

**PROCEEDINGS OF THE MEETING OF STATE LEVEL EXPERT APPRAISAL
COMMITTEE, ODISHA HELD ON 04th JUNE, 2021**

The SEAC met on 04th June, 2021 at 12:00 Noon through Video Conferencing in Google Meet under the Chairmanship of Sri B.P. Singh. The following members were present in the meeting through VC.

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

CONSIDERATION OF OLD PROPOSALS (COMPLIANCE RECEIVED):

The compliances furnished by the proponents were verified by the members through e-mail and also proceedings of the meeting were confirmed by the members through e-mail. The decision of the committee on case-to-case basis as follows:

ITEM NO. 01

PROPOSAL FOR ENVIRONMENTAL CLEARANCE OF CLUSTER-1 MINES WHICH IS CONSTITUTED AREAS IN DHANIA HILLOCKS (52.284 HA), SANKHARI HILLOCKS (33.428 HA.) & TANGENI HILLOCKS (10.885 HA.) OVER AN TOTAL AREA OF 96.597 HA./ 238.691 AC. IN VILLAGE- KAIPADAR, TAHASIL/ DISTRICT – KHORDHA, ODISHA IN FAVOUR OF SHREE JAGANNATH TEMPLE ADMINISTRATION, PURI OF SRI BISWANATH SAHU (ADMINISTRATOR DEV)- EC

1. This is a proposal for Environmental Clearance of Cluster-1 Mines which is constituted areas in Dhanial Hills (52.284 Ha), Sankhari Hills (33.428 Ha.) & Tangeni Hills (10.885 Ha.) over an total area of 96.597 Ha./ 238.691 Ac. in village- Kaipadar, Tahasil/ District – Khordha, Odisha in favour of Shree Jagannath Temple Administration, Puri of Sri Biswanath Sahu (Administrator Dev).
2. The project falls under Category "B1", as per Notification of MOEF & CC vide S.O. No. 3977(E), Appendix- XI, dated the 14th August, 2018.
3. ToR for this project has been granted by SEAC vide letter No. 30/SEAC/28/19 dated 08.01.2020. Public hearing was conducted on 08.09.2020 at village Kaipadar in Khordha district. The issues raised by the public has been address and an amount of Rs.15,00,000/- has been earmarked for peripheral developmental activities as per the public demand.
4. The total area is non-forest land Govt. land comprising of 30 nos. quarry leases covering a total mineralised area of 96.597 Hectares or 238.691Acres (Dhanial 52.284 Ha, Sankhari 33.428 Ha. & Tangeni 10.885 Ha) located in village Kaipadar of Khordha, district, Odisha. The coordinates of the area is Latitude - 20° 06' 07.22" N to 20° 06' 51.38" N and Longitudes - 85° 32' 59.94" E to 85° 34' 13.03" E and comes under Toposheet No. 73 H/12.

5. **Connectivity** - The Nearest road is NH 16 which is 1 km to project site. The nearest railway station is Khordha Railway Station at a distance of 11.15Km. from the project site and Biju Patnaik International Airport is at a distance of approx. 33 km from the project site. Chandaka elephant sanctuary is located at a distance of 13Km from the cluster area. Nearest rivers are Daya River- 10 Km and Bhargavi River- 11 Km. Nearest Reserve forest is Tangi RF - 11 Km. No state or national boundary exists within 10 Km radius of the project. The nearest defence installation is CISF Munduli campus at a distance of 40 Km from the project site. Nearest habitation is Tapanga village is 1 km.
6. Mining plan approved by Directorate of Geology, Govt. of Odisha vide memo no.7892 on dated 26.09.2019. The individual quarry lease of the cluster have either been auctioned or to be auctioned for long term quarry lease of 10 years for building stone/ Road metal by the tenant Shree Jagannath Temple Administration, Puri through the Sub-Collector, Khordha cum Authorised Officer.
7. Existing quarries over the area are worked out up to various depths and the rock mass is exposed up to a lowest extent of 11mRL in Cluster-1A (Tangeni), 49mRL in Cluster-1B (Sankhari) & 42mRL in Cluster-1C (Dhania).
8. The total geological reserve over Cluster-1 mineralized area has been estimated as 375, 83, 461cum. And mineable reserve is 301,24, 801 cum.
9. The Mine proposed to produce total 150, 50,000 Cu.m of building stone/road metal during Plan Period (Ten Years).
10. A total of 1750 workers (Skilled-300nos., Semi-skilled-500nos. and Un-skilled-920 nos.& Mines Manager/Mine Permit Manager-30nos) will be employed during mining operation.
11. A total of 5, 65,840 m³ (124960 m³ in Cluster 1A + 231840 m³ in Cluster 1B + 209040 m³ in Cluster 1C) of top-soil mixed with boulders and pebbles are envisaged to be generated during the plan period in course of mining. It is proposed to store this top-soil in the earmarked site and will be utilized for nearby avenue plantation purpose after separated out from the mixed rock boulders and pebbles. Construction of retaining wall and plantation around proposed dump will be carried out.
12. The mining activities will be carried out in the cluster area by semi mechanized by deploying excavator/loader. Height of the bench varies from 3m to 6m & slope of individual bench will be 80° to 85° with overall slope angle will be less than 45°.
13. Handling of rock mass will be done both manually and by excavators. Handpicks, spade, chisel, hammer will be used by manual labors for sorting and sizing. Loosening of rock mass will be done by drilling and blasting. The excavated rock mass will be loaded in to 10T/20T capacity tippers/trucks by excavators. As the loading, drilling and transportation will be partly achieved through use of machineries, the mines come under semi-mechanised category.

14. The loosening of rock mass will be done by drilling and blasting. Drilling will be done either by wagon drill or jack hammer taking in to consideration the bench height varying from 3 meter to 6m.
15. Mine road will be maintained between benches for easy movement of workers and vehicles. Suitable gradient of haul road will be maintained in between 1 in 16 to 1 in 20.
16. Water Requirement - 25 KLD of potable water will be required from which 10 KLD of water will be required for drinking & domestic purpose. 5 KLD of water is suggested to be utilized for dust suppression and 5 KLD for plantation purpose. Water will be sourced from ground water and rain water harvesting from the existing quarry.
17. Power requirement - Solar lights will be employed for day to day living purposes. Diesel requirement will be 6000liters/month.
18. Waste will be about 30% of excavation will be generated. 20% of the waste will be transported to the crusher site along with valuable building stone/road metal where these will be sorted out. The remaining 10% of the total waste will be separated at the quarry head and will be stacked in the temporary waste dump of respective quarry lease and will be utilised by the lessee for making of mine road and allied infrastructures.
19. In the process, 11603 nos., 37403 nos. and 59054 nos. of saplings will be used for plantation in the quarried out areas of 9.669 Ha, 31.169 Ha and 49.211 Ha in Cluster-1A (Tangeni), Cluster-1B (Sankhari) and Cluster-1C (Dhania) respectively.
20. During the conceptual period the abandoned quarry will converted to water reservoir and plantation will developed along the boundary.
21. Baseline data collection was during the period of October 2019 to December 2019.
22. During the study period the concentration of PM10 varies from 33.5-79.3 $\mu\text{g}/\text{m}^3$ and PM2.5 varies from 21.1-49.1 $\mu\text{g} / \text{m}^3$. The concentration of SO₂ varies from 4.1-10.4 $\mu\text{g} / \text{m}^3$ and NO_x concentrations vary from 12.33-9.1-20.0 $\mu\text{g} / \text{m}^3$. From the ambient air quality monitoring carried out shows that the critical pollutants like PM₁₀, SO_x and NO_x are well within the permissible limits.
23. The surface water quality results it can be inferred that all the parameters analyzed are under the prescribed limit as per IS 2296:1982, class C and the water does not contain any pollutant which would be hazardous for human, animal or crop health.
24. Analysis of ground water reveals that the pH level of the ground water sample ranges from 6.5-7.3. This indicates that the pH of the ground water in the study area is neutral and as per the drinking water standard, Total hardness ranges from 20-196 mg/l, and total dissolved solid ranges from 48 to 360 mg/l, Alkalinity ranges from 22-298 mg/l.
25. The noise level as measured in the core zone is 38.9 dB (A) in day time and 37.2 dB (A) in the night time. In the buffer zone the noise level ranges from 37.4 to 54.7 dBA during day time and 31.6 to 43.7 dBA during night time.
26. The total estimated cost of the project is approximately INR `400 lakhs. and recurring cost (per annum) for the environmental facilities for the proposed mining project works out to be Rs. 40 lakhs and ₹ 20 lakh / year respectively.

