approx., 1 KLD will be required for different purposes like Domestic, Dust suppression, plantation purposes & sourced from as per the availability. As the requirement of water is not so huge, the mine will draw water as per suitability in accordance to the existing guidelines.
22. **Greenbelt:** During five years, about 250 saplings of local varieties of trees will be planted along the roads. Schedule planned for green belt development will be checked every year and any modification required will be implemented. Post plantation status will be regularly

monitored in every season. Phase wise development in the areas of plantation including rate of growth, survival rate etc., will be recorded.

23. **Manpower requirement:** 2nos. supervisory personnel preferably Mining Mate with Certificate of Competency from DGMS and 2nos. statutory personnel will be employed. As per OMS, 3 skilled and 9 unskilled persons will be employed. So total 16 nos. are required for the manpower of this project.

24. **Project cost:** Estimated cost of the project is 70 Lakhs and an EMP cost of 4.5 lakhs (capital cost) & 1.0 lakhs as recurring cost is proposed.

EMP BUDGET		
Particulars	Capital Cost (Rs. in Lakhs)	Recurring Cost (Rs. Lakhs/Annum)
Environmental Monitoring	2.0	0.2
Environmental Management		0.2
Green belt development	0.5	0.1
CSR	2.0	0.5
Total	4.5	1.0

25. **Environment Consultant:** The Environment consultant **M/s Srushti Seva Private Ltd.**, along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s Srushti Seva Private Ltd.**, along with the project proponent, the SEAC decided to take the decision on the proposal after receipt of the following from the proponent:

- i) Copy of Joint verification report regarding transportation route.
- ii) NOC from concerned Water resources Department for construction of temporary road from river bed to embankment.
- iii) Sand availability in the lease area as KML file shows less sand deposit.
- iv) Sand Replenishment Report.
- v) Water requirement is 1 KLD in EIA report and in presentation it is 5 KLD. This has to be clarified with water balance.
- vi) Recurring cost for EMP is mentioned 2.5 lakhs in Brief Summary, 0.5lakhs in EIA and 1.0 lakhs in presentation. This has to be clarified.
- vii) During the public hearing, villagers objected that if sand mining will be carried out, there will be risk to river embankment. This has to be clarified.

ITEM NO. 05

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S. AVIRA DISTILLERY PRIVATE LIMITED FOR GRAIN AND MALT BASED DISTILLERY PLANT PROJECT FOR OF 30 KLPD ALONG WITH 1.5 MW CO-GENERATION POWER PLANT LOCATED AT VILLAGE-BARAPADA, P.O. GARUDAGAON TANGI, DISTRICT –CUTTACK, ODISHA OF SRI KISHORE KUMAR MAHANTA - EC

1. This proposal is for environmental clearance of M/s. Avira Distillery Private Limited for grain and malt-based distillery plant project for of 30 KLPD along with 1.5 MW co-generation power plant located at Village-Barapada, P.O. Garudagaon Tangi, District – Cuttack, Odisha of Sri Kishore Kumar Mahanta.
2. **Category:** This project falls in Category “B1” under Schedule of item 5(g) - Distilleries (Grain based / non-molasses based for Non-EBP) as per the EIA Notification 2006 and its amendments thereof.
3. **Project details:** M/s Avira Distillery (P) Limited has taken over a 30 KLPD Grain and Malt Based Distillery Plant along with 1.5 MW Co-generation Power Plant which has been erected by earlier proponent located at Village-Barapada, P.O. Garudagaon Tangi, District -Cuttack, Odisha. The earlier owner of project was M/s S R Distilleries Pvt Ltd. It had started the construction but due to financial condition they could not complete the construction of the project. Approx. 75% of the work has been completed as per the earlier granted EC and later all activities have been suspended because, the said company defaulted in payment of Bank Loan. Bank had auctioned their factory for clearances of dues vide e- auction dated 27th July 2022. M/s Avira Distillery (P) Ltd participated in the said e-auction and became the highest bidder. In the above backdrop, M/s Avira Distillery Pvt. Ltd. deposited 25% of the auction amount and was issued “Sale Confirmation Letter” dated 28th July 2022 by the Punjab National Bank, being the consortium leader. Due to financial condition, PP was unable to complete construction within validity period as per earlier EC granted, approx. 75% of the construction work was completed at the project site and then the plant got shut down. Later it was taken over by Avira Distillery (P) Ltd, present owner by undergoing.
4. Earlier Environment Clearance was granted from the MOEF&CC vide letter No – J-11011/463/2010-IA II (I), dated: -20.04.2012, name of M/s SR Distillery Private Limited.
5. S R Distilleries Pvt Ltd had also taken CTE and CTO from Odisha State Pollution Control Board. Copy of Environmental Clearance, CTE from SPCB, Odisha Vide letter no.-21803, dated-26.12.2011 and CTO Vide letter no.-4187 dated- 17.03.2015.
6. **ToR details:** The project has been granted ToR vide letter no. SIA/OR/IND2/405949/2022 dated: 27.01.2023.
7. **Public hearing details:** The SEIAA had exempt public hearing as per MoEF&CC, Govt. of India amended EIA Notification vide S.O.1247 (E), dated 18th March 2021 as they have already completed construction work more than 50% during validity period of Environmental Clearance.
8. **Details of Previous Public hearing made for this project:** It was conducted on 10.06.2011 at Barapada project U.P. school. Issues raised during the public hearing are pollution control measures, providing employment to local people, up gradation of nearby schools, drinking water

Proceedings of the SEAC meeting held on 10.03.2023

Environmental Scientist, SEAC

facility and ambulance services, road development and maintenance work in locality & villages, concern about health of local people & arrange health check-up camp. A budget of 84 Lakhs has been allotted for action plan of public hearing.

