EXECUTIVE SUMMARY

OF

KUSUMI AND MOHUDA CLUSTER STONE QUARRY

Mine	Village	Khata No.	Plot No.	Production	Area (Ha)	File No.	Proposal No.
Kusumi Stone Mining	Kusumi & Mohuda	325	147/P	8015 cum/y	2.294	81911/280-MINB1/08-2022	SIA/OR/MIN/81911/2022
			147	10098 cum/y	2.472		
			166	6148 cum/y	1.199		
Mohuda Stone Quarry		669	1978 (P)	3015 cum/y	0.890		
			1978 (P)	10088 cum/y	4.284		
Total				**37364 cum/y**	**11.139**		

APPLICANT

Tehsildar Kukudakhandi, Odhisha
(on behalf of successful bidder)

P and M Solution
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Accreditation No. : NABET/EIA/1992/IA0053
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EXECUTIVE SUMMARY

INTRODUCTION

Kusumi and Mohuda cluster Stone Quarry is located at village- Kusumi and Mohuda Tehsil - Kukudakhandi, District- Ganjam, Odisha. The project is proposed by Tehsildar Kukudakhandi. (on behalf of successful bidder)

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 amendment, proposed project fall in category B1.

The Environmental Impact Assessment (EIA) study report is prepared for obtaining Environmental Clearance (EC) from SEAC for the proposed project.

Table -1, Detail of the lease areain cluster

Mine	Village	Khata No.	Plot No.	Area (Ha)
Kusumi Stone Mining	Kusumi & Mohuda	325	147/P	2.294
			147	2.472
			166	1.199
Mohuda Stone Quarry		669	1978 (P)	0.890
			1978 (P)	4.284
Total				**11.139**

PROJECT DESCRIPTION

Location of the Project- The Kusumi & Mohuda stone quarry lease located at Village- Kusumi & Mohuda, Tehsil- Kukudakhandi, District-Ganjam, Odisha. 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. The area falls in Survey of India topo sheet No. 74A/11, 74A/12, 74A/15 & 74A/16.

Area & production: Kusumi & Mohuda Stone Quarry (11.139 ha) for proposed production of 37364 cu.m/year (under cluster approach).

Estimated cost of the project is Rs.10.0 crore.

Connectivity:

The nearest railway station is Behrampur Railway station, approx. 6.0 km in NE direction. Biju

Patnaik International Airport is approx. 155 km towards NE direction. The area is well connected with SH-22 & NH 16 by an all other road.

Table 1: Salient Features of Project

Name of the applicant	TehsildarNuapada, Odisha
Address of Lessee	TehsildarNuapada, Odisha
Name of Mine	Kusumi & Mohuda Stone Quarry (11.139 ha) for proposed production of 37364 cu.m/year (under cluster approach).
Village	Kusumi and Mohuda
Tehsil	Kukudakhandi
District & State	Ganjam, Orrisa
Latitude	19°16'37.96"N to 19°17'5.62" N
Longitude	84°44'08.06" E to 84°44'36.64"E
Toposheet Number	74A/11, 74A/12,74A/15 & 74A/16
Area (ha)	11.139 ha (under cluster approach)

Table 2: Basic Requirements for the project

S. No.	Requirements	Quantity	Source
1	Land	11.139 ha	
2	Water	17.0 KLD	17.00 KLD, The water will be supplied from available sources from nearby village.
3	Manpower	91	From nearby villages

Table 3: Details ofMining

Method of mining	opencast semi-mechanized method
Bench Height and Width	Height – 5.0 m and Width –5.0 m
Ground Water Depth level	16m to 20m

MINING METHOD

Mining will be done by opencast semi-mechanized method with adoption of drilling & blasting. Mining will be done by deploying machines like jackhammer, drill compressor, rock breaker, excavator and tractors/trucks. Tipper trucks will be used for transporting stone and waste.

DESCRIPTION OF THE ENVIRONMENT

The baseline environment quality was carried out over a radial distance of 10 km around the mining lease area during summer season of 2022 covering the months of March, 2022 to May, 2022.

Meteorology.

The data collected from IMD includes wind speed, wind direction, temperature, relative humidity and rainfall for the year 2022. The monthly maximum, minimum and average values are collected for all the parameters except wind speed and direction.

Ambient AirQuality

To assess the ambient air quality level, 7monitoring stations were set up. Ambient air quality monitoring was carried out twice a week with a frequency of 24 hours for 12 weeks. The results when compared with National Ambient Air Quality Standards (NAAQS) of Central Pollution Control Board (CPCB) for "Industrial, Residential, Rural and Other Areas" show that the average values of ambient air quality parameters are well within the stipulated limit.

Ambient Air Quality Monitoring (AAQM) has been carried out at seven locations for pre-

The minimum and maximum level of PM2.5 recorded within the study area was in the range of 25.23µg/m^3 to43.51µg/m^3 with the 98th percentile ranging between 38.44µg/m^3 to 43.35µg/m^3.