27. The Environment consultant **M/s Kalyani Laboratories (Pvt) Ltd. Pahala Bhubaneswar** along with the proponent has made a detailed presentation on EIA/EMP report.
28. The SEAC in its meeting held on Dt: 16.03.2021, recommended that the proponent should incorporate the following information / documents in the EIA/EMP report in cluster approach and submit the final EIA/EMP report (cluster approach) for approval. The project proponent has furnished the compliance and the SEAC verified the same as follows.

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
i.	Details of the leases present in the cluster.	Individual lease details given in Annexure-I .
ii.	Kisam of land and certificate from concerned DFO/Tahasildar that there is no involvement of DLC/forest land in the lease area.	Copy of the Land certificate from Tahasildar attached in Annexure-II .
iii.	Exact distance of the lease boundary from the nearest wildlife sanctuary / Eco-sensitive zone.	The nearest wildlife sanctuary is Chandaka wildlife sanctuary and is 13.25 km away from the cluster.
iv.	Status of complaints/ court cases/legal action regarding to leases in cluster along with a detailed write up indicating case no., purpose of the case etc.	Status of complaints/ court case/ legal action regarding details attached as Annexure -III .
v.	Previous EC details of all the leases present in cluster.	Previous EC details of all leases given in Annexure-IV .
vi.	Year wise production of the cluster in past.	The year wise production details of cluster is given to Annexure-V .
vii.	Details of rejuvenating 3 ponds and list of tress species to be planted around it. Raising a nursery in nearby village and distribute saplings to villagers	Yes, the rejuvenating of 3 ponds i.e. Dadhimachha pond, Kiajhari pond and Dangarpada Pond will be carried out. In Dadhimachha pond boundary there is 200 nos of saplings are planted over an area of 300sqm. In Kiajhari pond boundary over an area of 200sqm there is 100 saplings will be planted. In Dangarpada pond boundary over an area of 480 sqm, there is 200 saplings will be planted. Saplings like Jamun, Mango, Arjun, Guava, Krushnachuda, Neem, Baula etc. With the commencement of project nursery with 50,000 sapling capacity will be raised in Kaipadar village, in consultation with Village Committee, Shree Jagannath Temple Administration and district Forest department. Saplings will be used for greenbelt plantation and village open land plantation.
viii.	Details of explosives to be used	Controlled blasting technique will be

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
	and its storage area and its management.	<p>adopted to minimize the ground vibration and to avoid flying of rocks. Blasting will be undertaken when there will be least movement of people. Guards will be deployed at main access to the area at the time of blasting. Over charge of explosives would be avoided.</p> <p>Type of explosive to be used Shock tube initiation system/NONEL system of blasting will be adopted for getting optimum blast result and minimization of flying rocks.</p> <p>Other details regarding blasting are as given below</p> <p>When blasting is carried out at a minimum distance of 50 m. from any site service building, the permissible safe charge per round per delay is 77 kg only. However, this safety distance increases to 500 m, the permissible charge per round / delay is as high as 7752 kg. In practice, the total number of holes does not exceed more than 15, in case of single row blasting and the most commonly blasted rounds consists of 8-10 holes. Depending on the type of rock to be blasted and the type of explosives used, the total explosive charge per round varies from 400 kg to a maximum of 600 kg.</p> <p>The explosives to be used for blasting Purpose will be procured by hired licensed blasting contractors by individual lessees from authorised dealers and blasting will be performed by the contractor also. Daily requisition of explosives will be as per the same day requirement. At the end of the blasting surplus explosives will be refunded to the dealer. A daily register will be maintained for total use and refund of explosives. No magazine would be established by the lessees.</p> <p>The blasting will be done by authorized blasting professionals and no storage of explosive will be proposed within the lease cluster.</p>
ix.	At least 1% of total cost of project to be diverted towards Corporate social responsibility.	The details of corporate Environment Responsibility for the project has been given in Annexure VI.
x.	Details of silt management, water logging management and Waste Water Management, besides discharge / disposal management with SOP /	<ul style="list-style-type: none"> • Garland drains (1X1m), settling tank (3m x3x3m) and check dam will be constructed along individual mining lease area. • The silt flows down during the rainy

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	mechanism of water accumulated during rainy season in mines pit.	<p>season will be settled in the settling pit and then channellized to the abandoned pit in Cluster 1A.</p> <ul style="list-style-type: none"> • The surface run off from the lease area, waste dump area will follow the garland drain and stored in the abandoned pit in Cluster 1A. • Garland drains will be constructed along the individual quarry of the lease cluster followed by individual settling tanks. • All the settling tanks of the cluster will finally drained to the abandoned mine pit which is located in the Cluster 1 A and stored for use. • This stored water may pumped out for dust suppression and plantation purpose. • There will be no waste water generated due to the mining activity. The domestic effluents being generated will be discharged to soak pits through septic tank. • The abandoned pit will be converted to rain water storage tank and the rain water stored in the pit will be utilized for plantation as well as dust suppression. • The mining will be carried out above the ground water table. • There is chance that during monsoon the run- off water may find access to some of the quarries in the cluster-1. Therefore, it is proposed to keep one 5 HP diesel operated pump at each quarry site, particularly during monsoon to draw out the accumulated water from the quarry. The water so discharged will be routed to the natural drainage through series of drains and settling pits.
xi.	Study report on ground water of that area and mitigation measures taken for non-contamination of ground water due to mining.	The ground water analysis of the study area has been carried out in 8 sampling locations as a part of baseline study. It has been observed that the ground water is suitable for drinking purpose without any contamination though the mining activity is being carried out in the lease cluster since long.
xii.	Details of Zero discharge proposal.	There will be no waste water generated due to mining activity. The domestic effluents being generated will be discharged to soak pits through septic tank. The abandoned pit will be converted to rain water storage tank and the rain water stored in pit will be utilize for plantation as well as dust suppression.

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
xiii.	Slope study report to be undertaken both for mine and OB / waste dump by domain expert and blasting study as well.	As per the mining plan the individual quarry leases of this cluster would be excavated well above the ground water table within the lease period. All quarries are planned to be developed with proper benches of 3 to 6 m height and bench width would always be much above the height. The quarries would produce charnockite and migmatite to be used as road metal/construction metals. These rocks are very hard by nature, Quarrying being proposed for the hillocks above the surface level, quarries to be developed with proper benches, as per geological observations there being no major weak plane, by nature the rocks to be quarried being very hard in nature, excavation being planned above the ground water table there is no chance of any slope failure during the lease period.
xiv.	Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage i.e. complete waste / dump / OB management.	The lease area is partly covered with soil mixed rock boulders/pebbles followed by granite gneiss /charnockite/migmatite deposit. The soil to be generated will be stacked in the earmarked temporary soil stack and will be utilized for the plantation purpose to be undertaken around the respective hill/patch and adjacent to haul roads of the same in lease area. As per estimation of the approved mining plan, 30% of the total excavation accounts for the total OB/Waste to be generated during mining within the lease period and around 2/3rd of this total waste would be transported to the crusher site along with the usable road metals as it is almost impossible to separate these at the excavated site. The rest 1/3rd of the total waste to be generated during mining will be temporarily dumped within the lease area which will be utilized gradually by the lessees for construction of mine road and other infrastructures. Therefore, maximum height of the waste dump would be 3 to 4 m over an area of 0.2 to 0.5 Ha in individual quarry leases and at the end of life of the mine there would be no dump in the individual leases. Also, retaining wall has been proposed around the temporary dumps of the individual quarry leases.
xv.	Status of physical condition and maintenance of approach roads. NOC and maintenance	The condition of the approach road from NH 16 to the individual quarry lease areas of the cluster is good and is being maintained by

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
	of approach road from concerned authority.	Govt of Odisha. Provision would be made to maintain these roads by District administration along with Shree Jagannath Temple Administration.
xvi.	Total Plantation should be carried out within 2-3 years and maintenance to be continued in remaining years. Trees present in mining area should be uprooted & transplanted in safety zone.	<p>It is being assured that the plantation carried out during the plan period will be completed within 2 years of commencement of mining operation. During the 1st year 3.8928 Ha of the area will be covered under safety zone plantation with 4677 nos of saplings and during the 2nd year of plan period 2.5952 ha of the safety zone will be planted with 3118 nos of saplings.</p> <p>During conceptual period 11603 nos of saplings over an area of 9.669 Ha, 37403 nos of saplings over an area of 31.169Ha, and 59054 nos of saplings over an area of 49.211 Ha. Will be used for plantation in respective lease area Cluster 1-A(Tangeni), Cluster-1B(Sankhari), and Cluster -1C (Dhania).</p> <p>There are no trees present within the mining area so need of uprooting does not arise. If any case any tree is coming within the mining area those will be uprooted and planted in the safety zone.</p>
xvii.	Sludge disposal from ETP and settling tanks, rain water harvesting and usage /recharge / recycling of it to reduce the use of ground water.	There will be no waste water generated due to mining activity. The domestic effluents are generated will be discharge to soak pits through septic tank. The pit will be converted to rain water storage tank, and rain water will be used as dust suppression measures in mining areas. As there will be no waste water generated from the mining operation no ETP is proposed for the project.
xviii.	Detailed proposal for Rain water Harvesting and water balance (both monsoon and non-monsoon).	<p>During Summer season 25 KLD of potable water will be required from which 10 KLD of water will be required for drinking & domestic purpose.</p> <p>10 KLD of water is suggested to be utilized for dust suppression and 5 KLD for plantation purpose.</p> <p>During the rainy season the total water requirement will be 18 KLD which 10 KLD of water will be required for drinking & domestic purpose. 5 KLD of water is suggested to be utilized for dust suppression and 3 KLD for plantation purpose.</p> <p>Total area of Cluster taken for runoff: 91.216 Ha i.e. 912160 Sq.m Maximum annual rainfall : 1.46m</p>