- 9. Location and connectivity:** The project site is located at plot no. 450/558, 451, 452,453, Village-Barapada, P.O. Garudagaon Tangi, District -Cuttack, Odisha. The coordinates of project site are Latitude: 20°35'57.21"N & Longitude: 85°42.28"E. The proposed site has good connectivity with the rail and road. Barapada Road is the connecting road and is abutting Project site. NH-16 is at 5.7 km in ESE direction from the project site, NH-55 is at 10.1 km in SW direction from the project site and SH-9A is at a distance of 11 km in South direction from project site. The nearest railway station is Kapilas Road Junction at 5.5 km in SE direction. The nearest airport is Biju Patnaik International Airport which is approximately 40.9 km in SSW from the project site. Nearest water bodies include Mendakhil Nadi 7 km towards ESE , Birupa River- 8.8 km towards ESE, Mahanadi River- 12.8 km towards SSW direction , Gabapala Irrigation Lake 9 Km towards North direction. Nimajhara Dam is 10.9 Km towards North direction while High Level Canal Range 1- 4.2 Km towards SE direction.
- 10. Topography:** The topography of Project site is generally characterized by an almost flat plain. Banara is a Village in Cuttack District of Odisha State, India. It is located approx.15 km towards East from District headquarters Cuttack. The ground elevation in the study area varies from approximately 1.56-8.17m bgl. Change in topography is envisaged due to construction of buildings, making raw material, and finished good yards.
- 11. Size or magnitude of operation:**

Plant Configurations

S. No.	Units	Proposed Capacity
i)	Installed Capacity	30 KLPD Grain ENA Distillery and Malt Spirit Plant
ii)	Major Raw Material	Grain (Broken rice, Maize, Bajra)
iii)	Final Product & By-Product	ENA - 30 KLD DDGS- 22 TPD CO2- 15 TPD
iv)	Co-Generation Power Plant (1 x 12 TPH-AFBC)	1.5 MW
v)	IMFL	186025 cases per month

- 12. Major Raw Material - Grain (Broken rice, Bajra, Maize,) and Malt**
- 13. Final Product & By- Product - ENA -30 KLPD, DDGS- 22 TPD, CO2- 15 TPD, IMFL – 1,86,025 cases per month.**
- 14. Land use details:** Total land is 2.83 Ha. This land is sufficient for the setup of the Grain ENA Distillery and Malt Spirit Plant 33.00% land has been earmarked for plantation and greenbelt as per standard norms. Table below gives the % area used in the plant. The tentative land area statement of proposed project is given as below: -

Table: Land Break-up

Land use	Area (Ha)	Percentage (%)
Parking	0.42	15.0
Green belt	0.93	33.0
Road & Paved area	0.36	12
Plant and machinery	1.12	40.0
Total land area	2.83	100.0

15. Baseline details: The baseline environment quality was carried out within 10 km of project site during Post Monsoon i.e. October, 2022 to December, 2022.

- a) **Ambient air quality:** The minimum and maximum level of PM_{2.5} recorded within the study area was in the range of 31.2 µg/m³ to 44.7 µg/m³ with the 98th percentile ranging between 40.6 µg/m³ to 44.7 µg/m³. The 24 hourly average values of PM_{2.5} were compared with the National Ambient Air Quality Standards (NAAQS) and found that all sampling stations recorded in the study area are within the applicable limits i.e., 60 µg/m³ for PM_{2.5} in rural areas. The minimum and maximum level of PM₁₀ recorded within the study area was in the range of 53.7 µg/m³ to 80.8 µg/m³ with the 98th percentile ranging between 73.3 µg/m³ to 79.7 µg/m³. The minimum and maximum level of SO₂ recorded within the study area was in the range of 5.8 µg/m³ to 10 µg/m³ with the 98th percentile ranging between 8.1 µg/m³ to 9.6 µg/m³. The minimum and maximum level of NO_x recorded within the study area was in the range of 11.4 µg/m³ to 16.4 µg/m³ with the 98th percentile ranging between 14.5 µg/m³ to 16.2 µg/m³. The minimum and maximum level of CO recorded within the study area was in the range of 270 µg/m³ to 450 µg/m³ with the 98th percentile ranging between 355.5 µg/m³ to 450 µg/m³.
- b) **Noise levels:** Assessment of hourly night time Leq (Ln) varies from 46.8 dB (A) to 63.8 dB (A) and the hourly day time Leq (Ld) varies from 38.8 dB (A) to 53.6 dB (A) within the study area.
- c) **Ground water:** During the study period, the pH was varying for ground waters from 7.41 to 7.54 and the surface water varying between 7.36 to 8.01. The chloride level in the Ground water samples collected in the study area were ranging from 189 mg/l to a maximum of 218 mg/l. The TDS of the samples were above the desirable limit but within the permissible limit of 2000 mg/l. In the ground water samples collected from the study area, the hardness is varying from 189 mg/l to 218 mg/l. In the ground water samples of study area the fluoride value were in the range of 0.3 mg/l to 0.5mg/l. In surface water 0.6 mg/l is the maximum value.
- d) **Soil analysis:** In the study area, variations in the pH of the soil were found to be neutral (7.58 to 7.86). Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil. In the collected soil samples, the conductivity ranged from 246 – 285 µmhos/cm.

16. Permission to extract ground water has been obtained by previous owner. CGWA has sanctioned for 442 KLD extraction from ground water. Extraction should not exceed 132865 m³ in a year.

17. Water requirement and waste water management : 263 KLD of fresh water is required as against sanctioned 442 KLPD. Total water requirement for the project will be 1784 KLD which will be further reduced through recycling & reuse of 1485 KLD. Total freshwater demand for distillery operation is 169 KLD @5.6 KL of water/KL of ENA. Soft water required for preparing IMFL = 35 KLD to manufacture 186025 cases per month.

Water use	Fresh water	Recycle 1	Recycle 2	Effluent	Total
Process					
Fermentation	109	26	77	0	212
Distillation	60	0	0	0	60
Total	169	26	77	0	272
	-	-	-	-	-
Boiler	36	252	--	14	302
D Mwater	35	-	-	5	35
Cooling tower	0	130	1000	22	1152
Domestic	6	0	0	5	6
Greenbelt	17	0	0	0	17
Total	263	408	1077	46	1784

18. Domestic sewage will be treated in STP and treated water will be used for horticulture and water sprinkling. The distillery will be based on “zero liquid discharge”. Wastewater generated from plant premises will be treated in ETP/CPU.

19. Rainwater harvesting: Total Rainwater can be harvested in Monsoon season (120 days) =1612.8+ 297.6+ 403.2 = 2,313.6 m³ say 80% of this rainwater will be used during distillery process (considering 20% evaporation and other losses) is 1,850.88 m³.

20. Power requirement: Actual power requirement to run the entire plant with all its utilities and IMFL unit is expected to be 1.3 MW. The industry has an in-house co-generation power plant of 1.5 MW run by using steam generated in 12 TPH rice husk/ coal fired boiler. For emergency situations 1 no DG set of 500 KVA capacity will be installed within the plant area. Solar power panels will be installed within project premises with capacity equal to 10% of required power demand.