The minimum and maximum level of PM10 recorded within the study area was in the range of 51.28 to 78.13µg/m3with the 98th percentile ranging between 72.38µg/m3 to 77.58µg/m3.The 24 hourly average values of PM_{10} 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., 100 µg/m^3 for PM_{10} in rural areas.

The minimum and maximum concentration of SO_2 recorded within the study area was **6.23**to **9.78**µg/m^3 with the 98th percentile ranging between **7.74**µg/m^3 to**9.77**µg/m^3.

The minimum and maximum level of NO2 recorded within the study area was in the range of was 8.03µg/m3 to 15.21µg/m3 with the 98th percentile ranging between 10.49µg/m3 to 15.21µg/m3.

T 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 37.6to 44.3dB (A) and the hourly daytime Leq (Ld) varies from 48.7to 59.2dB (A) within the study area.

Water Quality

To assess the physical and chemical properties of water in the region, ground water samples from six locations & surface water from three locations were collected from various water sources around the mine lease area. The pH of the ground water samples in the region varied from 7.15 to 7.48 & in Surface water from 7.57 to 7.62.

The results indicate groundwater is generally in conformity with the drinking water standards (IS: 10500) and surface water is in conformity with IS-2296 standards.

Soil Characteristics

The soil samples were collected in the month of May, 2022. Seven soil samples were collected in and around the mine lease area to assess the present soil quality of the region. The pH of the soil indicates that the soil is slightly alkaline in nature. Based on the results, it is evident that the soils are not contaminated by any polluting sources.

Biological Scenario

Buffer Zone:-

In buffer zone trees of Mahua, Mango and Ashok have been found on the edges of agricultural fields and along pathways.

ANTICIPATED ENVIRONMENTAL IMPACTS

Impact on air - Various mining activities i.e. loading, removal of overburden and movement of other transport vehicles used in mining will generate dust (SPM / RSPM). Proper water sprinkling shall be carried out at the mine site. The mineral will be transported by road through covered trucks/tippers to reduce the fugitive emission caused by the wind.

Impact on surface water bodies- The main drainage of the area is through seasonal water courses situated nearby lease area. There will be no change & no diversion will be required.

There is no toxic element in and around the applied area or in OB or ore. Hence contamination of any nature is not expected for surface water source.

Impact on ground water table-

The water will be clear devoid of and toxic contamination. The total solids may be on higher side due to suspended as well as dissolved solids.

No dewatering is proposed in view of working proposed much above groundwater table and hilly terrain of the ML area.

Noise Impact

The impact of noise on the villages is negligible as the villages are far located from the mine workings. Since there is no involvement of major machinery, the impact of noise levels will be very low.

Impact on Land Environment

Opencast mining activities may alter the landscape of the lease area and also cause some disturbance to the surface features of the surrounding areas.

Impacts on Biodiversity- There are no endangered species, wildlife sanctuary, wildlife corridors, faunal migratory routes or eco-sensitive area within the study area.

Impacts on agriculture- Agriculture activities practiced in nearby areas may get impacted because of dust generation but mitigative measures such as regular water sprinkling on active areas for example haul roads, dump sites shall be strictly followed so that impact is minimized.

4.6 Socio economic environment

The impact of mining activity in the area is positive on the socio-economic environment of the region.Mine will be providing employment to local population employing only local people whenever there is requirement of man power.

5.0 POST PROJECT MONITORING PROGRAM

S. No.	Description	Frequency of Monitoring
1	Ambient Air Quality	Quarterly/Half yearly
2	Meteorological data	Daily
3	Noise Level Monitoring	Half yearly

4	Water Level & Quality	Quarterly/Half yearly
5	Soil Quality	Yearly
6	Monitoring of Agricultural crops	Yearly

6.0 ADDITIONAL STUDIES

The Additional Studies conducted are Risk Assessment & Disaster Management / Hazard Management &Occupational Health & Safety.

7.0 PROJECT BENEFITS

The project will prove beneficial to the people as the company has already agreed to provide infrastructural facilities to the villagers like Educational facilities, Medical facilities, Transportation facilities, water supply etc. which will improve the socio-economic environment of the area.

ENVIRONMENT MANAGEMENT PLAN

Air Management

Following measures will be taken to control air pollution during mining operations:

- Adequate water spraying on the haul roads.
- Construction of proper haul roads in the lease area.
- Development of Green belt/plantation within mining lease along haul roads, mine office to arrest dust.
- Water spraying shall be done before the mineral is loaded in dumpers/trucks.

Water Management

No wastewater generation is envisaged during the mining process. The sanitary waste generated from the mine office will be treated in the septic tanks via soak pits.The probable cause of surface water pollution in the proposed mining area will be soil erosion andwash off from the stacked mineral in monsoon period. Adequate control measures will be adopted to check not only the wash-off from soil erosion but also uncontrolled flow of mine water.