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
		Annual runoff co-efficient of the area: 0.35 Total runoff: 466113 cu.m 10% evaporation loss: 46611 cu.m Total available water for storage: 419502 cu.m The abandoned quarry of 21495 sq.m is present in cluster 1 A with a depth of 20m which will be utilized for rain water storage with a capacity of 429900 cu.m
xix.	Copy of modified mining plan incorporating progressive mine closure plan.	The approved mining plan contains the Mine Closure Plan i.e. Chapter 10 as per Form O of OMMCR 2016. The measures to be adopted towards Progressive Mine Closure have been covered under this chapter Hence; modification of mining plan is not required. Annexure-VII
xx.	Occupational Health Study report, including identification of occupational health hazards for employees as well as neighboring habitation, remedial measures for it and periodical health checkups, at least once in six months by occupational health expert.	As per Mines Rules, 1955, medical examination of employees at the initial stage and periodically, shall be done by a team of qualified medical officers provided by the project proponent. Regular medical check up camps shall be arranged for detection of occupational diseases and minor disease in the nearby rural population. Free check up and medicine for treatment for their acute and chronic illness shall be provided. All the mines workers will be provided with personal protective equipments like nose mask, ear muff, helmet, goggles etc. Education and training arrangement for the mines workers about the safety and various occupational health risks related to mining operation.
xxi.	Detailed surface runoff management plan.	Surface runoffs from lease area are channelized and pass through garland drain and enter to the settling tank. The silt and solids will be settled down in the tank and release clean water. Detailed in point no. 10.
xxii.	Proceedings of public hearing to be submitted and actions proposed to be taken in physical terms for the environmental issues raised.	Details of issues raised by public and action plan Proposed given in Annexure VIII .
xxiii.	One season data (Air and Water) not given in the EIA report. It should be incorporated in the EIA report.	The baseline data for three months is the mandatory requirement of Environment clearance. So we have collected the baseline data of Ambient air quality, Surface water and Ground water quality, Soil, Ecology & Biodiversity and Socio Economic study for one season (October – December 2019) post monsoon period. The baseline study has been already incorporated in the Final EIA report

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
		Chapter III. Attached for reference. Annexure IX.
xxiv.	Standards for all the parameters of pollutants should be mentioned in the analysis result table.	Already given in the EIA report. Chapter 3, Table no. 3.14, Page 59, 60 & 61 (Surface water analysis) Chapter 3, Table 2.16, Page 62, 63 & 64 (Ground water analysis).
xxv.	An undertaking that they will not touch the ground water table in next 10 years.	Copy of the undertaking will be attached as Annexure -X.
xxvi.	Mining activity will affect the bio-diversity of the area. How bio-diversity of the area will be managed during mining activity. Study to be carried out about damage to bio-diversity during mining activity.	The lease area does not include any forest land. There will be no cutting of trees during the mining activities. Green belt will be developed along the lease boundary which will act as a pollution barrier for biological environment. The mining quarries will be back filled and plantation will be made over backfilled area. A nursery will be developed in the village and plantation will be carried out in the village road and along the village pond. Proposal for renovation of village pond will be there.
xxvii.	Details of the CSR activity.	Attached as Annexure VI

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Kalyani Laboratories (Pvt) Ltd. Pahala, Bhubaneswar on behalf of the proponent, the SEAC approved the EIA/EMP report in cluster approach and recommended the following:**

- a) The SEIAA, Odisha may consider to grant Environmental Clearance to individual lease (for **30 nos.** quarry leases) in cluster with specific conditions as per **Annexure-A** after receipt of individual applications from the lessee in cluster along with following documents.
 - i) Filled in form-I of individual lease
 - ii) Prefeasibility report of individual lease
 - iii) EMP of individual lease.
 - iv) Approved Mining Plan of individual lease
 - v) DLC status of the lease area from concerned DFO as certified by the concerned Tahasildar.
 - vi) An Undertaking by the lessee not to use wagon drilling blasting to be submitted. Accordingly, specific condition to be stipulated in EC of individual lease.
 - vii) No storage and usage of blasting materials/explosives inside the lease area without license/permission/authorization from competent Authority as per Indian Explosives Rules, 1983 shall be ensured by the lessee. An undertaking to this effect shall be submitted by the lessee. Accordingly specific condition to be stipulated in EC of individual lease.
 - viii) An undertaking to obtain NOC from CGWA and permission from WR department, Govt. Of Odisha for use of ground water. Accordingly specific condition to be stipulated in EC of individual lease.

- ix) An Undertaking by the lessee that rejuvenation of 03 ponds(i.e. Dadhimachha pond, Kiajhari pond and Dangarpada pond should be completed on priority basis after obtaining Environment Clearance. Accordingly specific condition to be stipulated in EC of individual lease.

ITEM NO. 02

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR CLUSTER-2 MINES WHICH IS CONSTITUTED AREAS IN GOLAPUTAKHUA HILLOCKS (28.189 HA.), DUBURI HILLOCKS (2.72 HA.), HATIA HILLOCKS (32.442 HA.), & KALINGA HILLOCKS (19.805 HA.) OVER AN TOTAL AREA OF 83.226 HA./205.651 AC. IN VILLAGES - NIJAGADATAPANGA, KIAJHARI, JHINKIJHARI & CHHATRAMA, TAHASIL/ DISTRICT – KHORDHA, ODISHA IN FAVOUR OF SHREE JAGANNATH TEMPLE ADMINISTRATION, PURI OF SRI BISWANATH SAHU (ADMINISTRATOR DEV)- EC

1. This is a proposal for Environmental Clearance of Cluster-2 Mines which is constitute of areas in Golaputakhua hillocks (28.189 Ha.), Duburi hillocks (2.72 Ha.), Hatia hillocks (32.442 Ha.), & Kalinga hillocks (19.805 Ha.) over an total area of 83.226 Ha./205.651 Ac. located in Villages - Nijagadatapanga, Kiajhari, Jhinkijhari & Chhatrama, District- Khordha, Odisha of Shree Jagannath Temple Administration, Puri, Odisha of Sri Biswanath Sahu (Administrator Dev).
2. The project falls under Category "B1", as per Notification of MOEF & CC vide S.O. No. 3977(E), Appendix- XI, dated the 14th August, 2018.
3. ToR for this project has been granted by SEAC vide letter No. 26/SEAC/27/19 dated 08.01.2020. Public hearing was conducted on 09.09.2020 at village Kiajhari, Nijigarh, Tapanga, Chhatrama and Jhankijhari in Khordha district. The issues raised by the public are mainly road maintenance, health care, Drinking water supply, solar lighting etc. All the issues are being addressed and an amount of 13,00,000.00 has been allocated for social development activities.
4. The total area is non-forest land Govt. land comprising of 20 nos. quarry leases covering a total mineralized area of 205.651 Acres or 83.226 Hectares (Golaputakhua 28.189 HA, Duburi 2.72 HA, Hatia 32.442 HA, & Kalinga 19.805 HA.) located in village Nijagadatapanga, Kiajhari, Jhinkijhari & Chhatrama of Khordha, district, Odisha. The coordinates of the area is Latitude - 20° 05' 00.10" N to 20° 06' 26.19" N and Longitudes - 85° 34' 24.99" E to 85° 35' 25.68" E and comes under Toposheet No. 73 H/12.
5. **Connectivity** - The Nearest road is NH 16 which is 100 m and NH 24 is 10 km to project site. The nearest railway station is Tapanga Railway Station at a distance of 3.2Km. from the project site and Biju Patnaik International Airport is at a distance of approx. 30 km from the project site. Chandaka elephant sanctuary is located at a distance of 12Km from the cluster area. Nearest rivers are Daya River- 7.8 Km and Bhargavi River- 10 Km. Nearest Reserve forest is Tangi RF - 11 Km. No state or national boundary exists within 10 Km radius of the project. The nearest defence installation is CISF Munduli campus at a distance of 21 Km from the project site. Nearest habitation is Tapanga village is 1 km.
6. Mining plan approved by Directorate of Geology, Govt. of Odisha vide memo no.7900 on dated 27.09.2019. The individual quarry lease of the cluster have either been auctioned or to be auctioned for long term quarry lease of 10 years for building stone/ Road metal by the tenant Shree Jagannath Temple Administration, Puri through the Sub-Collector, Khordha

cum Authorised Officer.