21. Fuel requirement: Heat requirement to carry out various operations and generation of electrical power will be done by using steam. To generate steam a multifuel fired boiler is installed which uses biomass/rice husk/coal in the order of priority.

- a) Boiler steam generation capacity is 12 TPH.
- b) Fuel consumption to generate 12 TPH steam will be 80 TPD rice husk/briquettes.
- c) If coal is used the requirement shall be about 44 TPD.
- d) For power requirement during emergency a 500 MVA DG set has been installed which requires HSD as a fuel which is a low Sulphur fuel. Its fuel consumption will be about 130 litres of HSD if operated for an hour.

22. Greenbelt: A greenbelt of 0.93 Ha (33.00%) will be developed in the plant premises. Approx. 10m wide greenbelt will be developed around the plant premises. This will include digging pits with proper spacing, filling pits with prepared soil, plantation of seedlings and watering. The size

of the pit will be 1m x 1m x 1 m for trees and 0.5 m x 0.5 m x 0.5 m x 0.5 m for shrubs. Nursery raised saplings of 2–3 feet height of trees and shrubs will be purchased from local nursery and Forest Dept.

23. Manpower: The industry will provide indirect employment to about 50 people and the total employment potential of the project will be about 110 persons.

24. Project cost: Estimated cost of the proposed project is 63 crore and CER cost is 0.84 crores. The total capital cost of EMP will be Rs 3.01 Cr and recurring cost will be 0.437 Cr.

S. No.	Environmental Aspect	Capital Expenditure Rs In Crores	Recurring Expenditure Rs in Crores (per annum)
1	Air Pollution Control, OCEMS	0.80	0.06
2	Water & Wastewater management	0.30	0.03
3	Solid Waste	0.27	0.027
4	Green Belt Development	0.25	0.025
5	Monitoring	0.20	0.02
6	Environmental Cell & PR	0.10	0.01
7	Other aspects like Rain Water Harvesting, Safety, Security etc.	0.25	0.025
8.	CER Cost	0.84	0.24
	Total	3.01	0.437

25. Environment Consultant: The Environment consultant **M/s Grass Roots Research & Creation India (P) Ltd. Noida** along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s Grass Roots Research & Creation India (P) Ltd., Noida** along with the project proponent, the SEAC decided to take the decision on the proposal after receipt of the following from the proponent

- i) Certified Compliance Report to previous EC conditions from RO, MoEF & CC, Govt. of India.
- ii) Certificate from concerned DFO that there is no presence of Schedule-I species in the study area.
- iii) A brief write-up about mitigation measures to address any emergency on alcohol storage and effluent pond.
- iv) Management plans for carbon dioxide emission.
- v) Recommendation documents and approval from Fire department.
- vi) Sustainability report of plant species for plantation from Forest Department.

ITEM NO. 06

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF M/S. LAL TRADES AND AGENCIES PVT. LTD. FOR PROPOSED CHANGE IN PROCESS FOR IRON ORE BENEFICIATION PLANT OF THROUGHPUT 95000 TPA FOR WHICH EC WAS ALREADY GRANTED VIDE REF. NO. 6437/SEIAA, DATED 02.08.2013, LOCATED AT TIRILIDIHI, BADAMPAHAR, DIST. – MAYURBHANJ OF SRI KUSHAL CHOUBEY - EC

1. This proposal is for environmental Clearance of M/s. Lal Trades and Agencies Pvt. Ltd. for proposed change in process for Iron Ore Beneficiation Plant of throughput 95000 TPA for which EC was already granted vide Ref. No. 6437/SEIAA, dated 02.08.2013, located at Tirilidihi, Badampahar, Dist. – Mayurbhanj of Sri Kushal Choubey.
2. **Category:** This project falls under Category “B1” under Schedule of item 2(b)-Mineral beneficiation as per the EIA Notification, 2006 and its amendments thereof.
3. **Project details:** M/s Lal Trades & Agencies Pvt. Ltd. attempted washing the lump ore with scrubbing and beneficiation of low-grade fines by hydro cyclone and spiral concentrator, which earlier used to be dumped. It was expected that from 2,70,000 TPA low grade lumps and fines, 2,02,500 TPA iron ore concentrates and 67,500 TPA tailings would be generated after beneficiation and sizing process of the plant. But the process was later found out to be not feasible for the company economically. The Iron Ore Beneficiation Plant has been closed since 2018 due to non-economic viability of the process. Now the Company is trying to establish a new method of Reduction roasting of low-grade Iron ore fines before beneficiation process, to produce iron ore concentrates.
4. Earlier, the project was granted Environmental Clearance by State Environment Impact Assessment Authority (SEIAA), Odisha vide Ref. No. 6437/SEIAA dated 02.08.2013. Consent to Operate (CTO) having Consent Order No. 211/2021-22(WPC & APC), Memo No. 214/CON-2350 dated 08.02.2022, valid upto 31st March, 2023 was obtained from State Pollution Control Board, Odisha.
5. **Public hearing details:** Public hearing was conducted on 4th May, 2012 at 3.00 pm at Tirilidihi village. Major issues raised were generation of employment for the local people, adoption of adequate measures for controlling environmental pollution, drinking water supply, organizing health camps, development of educational facilities, development of greenbelt, reusing of treated wastewater for irrigation, filling up of low lying / barren land with soil and waste material. A budget of 7.5 lakhs has been incurred for action plan of public hearing.
6. **Location and connectivity:** The project site is located at Tirilidihi, P.O. - Jhipabandh, P.S. - Badampahar, Dist. - Mayubhanj in Odisha, Pin- 757047. The geographical co-ordinates of the project site are bounded by Latitude: 22°03'57.73" N to 22°04'10.84"N, Longitude: 86°04'19.26"E to 86°04'31.12"E and Above Mean Sea Level (AMSL): 316 m (1037 feet). The project site already has proper road linkage for transport of materials and equipment. The nearest Railway Station is Badampahar Railway Station, which is located at about 4.5 km from the project site in North-East direction. State Highway-49 is passing at about 200 m from the project site towards East and National Highway-6 is passing at about 11 km from the project site towards South. The nearest Airport - Sonari Airport, Jamshedpur is located at about 83 km in North direction w.r.t. the project site and Biju Patnaik International Airport, Bhubaneswar is located at around 204 km in South

direction from the project site. The project site has good connectivity with seaport of Paradeep, Kolkata, Haldia and Vishakhapatnam. Kanu river is flowing at 6.0 km from the Project site. Badampahar RF and Basila RF are present at distances of 0.7 km and 7.5 km respectively from the project site.