Noise Management

- All precaution will be taken to reduce generation of noise and noise level survey will be done at regular intervals.
- Ear protectors or earplugs will be given to persons working in higher noise level area or on machines.

- Regular measurement of noise level is proposed near drilling equipment and other heavy earth moving machinery & steps will be taken to improve the maintenance of all equipments so that the noise level will remain within permissible limits.
- Plantation of trees on internal roads and barriers.

Land Reclamation

During the plan period the total mined out land of the cluster will be 1.907 Ha out of total cluster area of 11.139Ha. So, total land which will be degraded in the cluster area during plan period is 1.907 Ha. Since the individual quarries are at the development stage and the excavation of construction stone from the quarry areas have not been completely exhausted so proposal for reclamation of mined out land for the cluster would not be provided at this stage.

Since, the dump will be active during the plan period so no reclamation has been suggested.

However, plantation will be done in safety zone during plan period

Stage Wise Land Use Pattern

Sr. No.	**Details**	**Existing Land Use (ha)**	**Plan period (ha)**	**Existing Land Use (ha)**	**Plan period (ha)**	**Existing Land Use (ha)**	**Plan period (ha)**
		Mine 1		**Mine 2**		**Mine 3**	
1	Area excavated or in active mining	0.060	0.396	0.724	0.489	--	0.413
2	Waste/reject dump	--	0.200	--	0.100	--	0.075
3	Road metal stack	--	0.020	--	0.050		0.050
4	road	0.010	0.020	0.089	0.015	0.020	0.015
5	Plantation	--	0.075	--	0.175	--	0.100
6	Unused	2.224	1.583	1.659	1.643	1.179	0.546
TOTAL		**2.294**	**2.294**	**2.472**	**2.472**	**1.199**	**1.199**

Sr. No.	**Details**	**Existing Land Use (ha)**	**Plan period (ha)**	**Existing Land Use (ha)**	**Plan period (ha)**
		Mine 4		**Mine 5**	
1	Area excavated or in	0.292	0.165	0.447	0.444

	active mining				
2	Waste/reject dump	--	0.010	--	0.100
3	Road metal stack	--	0.005	--	0.050
4	road	0.023	0.009	0.020	--
5	Plantation	--	0.100	--	0.100
6	Unused	0.575	0.601	3.817	3.560
TOTAL		**0.890**	**0.890**	**4.284**	**4.284**

Budget for Environmental Protection

Particulars	**Capital Cost (Rs.)**	**Recurring Cost (Rs.) /annum**
Pollution Control		
Dust suppression by Water sprinkler	-	5,00,000 /-
Garland drain Settling tank 10m*02m*03m	5,00,000 /-	1,00,000/-
Pollution Monitoring	--	5,00,000/- (Air-2,50,000/- 6 monthly except monsoon) (Water – 1,75,000/- quarterly) (Soil & Noise – 75,000/- 6 monthly
Green belt & afforestation	7,00,000/-	1,00,000/-
Cost of PPE	90,000/-	50,000/-
Occupational Health	Fire fighting/ DMP --50,000	Fire fighting/DMP - -50,000/-
Construction and maintenance of Pakka road to mine of length approx.3087 m and width 3m.	30,00,000 /-	3,90,000 /-
Development of grazing land	50,000 /-	20,000 /-
Total	**44,00,000/-**	**17,10,000/-**

Note:

- ***1377 plants (one year)* 500 Rs (for each plants including hedges and fences) = 7,00,000***
- ***Approx 2.5 Lakhs/km for haul road construction (250000 *3.08 km haul road = 50000/-)***
- ***Salary of Labour for haul road maintenance5 labor*300=300 per day (Rs.300* 260 days = 78000/-)***

CONCLUSION

Based on the EIA study it is observed that there will be an increase in the dust pollution, which will be controlled by sprinkling of water and plantation. There will be an insignificant impact on ambient environment and ecology due to the mining activities moreover the mining operation will lead to direct and indirect employment generation in the area. Green belt development around the area will also be taken up as an effective pollution mitigates technique, as well as to control the pollutants released from the premises of the Mine. Monitoring program will be followed till the mining operations continue. Hence, it can be summarized that the development of the mine will have a positive impact on the socio-economic of the area and lead to sustainable development of the region.

The region is economically backward mostly dependent on seasonal farming. The per capita income of villages is much below the national average. It will increase the profitability of the company and will have positive impact in the socio-economic status of the people in the region & will increase opportunities for employment

The study area is still lacking in education, health, housing, water, electricity etc. It is expected that same will improve to a great extent due to proposed mining project and associated industrial and business activities. Proposed activities and expenses on Corporate Social Responsibility will be as per CER Mandate of the Government.

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