7. The targeted area represents a hilly terrain comprising four isolated hillocks/Patches, viz., Cluster-2A (Golaputakhua), Cluster-2B (Duburi), Cluster-2C (Hatia) & Cluster-2D (Kalinga) with undulated topography. Cluster-2A (Golaputakhua) displays highest altitude of 120mRL and lowest altitude of 50mRL. Cluster-2B (Duburi) displays highest altitude of 55mRL and lowest altitude of 30mRL. Cluster-2C (Hatia) displays highest altitude of 170mRL and lowest altitude of 35mRL. Cluster-2D (Kalinga) displays highest altitude of 145mRL and lowest altitude of 35mRL.
8. The total geological reserve over Cluster-2 mineralized area has been estimated as 346, 53, 449 cum. and mineable reserve is. 300, 90, 660 cum.
9. The Mine proposed to produce total 17, 00,000 m³ of building stone/road metal during Plan Period (Ten Years).
10. A total of 1900 workers (Skilled – 400 nos., Semi – skilled – 600 nos. and Un – skilled - 880 nos & Mines Manager / Mine Permit Manager-20 nos) will be employed during mining operation.
11. A total of 8,97,273 m³ (345078 m³ from Cluster- 2A , 15189 m³ from Cluster- 2B , 384936 m³ from Cluster- 2C & 152070 m³ from Cluster- 2D) of top-soil mixed with boulders and pebbles are envisaged to be generated during the plan period in course of mining. It is proposed to store this top-soil in the earmarked site and will be utilized for nearby avenue plantation purpose after separated out from the mixed rock boulders and pebbles. Construction of retaining wall and plantation around proposed dump will be carried out.
12. The mining activities will be carried out in the cluster area by semi mechanized by deploying excavator/loader. Height of the bench varies from 3m to 6m & slope of individual bench will be 80° to 85° with overall slope angle will be less than 45°.
13. Handling of rock mass will be done both manually and by excavators. Handpicks, spade, chisel, hammer will be used by manual labors for sorting and sizing. Loosening of rock mass will be done by drilling and blasting. The excavated rock mass will be loaded in to 10T/20T capacity tippers/trucks by excavators. As the loading, drilling and transportation will be partly achieved through use of machineries, the mines come under semi-mechanised category.
14. The loosening of rock mass will be done by drilling and blasting. Drilling will be done either by wagon drill or jack hammer taking in to consideration the bench height varying from 3 meter to 6m.
15. Mine road will be maintained between benches for easy movement of workers and vehicles. Suitable gradient of haul road will be maintained in between 1 in 16 to 1 in 20.
16. **Water Requirement** - 25 KLD of potable water will be required from which 10 KLD of water will be required for drinking & domestic purpose. 5 KLD of water is suggested to be utilized for dust suppression and 5 KLD for plantation purpose. Water will be sourced from ground water and rain water harvesting from the existing quarry.
17. **Power requirement** - Solar lights will be employed for day to day living purposes. Diesel

requirement will be 6000liters/month.

18. Waste will be about 30% of excavation will be generated. 20% of the waste will be transported to the crusher site along with valuable building stone/road metal where these will be sorted out. The remaining 10% of the total waste will be separated at the quarry head and will be stacked in the temporary waste dump of respective quarry lease and will be utilised by the lessee for making of mine road and allied infrastructures.
19. In the process, 31580 nos., 2580 nos., 36920 nos. and 21908 nos. of saplings will be used for plantation in the quarried out areas of 26.317 Ha, 2.150 Ha, 30.766 Ha. and 18.256 Ha in Cluster-2A (Golaputakhua), Cluster-2B (Duburi), Cluster-2C (Hatia) & Cluster-2D (Kalinga) respectively.
20. During the conceptual period the abandoned quarry will converted to water reservoir and plantation will developed along the boundary.
21. Baseline data collection was during the period of October 2019 to December 2019.
22. During the study period the concentration of PM10 varies from 33.5-79.3 μ g/m³ and PM2.5 varies from 21.1-49.1 μ g / m³. The concentration of SO₂ varies from 4.4-10.4 μ g / m³ and NO_x concentrations vary from 12.33-9.1-20.0 μ g / m³.
23. From the surface water analysis it has been found that pH range of the water samples is neutral ranging from 6.6 to 7.4. Total hardness of the water sample ranges from 24-116 mg/l, Electrical conductivity of water sample ranges from 0.055-0.253 ms/cm. Dissolved oxygen in the surface water sample ranges from 6.2-7.4 mg/l. Biochemical oxygen demand of the surface water body is <1.0-11 mg/l. The BOD is comparatively higher in pond water as compare to river water.
24. From the analysis of ground water of selected sampling areas, it has been observed that, Water is colourless and odourless and found to be suitable for human consumption. The pH level of the ground water sample ranges from 6.5-7.3. This indicates that the pH of the ground water in the study area is neutral and as per the drinking water standard. Total hardness ranges from 20-196 mg/l, and total dissolved solid ranges from 48 to 360 mg/l. Alkalinity ranges from 22-298 mg/l.
25. From the above water quality results it can be inferred that all the parameters analyzed are under the prescribed limit specified under IS10500, 2012 for drinking water.
26. The noise level as measured in the core zone is 38.9 dB (A) in day time and 37.2 dB (A) in the night time. In the buffer zone the noise level ranges from 37.4 to 54.7 dBA during day time and 31.6 to 43.7 dBA during night time.
27. The total cost of the project is Rs. 400 Lakhs and the updated capital cost and recurring cost (per annum) for the environmental facilities for the proposed mining project works out to be Rs. 40 lakhs and Rs. 20 lakh / year respectively.
28. The Environment consultant **M/s Kalyani Laboratories (Pvt) Ltd. Pahala, Bhubaneswar** along with the proponent has made a detailed presentation on EIA/EMP report.
29. The SEAC in its meeting held on Dt: 16.03.2021, recommended that the proponent should incorporate the following information / documents in the EIA/EMP report in cluster approach and submit the final EIA/EMP report (cluster approach) for approval. The project proponent

has furnished the compliance and the SEAC verified the same as follows.

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
i.	Details of the leases present in the cluster.	Individual lease details given in Annexure-I.
ii.	Kisam of land and certificate from concerned DFO/Tahasildar that there is no involvement of DLC/forest land in the lease area.	Copy of the Land certificate from Tahasildar attached in Annexure-II.
iii.	Exact distance of the lease boundary from the nearest wildlife sanctuary / Eco-sensitive zone.	The nearest wildlife sanctuary is Chandaka wildlife sanctuary and is 13.25 km away from the cluster.
iv.	Status of complaints/ court cases/legal action regarding to leases in cluster along with a detailed write up indicating case no., purpose of the case etc.	Status of complaints/ court case/ legal action regarding details attached as Annexure -III.
v.	Previous EC details of all the leases present in cluster.	Previous EC details of all leases given in Annexure-IV.
vi.	Year wise production of the cluster in past.	The year wise production details of cluster is given to Annexure-V.
vii.	Details of explosives to be used and its storage area and its management.	Technique will be adopted to minimize the ground vibration and to avoid flying of rocks. Blasting will be undertaken when there will be least movement of people. Guards will be deployed at main access to the area at the time of blasting. Over charge of explosives would be avoided. Shock tube initiation system/NONEL system of blasting will be adopted for getting optimum blast result and minimization of flying rocks. When blasting is carried out at a minimum distance of 50 m. from any site service building, the permissible safe charge per round per delay is 77 kg. only. However, this safety distance increases to 500 m, the permissible charge per round / delay is as high as 7752 kg. In practice, the total number of holes does not exceed more than 15, in case of single row blasting and the most commonly blasted rounds consists of 8-10 holes. Depending on the type of rock to be blasted and the type of explosives used, the total explosive charge per round varies from 400 kg. to a maximum of 600 kg. The explosives to be used for blasting purpose will be procured by hired licensed blasting contractors by individual lessees from