7. **Raw Material Consumption** - Production of concentrated ore (with 60-65 %) Fe depends on percentage of Fe in the used ore. Production 1 Ton of concentrated ore with 65% Fe requires 1.21 tons of ore with 55% Fe and Production 1 ton of concentrated ore with 67% Fe requires 2.94 tons of ore with 36% Fe.

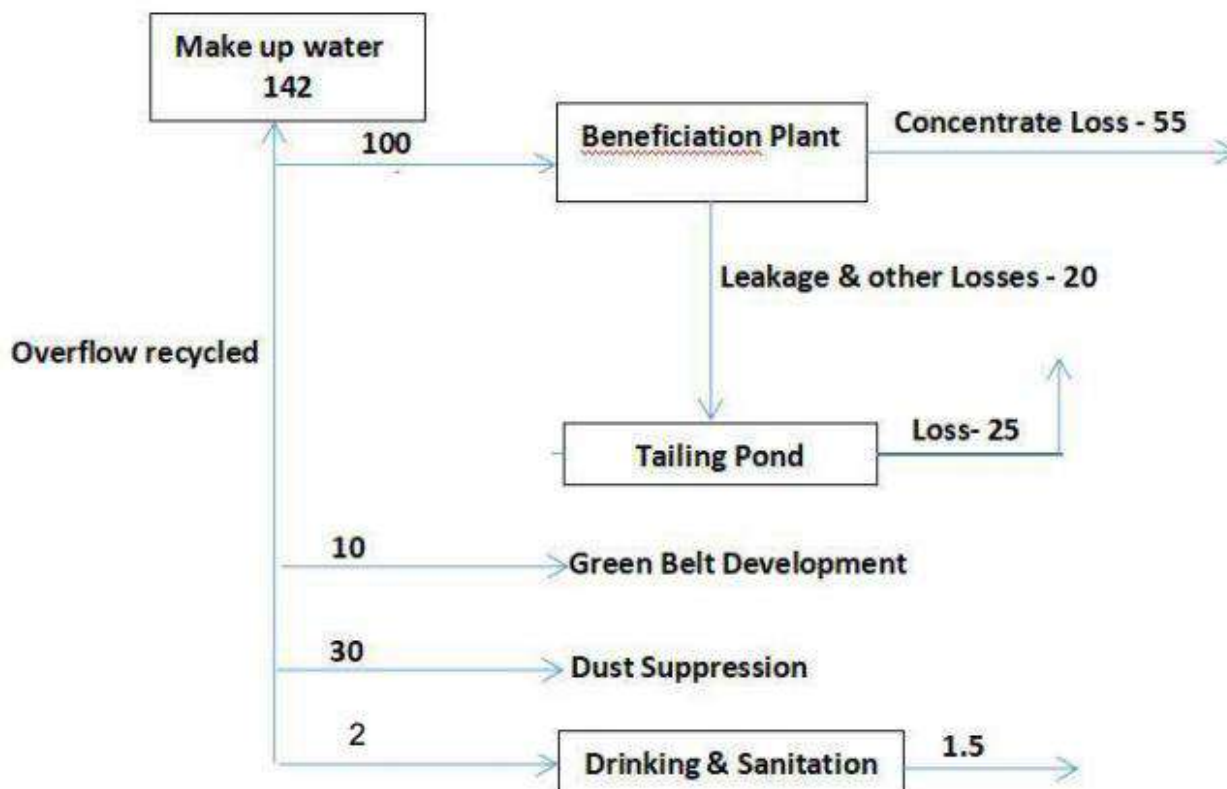
Raw Materials	Quantity (TPA)	Quantity (TPD)
Iron ore fines	95,000	316.67

Source - Low grade Iron Ore will be sourced from Captive Mines which is 4.0 Km away from the plant. Raw materials will be received at plant site by road. Raw Material will be transported through Covered Trucks / Trippers. All the trucks for raw material and finished product transportation shall comply with the applicable environmental norms.

8. **Specification of Raw Materials** -

Composition	Fe	SiO ₂	Al ₂ O ₃	P	S	LOI	Size
Low Grade Iron Ore	52-55 %	5.0 %	4.8 %	0.08 %	0.02 %	3.0 %	6-20 mm (5 mm 5% Max)

9. **Water requirement:** Total water requirement from this project is 142 KLD and Source is Groundwater (approval from CGWA shall be obtained) as per the given table.



- 10. Rainwater harvesting:** Average annual rain fall in the project area is 1400 mm. Average annual monsoon rain fall - 80% of 1400 mm i.e 1120 mm. Volume of surface run off in the plant campus = $5.06 \times 1.12 \times 0.4 \text{ ham}$, = 2.267 ham say 0.0227 mcm. Thus rain water harvesting potential of the plant campus is 0.0227 mcm. Around 0.0227 mcm (i.e 2,270 cu.m) of water will be conserved within the project site. The water body of area 1.3 acres shall be utilised as rainwater storage tank for use during the dry months.
- 11. Power requirement:** The estimated power requirement of the units is around 2500 KVA. Power requirement for the plant shall be made from the grid supply of Orissa government (GRIDCO) from the nearest substation.
- 12. Greenbelt:** M/s Lal Trades & Agencies Pvt. Ltd. has earmarked 4.08 acres of land (33% of 12.5 hectare) for Green Belt Development within its plant site at Village: Tirilidihi, Badampahar, Dist. - Mayurbhanj, Odisha. Around 4490 number of trees (@1100 nos. of tree per acre) have been considered under plantation programme in greenbelt development.
- 13. Solid waste management:** Tailings 25,000 TPA will be generated, which will further be taken in dry cake form to the tailing disposal site of 5.65 Acres located at village Majhigaon, 4 kms from the plant site. Adequate designed dyke with Garland drain and rainwater harvesting pond will be provided for run off management for dump area. The waste will be subsequently used for manufacturing of Bricks, Tiles and blocks which are then locally marketed.
- 14. Baseline study:** On-site environmental quality monitoring was carried out from 1st March, 2022 to 31st May, 2022.

Period	March, 2022 - May, 2022
AAQ Parameters At 8 Locations	PM _{2.5} = 11 - 33 µg/m ³ PM ₁₀ = 35 - 73 µg/m ³ SO ₂ = 4 - 14 µg/m ³ NO ₂ = 8 - 25 µg/m ³ CO = 0.084 - 0.745 mg/m ³
AAQ MODELLING (Incremental GLCs) Model Used : ISCST3	PM = 0.182 µg/m ³ (0.5 km in NE) SO ₂ = 12.74 µg/m ³ (0.5 km in NE) NO _x = 6.37 µg/m ³ (0.5 km in NE)
Ground Water Quality At 9 Locations	pH: 6.78 – 7.26, Total Hardness: 144 – 229 mg/l, Chlorides: 43 - 112 mg/l, Fluoride: 0.16 - 0.37 mg/l, Iron: 0.16 – 0.26 mg/l, TDS: 237 – 452 mg/l
Surface Water Quality At 10 Locations (2 from River Kanhu, 2 dam water samples and 6 pond water samples)	<u>Kanhu River Water</u> pH: 7.47 & 7.34, DO: 6.5 & 6.8 mg/l, BOD: 2 & 2 mg/l, COD: 8 & 6 mg/l, Fe: 0.15 & 0.12 mg/l, Coliform: 930 & 820 MPN/100 ml, TDS: 342 & 318 mg/l, Total Hardness: 184 & 173 mg/l, Chloride: 55 & 48 mg/l <u>Pond Water</u> pH: 7.18 - 7.53, DO: 6.3 - 6.8 mg/l, BOD: 2 - 5 mg/l, COD: 6 - 18 mg/l, Fe: 0.11 - 0.16 mg/l, Coliform: 150 - 830 MPN/100ml, TDS: 189 - 296 mg/l, Total Hardness: 126 - 152 mg/l, Chloride: 36 - 64 mg/l

Noise Levels At 10 Locations	51.8 - 65.1 dBA for day time and 40.3 – 48.1 dBA for night time.
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15. Land use breakup: Project shall be installed on 5.06 hectares (12.5 acres) of land, which is under the possession of the company.

SL. NO.	DESCRIPTION	AREA IN ACRES	AREA IN %
1	Iron ore Beneficiation plant	2.18	17.4
2	Stock Yard	1.20	9.6
3	Tailing Pond	0.19	1.5
4	Road	0.80	6.4
5	Green belt	4.13	33.1
6	Rainwater Harvesting	1.30	10.4
7	Miscellaneous	2.70	21.6
TOTAL		12.5	100

16. Traffic study: At Majhi Gaon On State Highway-49, Date Of Survey : 14.04.2022

PARTICULARS	HEAVY	MEDIUM	LIGHT	TWO WHEELERS	TOTAL
Total 24 hourly traffic survey data	279	297	364	418	1358
Addition for material movement due to Project	30	-	-	-	30
Addition for staff movement due to project	0	0	5	20	25
Grand Total	309	297	369	438	1413
PCU Factor	3	1.5	1	0.5	-
PCU per day	927	446	369	219	1961
As per IRC: 64-1990 code, Table 4, a Two Lane road in Plain terrain can accommodate vehicular traffic load of 15000 PCU per day.					
State Highway - 49 is a two lane road with approx. 12 m width and can well accommodate existing traffic load along with the additional load due to M/s. Lal Trades & Agencies Pvt. Ltd.					
Note : HEAVY : Truck, Bus, Cranes MEDIUM : Minibus, Matador LIGHT ; Car, Jeep, Auto Rickshaw, Trekker					

17. Manpower: To operate and maintain the plant facilities, including its technical and general administration needs, the estimated manpower requirement for the project has been estimated to be 60 persons (Permanent - 20 persons, Contractual - 40 persons).

18. Project cost: As estimated, the total cost of the proposed project is 3.75 Crores. The company will invest Rs. 21.0 Lakhs (around 5.6% of total project cost) as capital investment and recurring cost is 4.2 lakhs per annum towards implementation of Environmental Management Plan.

19. Environment Consultant: The Environment consultant **M/s Envirotech East Pvt. Limited** along with the proponent made a presentation on the proposal before the Committee.

Considering the information furnished and the presentation made by the consultant, **M/s Envirotech East Pvt. Limited** along with the project proponent, the SEAC recommended to defer the proposal and take decision on the proposal after receipt of the following from the proponent:

- i) Details of the proposal for which EC has been applied.
- ii) Comparison between the previous proposal for which EC has been obtained and present proposal.
- iii) Copy of Environmental Clearance granted to the earlier proposal for Beneficiation Plant and present status of the proposal.
- iv) Certificate from concerned DFO, the distance of proposed plant from Similipal wildlife Sanctuary and its Eco sensitive zone.
- v) Copy of Consent to Operate of existing Beneficiation Plant if any.
- vi) Detailed process flowsheet of the old one and the proposed new one.
- vii) The raw material characterization is not given. The process validation for reduction roasting route has not been mentioned. This would give clear picture on the conversion factor (feed to product). The water balance is erroneous. The presentation made was mostly based on earlier beneficiation process. The SEAC committee may visit the site for clear understanding of their plan to establish the plant.

ITEM NO. 07

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR JAKAR STONE QUARRY OVER AN AREA OF 13.594 HA FOR PRODUCTION OF 3,240 CUM/ANNUM AT KHATA NO. 1692, PLOT NO. 28,29,30,31,32 41,42,43,44,69 & 70, VILLAGE - JAKAR, TAHASIL – POLASARA, DISTRICT - GANJAM OF SRI SARATHI SWAIN - EC

1. This proposal is for environmental clearance for Jakar stone quarry over an area of 13.594 ha for production of 3,240 cu.m/annum at Khata no. 1692, plot no. 28,29,30,31,32 41,42,43,44,69& 70, village - Jakar, Tahsil – Polasara, District - Ganjam of Sri Sarathi Swain.
2. **Category:** As per the EIA Notification, 2006 and its subsequent amendments, this project fall under category B under Schedule of item 1(a) Mining of Minerals.
3. The quarry lease of Jakar Stone Quarry has been allotted to Sri. Sarathi Swain for quarrying of stone (minor mineral) by the Tahasildar Polasara vide letter no.- 2006 dated 05.04.2018 for 5 years and it is not coming under DLC land as certified by Tahasildar Polasara.
4. The mining plan for the ML area has been approved by the Deputy Director Geology, Directorate of Geology, Bhubaneswar. Vide letter no. GXV(j)-80/2018-11789/DG, Dated 20.11.2018. Letter of Intent(LOI) has been granted vide letter no 2006 dated 05.04.2018.
5. **TOR details:** The Terms of Reference (TORs) was issued by SEIAA vide letter no.- 3661/SEIAA dated 27.12.2021.
6. **Public hearing details:** The public hearing has been conducted on 07.09.2022 at plot no 7020, khata no 1690, adjacent to gram panchayat office, Jakara Polasara tehsil of District Ganjam,