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
		<p>authorised dealers and blasting will be performed by the contractor also. Daily requisition of explosives will be as per the same day requirement. At the end of the blasting surplus explosives will be refunded to the dealer. A daily register will be maintained for total use and refund of explosives. No magazine would be established by the lessees. So, there is no storage of explosive in lease area.</p>
viii.	<p>At least 1% of total cost of project to be diverted towards Corporate social responsibility.</p>	<p>The details of corporate Environment Responsibility for the project has been given in Annexure VI.</p>
ix.	<p>Details of silt management, water logging management and Waste Water Management, besides discharge / disposal management with SOP / mechanism of water accumulated during rainy season in mines pit.</p>	<ul style="list-style-type: none"> • Garland drains (1X1m), settling tank (3m x3x3m) and check dam will be constructed along individual mining lease area. • The surface run off from the lease area, waste dump area will follow the garland drain and stored in the abandoned pit. • Garland drains will be constructed along the individual quarry of the lease cluster followed by individual settling tanks. • All the settling tanks of the cluster will finally drained to the abandoned mine pit which is located in the Cluster 1 A and stored for use. • This stored water may pumped out for dust suppression and plantation purpose. • There will be no waste water generated due to the mining activity. The domestic effluents being generated will be discharged to soak pits through septic tank. • The abandoned pit will be converted to rain water storage tank and the rain water stored in the pit will be utilized for plantation as well as dust suppression. • The mining will be carried out above the ground water table. • There is chance that during

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
		monsoon the run- off water may find access to some of the quarries in the cluster-2. Therefore, it is proposed to keep one 5 HP diesel operated pump at each quarry site, particularly during monsoon to draw out the accumulated water from the quarry. The water so discharged will be routed to the natural drainage through series of drains and settling pits.
x.	Study report on ground water of that area and mitigation measures taken for non-contamination of ground water due to mining.	The ground water analysis of the study area has been carried out in 8 sampling locations as a part of baseline study. It has been observed that the ground water is suitable for drinking purpose without any contamination though the mining activity is being carried out in the lease cluster since long. The analysis of ground water has been incorporated in the EIA report.
xi.	Details of Zero discharge proposal.	There will be no waste water generated due to mining activity. The domestic effluents being generated will be discharged to soak pits through septic tank. The abandoned pit will be converted to rain water storage tank and the rain water stored in pit will be utilize for plantation as well as dust suppression.
xii.	Slope study report to be undertaken both for mine and OB / waste dump by domain expert and blasting study as well.	As per the mining plan the individual quarry leases of this cluster would be excavated well above the ground water table within the lease period. All quarries are planned to be developed with proper benches of 3 to 6 m height and bench width would always be much above the height. The quarries would produce charnockite and migmatite to be used as road metal/construction metals. These rocks are very hard by nature, Quarrying being proposed for the hillocks above the surface level, quarries to be developed with proper benches, as per geological observations there being no major weak plane, by nature the rocks to be quarried being very hard in nature, excavation being planned above the

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
		ground water table there is no chance of any slope failure during the lease period.
xiii.	Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage i.e. complete waste / dump / OB management.	As per estimation of the approved mining plan, 30% of the total excavation accounts for the total OB/Waste to be generated during mining within the lease period and around 2/3rd of this total waste would be transported to the crusher site along with the usable road metals as it is almost impossible to separate these at the excavated site. The rest 1/3rd of the total waste to be generated during mining will be temporarily dumped within the lease area which will be utilised gradually by the lessees for construction of mine road and other infrastructures. Therefore, maximum height of the waste dump would be 3 to 4 m over an area of 0.2 to 0.5 Ha in individual quarry leases and at the end of life of the mine there would be no dump in the individual leases. Also, retaining wall has been proposed around the temporary dumps of the individual quarry leases. Therefore, slope failure of the individual waste dumps is ruled out.
xiv.	Status of physical condition and maintenance of approach roads. NOC and maintenance of approach road from concerned authority.	The condition of the approach road from NH 16 to the individual quarry lease areas of the cluster is good and is being maintained by Govt of Odisha. Provision would be made to maintain these roads by District administration along with Shree Jagannath Temple Administration.
xv.	Total Plantation should be carried out within 2-3 years and maintenance to be continued in remaining years. Trees present in mining area should be uprooted & transplanted in safety zone.	It is being assured that the plantation carried out during the plan period will be completed within 2 years of commencement of mining operation. During the 1st year 3.594 Ha of the area will be covered under safety zone plantation with 4083 nos of saplings and during the 2nd year of plan period 2.396 ha of the safety zone will be planted with 2722 nos of saplings. 92,988 nos of saplings over an area of 77.489 Ha for plantation purpose

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
		<p>will be carried out for four lease area i.e. Golaputakhua, Kaijhar, Duburi & Hatia at the end of conceptual period.</p> <p>There are no trees present within the mining area so need of uprooting does not arise. If any case any tree is coming within the mining area those will be uprooted and planted in the safety zone.</p>
xvi.	Sludge disposal from ETP and settling tanks, rain water harvesting and usage /recharge / recycling of it to reduce the use of ground water.	<p>There will be no waste water generated due to mining activity. The domestic effluents are generated will be discharge to soak pits through septic tank. The pit will be converted to rain water storage tank, and rain water will be used as dust suppression measures in mining areas. As there will be no waste water generated from the mining operation no ETP is proposed for the project.</p>
xvii.	Detailed proposal for Rain water Harvesting and water balance (both monsoon and non-monsoon).	<p>During Summer season 25 KLD of potable water will be required from which 10 KLD of water will be required for drinking & domestic purpose.</p> <p>10 KLD of water is suggested to be utilized for dust suppression and 5 KLD for plantation purpose.</p> <p>During the rainy season the total water requirement will be 18 KLD which 10 KLD of water will be required for drinking & domestic purpose. 5 KLD of water is suggested to be utilized for dust suppression and 3 KLD for plantation purpose.</p> <p>Total area of Cluster taken for runoff: 72.149 Ha i.e. 721490 Sq.m Maximum annual rainfall : 1.46m Annual runoff co-efficient of the area: 0.35 Total runoff: 368681 cu.m 10% evaporation loss: 36868 cu.m Total available water for storage: 331813 cu.m The abandoned quarry of 31974 sq.m is present in cluster 2C with a depth of 20m which will be utilized for rain water storage with a capacity of 639480 cu.m.</p>

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
xviii.	Copy of modified mining plan incorporating progressive mine closure plan.	The approved mining plan contains the Mine Closure Plan i.e. Chapter 10 as per Form O of OMMCR 2016. The measures to be adopted towards Progressive Mine Closure have been covered under this chapter Hence, modification of mining plan is not required. Annexure-VII
xix.	Occupational Health Study report, including identification of occupational health hazards for employees as well as neighboring habitation, remedial measures for it and periodical health checkups, at least once in six months by occupational health expert.	<ul style="list-style-type: none"> As per Mines Rules, 1955, medical examination of employees at the initial stage and periodically, shall be done by a team of qualified medical officers provided by the project proponent. Regular medical checkup camps shall also be arranged for detection of occupational diseases and minor disease in the nearby rural population. Free checkup and medicine for treatment for their acute and chronic illness shall be provided. All the mines workers will be provided with personal protective equipment's like nose mask, ear muff, helmet, goggles etc.
xx.	Detailed surface runoff management plan.	Surface runoffs from lease area are channelized and pass through garland drain and enter to the settling tank. The silt and solids will be settled down in the tank and release clean water. Detailed in point no. 09.
xxi.	Proceedings of public hearing to be submitted and actions proposed to be taken in physical terms for the environmental issues raised.	Details of issues raised by public and action plan Proposed given in Annexure VIII .
xxii.	One season data (Air and Water) not given in the EIA report. It should be incorporated in the EIA report.	The baseline data for three months is the Mandatory requirement of Environment clearance. So we have collected the baseline data of Ambient air quality, Surface water and Ground water quality, Soil, Ecology & Biodiversity and Socio Economic study for one season (October – December 2019) post monsoon period. The baseline study has been already incorporated in the Final EIA report Chapter III.