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Environmental Scientist, SEAC

Odisha under the supervision of Addl. District Magistrate, Ganjam. Issues raised are local employment, drilling, blasting & transportation should not be carried out during night hours, control blasting to avoid damages of nearby houses, dust emission, deployment of local vehicles in mine, development works in village, concurrent back filling of mined out area with over burden along with plantation. About Rs. 1.0 lakh/annum has been allocated as CER budget.

7. **Location and connectivity:** The proposed Jakar Stone Quarry comes under the village Jakar, Tehsil-Polasara, District- Ganjam, State Odisha. Geographically the MI area extends from 19°39'45.50"N to 19°39'53.70"N and 84°46'52.50"E to 84°47'19.20"E with a highest elevation of 114 AMSL and the lowest elevation 68 AMSL. The proposed area falls in SOI toposheet No. E45A9, E45A13, E45A10 & E45A14 bearing Khata No. 1692 Plot no 28,29,30,31,32,41,42,43,44,69 and 70. The proposed project does not fall within CRZ area. Nearest Airport is Bhubaneswar Airport, approx. 126 km in NE direction. Nearest railway station Khallikote Railway Station, approx. 37 km in SE direction. Nearest Highway SH-30, approx. 7.0 km in SE direction. Nearest River Embankment is Jhitikabadi road bridge at a distance of 2.30 Km in NW direction. Nearest reserve forest Purunapani RF, approx. 8.0 Km in NE direction. Gairha RF, approx. 5.0 Km in South direction. Nearest water body Luhakot dam, approx. 11 km in NE direction. Nearest habitation is at approx. 300 m in North direction from mine site.
8. **Topography and drainage:** The area belongs to the Eastern Ghat hill ranges and mostly presents a highly undulating topography with scattered isolated hillocks and mounds with an average altitude between 40 to 140 m amsl, intermontane valleys, gently undulating narrow plains covered by Quaternary sediments deposited by Rushikulya river. Transported laterites, near the delta of Rushikulya, form low uplands. The coastal dunes occupy considerable area. The project site falls under seismic zone II which is a least active zone (MSK VIII) The drainage pattern in the study area is from west to east and drains in Ghodahada River. The proposed project does not impact natural drainage pattern of the area.
9. **Reserves and total production:** As estimated, geological reserves and mineable reserves of the proposed project is 16,60,500 cu.m and 12,82,500 cu.m respectively. Total production is 14400cum as per the given in below table.

Year	Sections Considered	Cross Sectional Area	Length of Influence	Volume of Excavation	Volume of Road Metal at 90% incidence	Volume of Road Metal at 10% incidence
	--	M ²	M	M ³	M ³	M ³
1st Year	CD	56	50	2800	2520	280
2nd Year	CD	60	50	3000	2700	300
3rd Year	CD	64	50	3200	2880	320
4th Year	CD	68	50	3400	3060	340
5th Year	CD	72	50	3600	3240	360
Grand Total				16000	14400	1600

10. **Mining method:** Mining will be carried out by opencast semi-mechanized method with adoption of drilling & blasting. Handling of rock mass will be done both manually & by excavators. Handpicks, spade, chisel, hammer will be used by manual labours for sorting & sizing. Loosening of rock mass will done by drilling & blasting. To prevent haphazard excavation of pits and suitable blending of ore, the excavation has been proposed at one place. In mine, proposed height is 3m & width of bench is more than 3m.

11. **Waste generation:** There will be generation of about 1600 cu.m. of waste during plan period. Considering swell factor as 1.2 the total broken volume of waste will be 1920 cu.m. which will be dumped in the SE part of the site which will cover an area of 70 sq.m. (0.007 ha) & dump height will be 4m. This waste generated will be used for road construction & maintenance. The retaining wall around the dump will be constructed to prevent the wash off dump. Around the retaining a garland drain and settling tank will be provided to prevent the possible transportation of mine dust or fines.

12. **Water requirement:** Total water requirement for the mining project is 7.0 KLD. This water will be supplied from the nearby village through hired tankers.

Activity	Calculation	Round off Figure in KLD
Drinking	@ 10 lpcd per labor $13 \times 10 / 1000 = 0.13$ or 0.2KLD	0.2
Dust Suppression	Total approach road to be water sprinkled = 150 m $150 \text{ m} \times 6 \text{ m} \times 0.5 \text{ lt water} \times 2 \text{ times} / 1000 = 0.9$ or 1.0 KLD	1.0
Plantation	2750 plant (during plan period) @ 2 L/per plant= 5500lts= $25500 / 1000 = 5.5$ KLD	5.5
Total		6.7 or 7.0KLD

13. Baseline study:

Parameter	No. of Locations	Environmental Baseline Study
Ambient Air Quality Monitoring	7 locations	PM _{2.5} - 14.81 µg/m ³ to 27.8 µg/m ³ PM ₁₀ - 38.2 µg/m ³ to 65.6 µg/m ³ SO ₂ - 5.0 µg/ m ³ (min.) – 8.0 µg/m ³ (max.) NO ₂ - 7.5 µg/ m ³ (min.) – 15.6 µg/m ³ (max.)
Noise level monitoring	5 locations	During daytime- 49.6 dB(A) to 51.8 dB(A) During Nighttime- 35.2 dB(A) & 37.4 dB(A) Results were found within permissible limits
Water samples	Surface water –3 locations	All parameters like pH (7.24 to 7.58), BOD (<2 to 4.6 mg/l), COD (12 to 28 mg/l), DO (5.9 to 6.8 mg/l) etc. are found within permissible limits & fit for consumption.
	Ground water- 3 locations	All parameters like pH (5.73 to 7.62), TDS (518 to 610 mg/l), hardness (294-332 mg/l) etc. are found within permissible limits & fit for consumption.
Soil Samples	3 locations	pH- 7.53 to 7.82 Potassium- 146 to 217 kg/ha

14. Greenbelt:

Year	Total Plantation	Plantation in safety barrier zone (1.398 ha)	Plantation along approach road	Plantation in village consulting local authorities	Location
1 st	1500	1250	150	100	Approach road –300m nos Along both sides of road (of approx. 0.15 km) at spacing of 1.0m. Safety zone (1.398 ha)- 2250 nos. Village area – 200 nos. In village area like, school premises, Aangawadi, Panchayat bhavan
2 nd	1250	1000	150	100	
3 rd	Maintenance	Maintenance	Maintenance	Maintenance	
4 th					
5 th					
Total	2750	2250	300	200	

15. **Manpower:** Total requirement of labour and other supervisory manpower will be around 13 persons during the mining period.