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
		Attached for reference. Annexure IX.
xxiii.	Standards for all the parameters of pollutants should be mentioned in the analysis result table.	Already given in the EIA report. Chapter 3, Table no. 3.14, Page 59, 60 & 61 (Surface water analysis) Chapter 3, Table 3.16, Page 62, 63 & 64 (Ground water analysis).
xxiv.	An undertaking that they will not touch the ground water table in next 10 years.	Copy of the undertaking will be attached as Annexure -X.
xxv.	Mining activity will affect the bio-diversity of the area. How bio-diversity of the area will be managed during mining activity. Study to be carried out about damage to bio-diversity during mining activity.	The lease area does not include any forest land. There will be no cutting of trees during the mining activities. Green belt will be developed along the lease boundary which will act as a pollution barrier for biological environment. The mining quarries will be back filled and plantation will be made over backfilled area.
xxvi.	Details of the CSR activity.	Attached as Annexure VI

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Kalyani Laboratories (Pvt) Ltd. Pahala, Bhubaneswar** on behalf of the proponent, the SEAC approved the EIA/EMP report in cluster approach and recommended the following:

- a) The SEIAA, Odisha may consider to grant Environmental Clearance to individual lease (for **20 nos.** quarry leases) in cluster with specific conditions as per **Annexure-A** after receipt of individual applications from the lessee in cluster along with following documents.
 - I. Filled in form-I of individual lease
 - II. Prefeasibility report of individual lease
 - III. EMP of individual lease.
 - IV. Approved Mining Plan of individual lease
 - V. DLC status of the lease area from concerned DFO as certified by the concerned Tahasildar.
 - VI. Kissam of the some plots in mining lease in the cluster are Gochar. The concerned Tahasildar shall follow the detailed procedure for De-reservation of Gochar kissam land before going for mining activity. Accordingly specific condition to be stipulated in EC of concerned mining lease.
 - VII. An Undertaking by lessee not to use wagon drilling blasting to be submitted. Accordingly specific condition to be stipulated in EC of individual lease.
 - VIII. No storage and usage of blasting materials/explosives inside the lease area without license/permission/authorization from competent Authority as per Indian Explosives Rules, 1983 shall be ensured by the lessee. An undertaking to this effect shall be submitted by the lessee. Accordingly specific condition to be stipulated in EC of individual lease.

- IX. An undertaking to obtain NOC from CGWA and permission from WR department, Govt. Of Odisha for use of ground water. Accordingly specific condition to be stipulated in EC of individual lease.

ITEM NO.3

PROPOSAL FOR ENVIRONMENTAL CLEARANCE FOR CLUSTER-3 MINES WHICH IS CONSTITUTED OF KALACHUA HILLOCKS OVER AN AREA OF 1213.155 AC./49.840 HA. LOCATED IN VILLAGES - DANGARPADA & SANTARAPUR, TAHASIL – BEGUNIA, DIST- KHORDHA ODISHA IN FAVOUR OF SHREE JAGANNATH TEMPLE ADMINISTRATION, PURI OF SRI BISWANATH SAHU (ADMINISTRATOR DEV)- EC

1. This is a proposal for Environmental Clearance of Cluster-3 Mines which is constituted of Kalachua hillocks over an area of 1213.155 Ac./49.840 Ha. located in Villages - Dangarpada & Santarapur, Tahasil – Begunia, Dist- Khordha Odisha in favour of Shree Jagannath Temple Administration, Puri of Sri Biswanath Sahu (Administrator Dev).
2. The project falls under Category "B1", as per Notification of MOEF & CC vide S.O. No.3977(E), Appendix- XI, dated the 14th August,2018.
3. ToR for this project has been granted by SEAC vide letter No. 28/SEAC/28/19 dated 08.01.2020. Public hearing was conducted on 10.09.2020 at Jaitani Devi Temple Campus Premises in Khordha district. The issues raised by the public will be addressed by the Shree Jagannath Temple Administration. An amount of 25 Lakhs has been demarcated for the social development plan of the villages nearby.
4. The total area is non-forest land Govt. land comprising of 12 nos. quarry leases covering a total mineralized area of 1213.155 Acres or 49,840 Hectares located in village Dangarpada & Santarapur under Begunia Tahasil of Khordha, district, Odisha. The coordinates of the area is Latitude - 20° 05' 41.45" N to 20° 06' 12.41" N and Longitudes - 85°30'28.63" E to 85°30'53.44" E and comes under Toposheet No. 73 H/12.
5. **Connectivity** - The Nearest road is NH 16 which is 5 km and NH 24 is 12.5 km to project site. The nearest railway station is Khordha Railway Station at a distance of 14Km. from the project site and Biju Patnaik International Airport is at a distance of approx. 38 km from the project site. Chandaka elephant sanctuary is located at a distance of 38Km from the cluster area. Nearest rivers are Mandakini River- 6 Km and Bali River- 4.5 Km. Nearest Reserve forest is Tangi RF -11 Km. No state or national boundary exists within 10 Km radius of the project. The nearest defence installation is CISF Munduli campus at a distance of 28.21 Km from the project site. Nearest habitation is Jankia village is 6.4 km.
6. Mining plan approved by Directorate of Geology, Govt. of Odisha vide memo no.7896 on dated 27.09.2019. The individual quarry lease of the cluster have either been auctioned or to be auctioned for long term quarry lease of 10 years for building stone/ Road metal by the tenant Shree Jagannath Temple Administration, Puri through the Sub-Collector, Khordha cum Authorised Officer.
7. Existing quarries over the area are worked out up to various depths and the rock mass is exposed up to a lowest extent of 57mRL in Cluster-3 area. Cluster-3 (Kalachua) displays highest altitude of 140mRL and lowest altitude of 60mRL.
8. The total geological reserve over Cluster-3 mineralized area has been estimated as 125, 00,

880 cum. And mineable reserve is 101, 43, 857 cum

9. The Mine proposed to produce total 58, 00,000 Cu.m of building stone/road metal during PlanPeriod (Ten Years).
10. A total of 670 workers (Skilled-80nos., Semi-skilled-170nos. and Un-skilled-408 nos.& MinesManager/Mine Permit Manager-12 nos) will be employed during mining operation
11. A total of 9, 30,204 m3 of top-soil mixed with boulders and pebbles are envisaged to be generated during the plan period in course of mining. It is proposed to store this top-soil in the earmarked site and will be utilized for nearby avenue plantation purpose after separated out from the mixed rock boulders and pebbles. Construction of retaining wall and plantation around proposed dump will be carried out
12. The mining activities will be carried out in the cluster area by semi mechanized by deploying excavator/loader. Height of the bench varies from 3m to 6m & slope of individual bench will be 80° to 85° with overall slope angle will be less than 45°.
13. Handling of rock mass will be done both manually and by excavators. Handpicks, spade, chisel, hammer will be used by manual labours for sorting and sizing. Loosening of rock mass will be done by drilling and blasting. The excavated rock mass will be loaded in to 10T/20T capacity tippers/trucks by excavators. As the loading, drilling and transportation will be partly achieved through use of machineries, the mines come under semi-mechanised category.
14. The loosening of rock mass will be done by drilling and blasting. Drilling will be done either by wagon drill or jack hammer taking in to consideration the bench height varying from 3 meter to 6m.
15. Mine road will be maintained between benches for easy movement of workers and vehicles. Suitable gradient of haul road will be maintained in between 1 in 16 to 1 in 20.
16. **Water Requirement** - 25 KLD of potable water will be required from which 10 KLD of water will be required for drinking & domestic purpose. 5 KLD of water is suggested to be utilized for dust suppression and 5 KLD for plantation purpose. Water will be sourced from ground water and rain water harvesting from the existing quarry.
17. **Power requirement** - Solar lights will be employed for day to day living purposes. Diesel requirement will be 6000 liters/month.
18. Waste will be about 30% of excavation will be generated. 20% of the waste will be transported to the crusher site along with valuable building stone/road metal where these will be sorted out. The remaining 10% of the total waste will be separated at the quarry head and will be stacked in the temporary waste dump of respective quarry lease and will be utilised by the lessee for making of mine road and allied infrastructures.
19. In the process, 2600 nos. of saplings will be used for plantation in the quarried out areas of 2.160 Ha in Cluster-3 respectively.
20. During the conceptual period the abandoned quarry will converted to water reservoir and plantation will developed along the boundary.
21. Baseline data collection was during the period of October 2019 to December 2019.

22. The concentration of PM10 varies from 33.5-79.3 $\mu\text{g}/\text{m}^3$ and PM2.5 varies from 21.1-49.1 $\mu\text{g}/\text{m}^3$. The concentration of SO2 varies from 4.0-10.4 $\mu\text{g}/\text{m}^3$ and NOx concentrations vary from 10.3-20.0 $\mu\text{g}/\text{m}^3$. The surface water quality of the lease area is found to be
23. The pH range of the water samples is neutral ranging from 6.6 to 7.6. Total hardness of the water sample ranges from 24-84 mg/l.
24. Electrical conductivity of water sample ranges from 0.055-0.253 $\mu\text{s}/\text{cm}$
25. Dissolved oxygen in the surface water sample ranges from 6.2-7.4 mg/l.
26. Biochemical oxygen demand of the surface water body is <1.0-11 mg/l. The BOD is comparatively higher in pond water as compare to river water.
27. As per the monitoring and analysis of ground water of selected sampling areas, it has been observed that Water is colourless and odourless and found to be suitable for human consumption. The pH level of the ground water sample ranges from 6.5-7.3. This indicates that the pH of the ground water in the study area is neutral and as per the drinking water standard. Total hardness ranges from 28-196 mg/l, and total dissolved solid ranges from 44 to 360 mg/l. Alkalinity ranges from 14-353 mg/l.
28. The noise level as measured in the core zone is 51.5 dB (A) in day time and 48 dB (A) in the night time. In the buffer zone the noise level ranges from 37.4 to 56.7 dBA during day time and 33.1 to 53.7 dBA during night time
29. The total cost of the project is Rs. 400 Lakhs and the updated capital cost and recurring cost (per annum) for the environmental facilities for the proposed mining project works out to be Rs. 40 lakhs and Rs. 20 lakh / year respectively.
30. The Environment consultant M/s Kalyani Laboratories (Pvt) Ltd. Pahala, Bhubaneswar along with the proponent has made a detailed presentation on EIA/EMP report.
31. The SEAC in its meeting held on Dt: 16.03.2021, recommended that the proponent should incorporate the following information / documents in the EIA/EMP report in cluster approach and submit the final EIA/EMP report (cluster approach) for approval. The project proponent has furnished the compliance and the SEAC verified the same as follows.

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
i.	Details of the leases present in the cluster.	Individual lease details given in Annexure-I .
ii.	Kisam of land and certificate from concerned DFO/Tahasildar that there is no involvement of DLC/forest land in the lease area.	Copy of the Land certificate from Tahasildar attached in Annexure-II .
iii.	Exact distance of the lease boundary from the nearest wildlife sanctuary / Eco-sensitive zone.	The nearest wildlife sanctuary is Chandaka wildlife sanctuary and is 18.77 km away from the cluster.
iv.	Status of complaints/ court cases/legal action regarding to leases in cluster along with a detailed write up indicating	No Court Case pending on the project till date.

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
	case no., purpose of the case etc.	
v.	Previous EC details of all the leases present in cluster.	Previous EC details of all leases given in Annexure-III.
vi.	Year wise production of the cluster in past.	The year wise production details of cluster is given to Annexure-IV.
vii.	Details of explosives to be used and its storage area and its management.	<p>Technique will be adopted to minimize the ground vibration and to avoid flying of rocks. Blasting will be undertaken when there will be least movement of people. Guards will be deployed at main access to the area at the time of blasting. Over charge of explosives would be avoided.</p> <p>Shock tube initiation system/NONEL system of blasting will be adopted for getting optimum blast result and minimization of flying rocks.</p> <p>When blasting is carried out at a minimum distance of 50 m. from any site service building, the permissible safe charge per round per delay is 77 kg. only. However, this safety distance increases to 500 m, the permissible charge per round / delay is as high as 7752 kg. In practice, the total number of holes does not exceed more than 15, in case of single row blasting and the most commonly blasted rounds consists of 8-10 holes. Depending on the type of rock to be blasted and the type of explosives used, the total explosive charge per round varies from 400 kg. to a maximum of 600 kg.</p> <p>The explosives to be used for blasting purpose will be procured by hired licensed blasting contractors by individual lessees from authorised dealers and blasting will be performed by the contractor also. Daily requisition of explosives will be as per the same day requirement. At the end of the blasting surplus explosives will be refunded to the dealer. A daily register will be maintained for total use and refund of explosives. No magazine would be established by the lessees. So, there is no storage of explosive in lease area.</p>
viii.	At least 1% of total cost of project to be diverted towards Corporate social responsibility.	The details of corporate Environment Responsibility for the project has been given in Annexure V.
ix.	Details of silt management, water logging management and Waste Water Management, besides discharge / disposal	<ul style="list-style-type: none"> Garland drains (1X1m), settling tank (3mx3 x3m) and check dam will be constructed along individual mining lease area. The surface run off from the lease area, waste dump area will follow the garland drain

Sl. No.	Information Sought by SEAC	Compliance furnished by the proponent
	management with SOP / mechanism of water accumulated during rainy season in mines pit.	<p>and stored in the abandoned pit.</p> <ul style="list-style-type: none"> • Garland drains will be constructed along the individual quarry of the lease cluster followed by individual settling tanks. • All the settling tanks of the cluster will finally drained to the abandoned mine pit which is located in the north western part of the lease cluster. • This stored water may pumped out for dust suppression and plantation purpose. • There will be no waste water generated due to the mining activity. The domestic effluents being generated will be discharged to soak pits through septic tank. • The abandoned pit will be converted to rain water storage tank and the rain water stored in the pit will be utilized for plantation as well as dust suppression. • The mining will be carried out above the ground water table. • There is chance that during monsoon the run-off water may find access to some of the quarries in the cluster-3. Therefore, it is proposed to keep one 5 HP diesel operated pump at each quarry site, particularly during monsoon to draw out the accumulated water from the quarry. The water so discharged will be routed to the natural drainage through series of drains and settling pits.
x.	Detailed layout and plan for drainage within lease.	Layout plan attached as Annexure-VI .
xi.	Study report on ground water of that area and mitigation measures taken for non-contamination of ground water due to mining.	The ground water analysis of the study area has been carried out in 8 sampling locations as a part of baseline study. It has been observed that the ground water is suitable for drinking purpose without any contamination though the mining activity is being carried out in the lease cluster since long. The analysis of ground water has been incorporated in the EIA report.
xii.	Details of Zero discharge proposal.	There will be no waste water generated due to mining activity. The domestic effluents being generated will be discharged to soak pits through septic tank. The abandoned pit will be converted to rain water storage tank and the rain water stored in pit will be utilized for plantation as well as dust suppression.
xiii.	Slope study report to be undertaken both for mine and OB / waste dump by domain	As per the mining plan the individual quarry leases of this cluster would be excavated well above the ground water table within the lease

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	expert and blasting study as well.	period. All quarries are planned to be developed with proper benches of 3 to 6 m height and bench width would always be much above the height. The quarries would produce charnockite and migmatite to be used as road metal/construction metals. These rocks are very hard by nature, Quarrying being proposed for the hillocks above the surface level, quarries to be developed with proper benches, as per geological observations there being no major weak plane, by nature the rocks to be quarried being very hard in nature, excavation being planned above the ground water table there is no chance of any slope failure during the lease period.
xiv.	Details of waste management i.e. composition and nature of waste generated, tabulated form showing year wise waste generation, usage and storage i.e. complete waste / dump / OB management.	As per estimation of the approved mining plan, 30% of the total excavation accounts for the total OB/Waste to be generated during mining within the lease period and around 2/3rd of this total waste would be transported to the crusher site along with the usable road metals as it is almost impossible to separate these at the excavated site. The rest 1/3rd of the total waste to be generated during mining will be temporarily dumped within the lease area which will be utilised gradually by the lessees for construction of mine road and other infrastructures. Therefore, maximum height of the waste dump would be 3 to 4 m over an area of 0.2 to 0.5Ha in individual quarry leases and at the end of life of the mine there would be no dump in the individual leases. Also, retaining wall has been proposed around the temporary dumps of the individual quarry leases. Therefore, slope failure of the individual waste dumps is ruled out. Garland drain along with settling tank will be provided to protect wash off or leaching from dump in rainy season. Temporary plantation of grass species on the dump. The waste will be completely utilized in the backfilling of exhausted quarry.
xv.	Status of physical condition and maintenance of approach roads. NOC and maintenance of approach road from concerned authority,	The condition of the approach road from NH 16 to the individual quarry lease areas of the cluster is good and is being maintained by Govt of Odisha. Provision would be made to maintain these roads by District administration along with Shree Jagannath Temple Administration.
xvi.	Total Plantation should be carried out within 2-3 years and maintenance to be continued in remaining years. Trees present in mining area	It is being assured that the plantation carried out during the plan period will be completed within 2 years of commencement of mining operation. During 1st year 1560 nos of saplings planted


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	should be uprooted & transplanted in safety zone.	over an area of 1.296 Ha. During 2nd year plan period 1040 nos of saplings will be planted over an area of 0.864 Ha.
xvii.	Sludge disposal from ETP and settling tanks, rain water harvesting and usage /recharge / recycling of it to reduce the use of ground water.	There will be no waste water generated due to mining activity. The domestic effluents are generated will be discharge to soak pits through septic tank. The pit will be converted to rain water storage tank, and rain water will be used as dust suppression measures in mining areas. As there will be no waste water generated from the mining operation no ETP is proposed for the project.
xviii.	Detailed proposal for Rain water Harvesting and water balance (both monsoon and non-monsoon).	During Summer season 20 KLD of potable water will be required from which 5 KLD of water will be required for drinking & domestic purpose. 10 KLD of water is suggested to be utilized for dust suppression and 5 KLD for plantation purpose. Total area of Cluster taken for runoff: 24.64 Ha i.e. 246400 sqm Maximum annual rainfall : 1.46m Annual runoff co-efficient of the area: 0.35 Total runoff: 125910 cu.m 10% evaporation loss:12591 cu.m Total available water for storage: 113319Cu.m The quarry near NW boundary of the cluster-3 will be converted to rain water harvesting pond. Area of the pond=3060sqm. Depth=37m Capacity of WH=113,220cum
xix.	Copy of modified mining plan incorporating progressive mine closure plan.	The approved mining plan contains the Mine Closure Plan i.e. Chapter 10 as per Form O of OMMCR 2016. The measures to be adopted towards Progressive Mine Closure have been covered under this chapter. Hence, modification of mining plan is not required. Annexure-VII.
xx.	Occupational Health Study report, including identification of occupational health hazards for employees as well as neighboring habitation, remedial measures for it and periodical health checkups, at least once in six months by occupational health expert.	<ul style="list-style-type: none"> As per Mines Rules, 1955, medical examination of employees at the initial Stage and periodically, shall be done by a team of qualified medical officers provided by the project proponent. Regular medical checkup camps shall also be arranged for detection of occupational diseases and minor disease in the nearby rural population. Free checkup and medicine for treatment for their acute and chronic illness shall be provided.