16. **Project Cost-** Estimated cost of the proposed project is Rs. 50 lakhs. Cost for Environmental Protection Measures includes Rs. 11,10,000/- (Capital Cost) and Rs. 4,70,000/- (Recurring cost). Budget for occupational health is 1,50,000 per year.

S.No	Particulars	Amount (Lakh)	
		Capital	Recurring
1	Dust suppression	4.0	0.5
2	Plantation and its protection (@ Rs. 200/sapling- including fencing)	5.5	1.0
3	Personal Protective Equipment (@ Rs. 2000/PPE kit)	0.3	0.3
4	Environmental Monitoring (Air, water, soil, noise)	-	1.2 (0.5 lakh, 0.4 lakh, 0.20 lakh, 0.10 lakh)
5	Garland drain & settling tank	1.0	0.5
6	Haul road construction/ maintenance (Approach road, approx. 0.15km)	0.3 (@ Rs 2.0 Lakh/km)	1.2 (@ Rs. 300*200 days* 2 labor)
	Total	11.1	4.7

17. **Environment Consultant:** The Environment consultant **M/s Atmos Sustainable Solutions Pvt. Ltd., Noida**, has made the EIA Report. But due to accidental death of previous director of consultancy, the PP has requested for change in consultant i.e., Environment consultant **M/s P and M Solution, Noida**. The Environment consultant along with the proponent made a presentation on the proposal before the Committee

Considering the information furnished and the presentation made by the consultant, **M/s P and M Solution, Noida**, along with the project proponent, the SEAC decided to take the decision on the proposal after receipt of the following from the proponent

- i) Brief write-up for mitigation measures for blasting/flying rocks.
- ii) Frequency of blasting.
- iii) Site photographs along with the consultant.

Proceedings of the SEAC meeting held on 10.03.2023

Environmental Scientist, SEAC

ITEM NO. 08

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR KESHAPUR A & B STONE QUARRIES CLUSTER OVER AN AREA OF 21.855 ACRES OR 8.8443 HECTARES BEARING KHATA NO. 119 PLOT NO. 863 & 864, 866 IN VILLAGE KESHAPUR, TAHASILSANAKHEMUNDI, DISTRICT - GANJAM STATE ODISHA (SUBMITTED UNDER CLUSTER APPROACH WITH TOTAL CLUSTER AREA 8.8443 HECTARES WITH CONSISTING OF 2 STONE QUARRIES) OF SRI SANTOSH PARIDA – TOR

1. The proposal was considered by the committee to determine the “Terms of Reference (ToR)” for undertaking detailed EIA study for the purpose of obtaining environmental clearance in accordance with the provisions of the EIA Notification, 2006 and amendment thereafter.
2. This proposal is for Terms of Reference (ToRs) for Keshapur A & B stone quarries cluster over an area of 21.855 acres or 8.8443 hectares bearing Khata no. 119 Plot no. 863 & 864, 866 in village Keshapur, Tahasil Sanakhemundi, District - Ganjam State Odisha (submitted under cluster approach with total cluster area 8.8443 Hectares with consisting of 2 stone quarries) of Sri Santosh Parida.
3. **Category:** As per the EIA Notification, 2006 and its subsequent amendments, this project fall under category B under Schedule of activity 1(a)- Mining of Minerals.
4. The Quarry lease has been proposed to be granted by the Tahasildar, Sanakhemundi to the applicant Sri Santosh Kumar Parida & Others for minor mineral (stone). The total Cluster is consisting of 2 stone quarries and does not come under DLC land.
5. As per the direction of the Directorate of Geology, Odisha, Bhubaneswar, mining plan has been approved by the Joint director of Geology, O/o Joint director of Geology South Zone, Berhampur vide letter no 1138 dated 26.08.2022.
6. **Location:** The proposed mining project is for stone mining at village Keshapur, Tahasil Sanakhemundi, Dist-Ganjam, Odisha, over an area of 21.855 Acres or 8.8443 Hectares . The lease area is bounded by Latitude -19°30'36.60"N to 19°30'43.81"N & Longitude - 84°33'30.37"E to 84°33'49.99"E with Toposheet no. E45A10(74A/10) & E45A11(74A/11) and bearing Khata no. 119 Plot no. 863 (Keshpur A) ,864 & 866 (Keshpur B). Nearest habitation is Sheragada – 4.80km in NE from the proposed area towards NE, nearest National Highway is NH-326 is at 4.50km in SE and nearest State Highway is SH-36 at 4.20 km in NE. Biju Pattnaik International Airport is at 154km towards NE direction and Berhampur Railway Station at 34.00km in SE.
7. There are no National Parks/Sanctuaries/Tiger-Elephant Reserves as per ‘Wildlife Protection Act,1972’ within 10 km radius from proposed mine site.
8. **Reserves and total production:** The total geological reserve of Keshpur A and B is estimated as 1567752 cum and 747491 Cum respectively. Similarly, mineable reserve of Keshpur A and B is estimated as 807901 cum and 493697 Cum respectively. The total geological reserve of cluster area is 2315243 Cum and minable reserve is 1301598 Cum. Total production of the cluster is 12060 cum per Annum.

Plan Period	Name of Quarry	Maximum Production (cum)	Waste (cum)
	Keshapur – A Stone Quarry Plot No. 863 (4.8560 Ha)	6030/year	670
	Keshapur – B Stone Quarry Plot no. 864 & 866 (3.9883 Ha)	6030/year	670
Total	2 Nos. Quarries	12060/year	1340

9. Mining method: Stone in the quarry area is excavated by conventional method of opencast mining through the formation of safe benches which is semi-mechanized and on single shift basis. Benches are formed and worked in a top to downward manner. Because of presence of hard and competent rock mass, drilling and blasting is performed for loosening of the rock mass.