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		All the mines workers will be provided with personal protective equipment's like nose mask, ear muff, helmet, goggles etc.
xxi.	Detailed surface runoff management plan.	Surface run off from lease area are channelized and pass through garland drain and enter to the settling tank. The silt and solids will be settled down in the tank and release clean water. Detailed in point no. 09
xxii.	Proceedings of public hearing to be submitted and actions proposed to be taken in physical terms for the environmental issues raised and also regarding construction of veterinary hospital, how it will be addressed.	Details of issues raised by public and action plan proposed given in Annexure VIII .
xxiii.	Shrubs uprooted in mining area can be transplanted in safety zone.	The mining activity will be carried out in the barren land. If any shrub or trees will present within the mineable area that will be uprooted and transplanted in the safety zone of the lease cluster.
xxiv.	One season data (Air and Water) not given in the EIA report. It should be incorporated in the EIA report.	The baseline data for three months is the mandatory requirement of Environment clearance. So we have collected the baseline data of Ambient air quality, Surface water and Ground water quality, Soil, Ecology & Biodiversity and Socio Economic study for one season (October – December 2019) post monsoon period. The baseline study has been already incorporated in the Final EIA report Chapter III. Attached for reference. Annexure IX .
xxv.	Standards for all the parameters of pollutants should be mentioned in the analysis result table.	Already given in the EIA report. Chapter 3, Table no. 3.14, Page 49,50 (Surface water analysis) Chapter 3, Table 3.16, Page 52.53&54 (Ground water analysis)
xxvi.	An undertaking that they will not touch the ground water table in next 10 years.	Copy of the undertaking will be attached as Annexure -X .
xxvii.	Mining activity will affect the bio-diversity of the area. How bio-diversity of the area will be managed during mining activity. Study to be carried out about damage to bio-diversity during mining activity.	The lease area does not include any forestland. There will be no cutting of trees during the mining activities. Green belt will be developed along the lease boundary which will act as a pollution barrier for biological environment. The mining quarries will be back filled and plantation will be made over backfilled area.
xxviii.	Details of the CSR activity.	Attached as Annexure VI .

Considering the information / documents furnished by the proponent and presentation made by the consultant **M/s Kalyani Laboratories (Pvt) Ltd. Pahala, Bhubaneswar** on behalf of the proponent, the SEAC approved the EIA/EMP report in cluster approach and recommended the following:

- a) The SEIAA, Odisha may consider to grant Environmental Clearance to individual lease (for **12 nos.** quarry leases) in cluster with specific conditions as per **Annexure-A** after receipt of individual applications from the lessee in cluster along with following documents.
 - i) Filled in form-I of individual lease
 - ii) Prefeasibility report of individual lease
 - iii) EMP of individual lease.
 - iv) Approved Mining Plan of individual lease
 - v) An Undertaking by the lessee not to use wagon drilling blasting to be submitted. Accordingly, specific condition to be stipulated in EC of individual lease.
 - vi) No storage and usage of blasting materials/explosives inside the lease area without license/permission/authorization from competent Authority as per Indian Explosives Rules, 1983 shall be ensured by the lessee. An undertaking to this effect shall be submitted by the lessee. Accordingly specific condition to be stipulated in EC of individual lease.
 - vii) An undertaking to obtain NOC from CGWA and permission from WR department, Govt. Of Odisha for use of ground water. Accordingly specific condition to be stipulated in EC of individual lease.


Secretary, SEAC


Chairman, SEAC

SPECIFIC CONDITIONS TO BE STIPULATED IN ENVIRONMENTAL CLEARANCE OF INDIVIDUAL MINING LEASE IN 03 CLUSTERS IN KHURDA DISTRICT.

1. This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court of Odisha, Hon'ble NGT and any other Court of Law, if any, as may be applicable to the quarry lease.
2. The Environmental Clearance is subject to obtaining requisite NBWL Clearance, if any, from the Standing Committee of National Board for Wildlife for Mining project.
3. The lessee shall implement the Pollution Control Measures and safeguards as proposed in the approved EIA/Environment Management Plan (EMP) in the cluster approach.
4. The lessee shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and records maintained; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smokers, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. Recommendations of National Institute for Labour for ensuring good occupational environment for mine workers would also be adopted; All the old age people of the surrounding villages may be provided medical facilities.
5. Transport of minerals shall be done either by dedicated road or it should be ensured that the trucks/dumpers carrying the mineral should not be allowed to pass through the villages. The lessee shall ensure that the road may not be damaged due to transportation of the mineral; and transport of minerals will be as per IRC Guidelines with respect to complying with traffic congestion and density.
6. The lessee shall obtain NOC from concerned Block Development Officer(BDO) for usage of haulage road/Panchayat road.
7. The lessee shall ensure safety of human life and livestock from accidents in case village / any habitation is very nearby the mining lease area.
8. The lessee shall ensure the safeguard and wellbeing of villagers and school, regular health monitoring of all residents in the area and the compliance Report shall be submitted to the regional office of the MOEF & CC and SEIAA, Odisha.
9. The lessee/concerned Tahasildar shall follow the detailed procedure for De-reservation of Gochar kissam land if involve in the lease area before going for mining activity.
10. Under no circumstances, the lessee shall use wagon drilling blasting during mining activity.
11. The lessee shall not store and use blasting materials/explosives inside the lease area without obtaining license/permission/authorization from competent Authority as per Indian Explosives Rules, 1983.
12. The lessee shall obtain NOC from CGWA and permission from WR department, Govt. Of Odisha for use of ground water.

13. The lessee shall complete the rejuvenation of ponds if any within lease area on priority basis after obtaining Environment Clearance.
14. No mining activities shall be allowed in forest area, if any, for which the Forest Clearance is not available.
15. No change in mining technology and scope of working should be made without prior approval of the SEIAA, Odisha.
16. No change in the calendar plan including excavation, quantum of mineral and waste should be made.
17. Mining shall be carried out as per the provisions outlined in the approved mining plan.
18. Protection of vegetation in the surrounding areas, and proper storage of solid waste, subgrade ore and their use have to be given priority during mining operation.
19. The illumination and sound at night at the lease area disturb the villages in respect of both human and animal population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations have a right for darkness and minimal noise levels at night. PPs must ensure that the biological clock of the villages is not disturbed; by orienting the floodlights/ masks away from the villagers and keeping the noise levels well within the prescribed limits for day light/night hours.
20. Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.
21. The soil to be generated during mining activity shall be stacked in the earmarked temporary soil stack and shall be utilized for the plantation purpose to be undertaken around the respective hill/patch and adjacent to haul roads of the same in lease area.
22. The abandoned mine pit shall be converted to rain water storage tank and the rain water stored in pit shall be utilized for plantation as well as dust suppression.
23. Total Plantation shall be carried out within 2-3 years of mining activity and maintenance shall be continued in remaining years. Trees present in mining area shall be uprooted & transplanted in safety zone.
24. Since the individual queries will get the Mine Lease(ML) for a long term period of 10 years, it will be prudent on the part of all the lease holders in a cluster i.e CLUSTER-1 (30 queries- KAIPADAR), in CLUSTER-2 (20 queries-TAPANGA) and CLUSTER-3 (12 queries-BEGUNIA) to join hand through a registered MOU on cluster to cluster basis for laying of permanent pipeline by the side (one side) of the main haulage road with half moon automatic sprinklers system for suppression of dust during movement of vehicles.
25. Similarly, all the lease holders in a cluster should join hand for grading of the main haulage road to maintain the gradient facilitating smooth movement of vehicles.
26. The same cluster approach to be taken for development of green belt all around the cluster area baring catch dams for flow of run off water during rainy season .These activities in sl no 24,25 and 26 etc. may be coordinated by the leadership in the cluster leases or RQP for the cluster with help from Revenue Inspector of the area for better results.