10. Bench Geometry: Height of the quarry benches are kept at 5m, and the Width will 5m. The individual bench faces are kept nearly vertical (85°) whereas the overall quarry slope angle (the angle between the line joining the toe of bottom bench and the crest of the top bench with the horizontal) is maintained at around 45° with the horizontal.

11. Water requirement: Total water requirement is 4KLD as per the given table.

Activity	Calculation	Round off Figure in KLD
Drinking	@ 10 lpcd per labor $30 \times 10 / 1000 = 0.30$ KLD	0.30
Dust suppression	Total haulage road to be water sprinkled = 261m + 322m $583 \times 3 \times 2 / 1000 = 3.489$ KLD	3.49
Plantation	300 plant in five year In one year $300 / 5 = 60$ plant (80% survival rate) @ 5 L/per plant = $60 \times 5 = 300 / 1000 = 0.30$ KLD	0.30
Total		4.09KLD ~ 4.00 KLD

12. Greenbelt: Green belt shall be developed along the boundary of stone quarry area with the native tree species. The plantation proposal has been given to plant around 300 saplings over an area of 0.15ha. in the auctioned area. Species likely to be planted are Chakunda, Neem etc. as per the availability. Spacing between the saplings will be kept 2.5 meters x 2.5 meters only.

13. Manpower: Total number of employments will be around 30 (for all Quarry Sites of Keshpur Stone Quarries) including management, supervisory personnel, skilled, semiskilled and unskilled.

14. Project cost: The estimated cost of the project is about Rs 50 Lakhs. The proposed CSR budget is 4 lakhs.

15. Environment Consultant: The Environment consultant **M/s P and M Solution, Noida**, along with the proponent made a presentation on the proposal before the Committee.

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s P and M Solution, Noida**, the SEAC prescribed the following specific ToRs in addition to standard ToRs in cluster approach as per **Annexure – A** for conducting detailed EIA study.

- i. Installation of STP of adequate capacity and requisite design.
- ii. Traffic study duly vetted by reputed institution.
- iii. Green belt in safety zone of each mine and all-round the clusters to be confirmed with details.
- iv. Arrangement of pipeline sprinkling (permanent water line) to be explored and confirmed.
- v. Silt management and SoP for the same to arrest /remedy of silt ingress to surrounding agricultural lands.
- vi. Kisam of land to be submitted.
- vii. Safety measures during blasting including provision of warning to be submitted.
- viii. Lease area is coming under part of Pratappur protected reserve forest as revealed from toposheet. Certificate from concerned, DFO that mining activity is not within any notified forest area.
- ix. Site photographs along with the consultant.


Member Secretary, SEAC

TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY IN CLUSTER APPROACH AND INFORMATION TO BE INCLUDED IN THE EIA/EMP REPORT FOR KESHAPUR A & B STONE QUARRIES CLUSTER OVER AN AREA OF 21.855 ACRES OR 8.8443 HECTARES BEARING KHATA NO. 119 PLOT NO. 863 & 864, 866 IN VILLAGE KESHAPUR, TAHASILSANAKHEMUNDI, DISTRICT - GANJAM STATE ODISHA (SUBMITTED UNDER CLUSTER APPROACH WITH TOTAL CLUSTER AREA 8.8443 HECTARES WITH CONSISTING OF 2 STONE QUARRIES) OF SRI SANTOSH PARIDA – TOR

1. 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.
2. A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
3. Name and area of other mines within 500 meter of the lease area.
4. 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.
5. All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/Topo sheet, 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).
6. Information should be provided in Survey of India Topo sheet 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.
7. 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.
8. 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 EIA Report.
9. Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. 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. Proposal for Common Non-Mineralized Zone for dumping of rejects / OB.
13. A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
14. Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
15. Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
16. The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
17. A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
18. Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
19. A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.
20. Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under

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

21. Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).
22. R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.
23. One season (non-monsoon) [i.e. March - May (Summer Season); October - December (post monsoon season) ; December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.
24. Air quality modelling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modelling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.
25. Environment Impact Assessment / Environment Management Plan document shall be in accordance with the provisions & generic structure stipulated in the EIA Notification 2006 dated 14.09.2006 & subsequent amendments.
26. EIA-EMP document shall be based on the maximum achievable mineral extraction of the mine and according to the impact of mines in cluster (within 500m) of the said mine.
27. EIA-EMP document shall include complete profile of the all the Project Proponent, implementing organization of mines in cluster (within 500m) of the said mine.
28. EIA-EMP document shall cover land description of project site (plot/survey / khasara

number, village, tehsil, district, state & extent of land involved), of mines in cluster (within 500m) of the said mine.

29. EIA-EMP document shall include deposit conditions working depth mining scheme, details of machinery, backfilling of mine pit with type of blasting, drilling and explosives.
30. The general features such as surface drainage, mineral transportation and process flow of beneficiation plant, power and water supply shall be indicated.
31. The baseline environmental status within 10km radius from the boundary limit of mining lease area (buffer zone) and core zone with respect to air, water, noise and soil shall be covered of mines in cluster(within 500m) of the said mine.
32. Baseline data generation for one season (post monsoon) with respect to air, water, noise and soil shall be generated on the same sampling locations for obtaining EC
33. EIA-EMP document shall include land use pattern including agriculture, forest land, water bodies and settlements.
34. Existence of National Park, Wild Life sanctuary, migratory routes of wild animals within 10 km of mine lease area shall be brought out.
35. Topographical map of study area (core & buffer zone -10 km from the boundary of core zone) showing major topographical features shall be included.
36. EIA-EMP document shall include biological environment (flora and fauna) and socio-economic environment within the study area.
37. EIA-EMP document shall include anticipated impacts on land, air, noise and water environment and the mitigation measures of mines in cluster (within 500m) of the said mine.
38. Environmental Monitoring Programme and the environment management plan shall also be covered measures of mines in cluster (within 500m) of the said mine.
39. 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.
40. Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.
41. 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.
42. 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.
43. 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.

44. Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.
45. 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.
46. 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.
47. 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.
48. Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.
49. 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.
50. 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.
51. 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.
52. 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.
53. 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.
54. 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.

55. Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
56. The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
57. A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
58. 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.
59. 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.
60. **The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP report.**