

Sand Mining Project Kanapala Samil Mahulpal Sand Quarry on Brahmani River,
Khata No.452, Plot No. 4265, 4266 & 4267 Village- Kanapala Samil Mahulpal, Tahasil-Bhuban,
District-Dhenkanal, State-Odisha; Production-25000 Cum/Year
Area: 9.967 Hectares or 24.63 Acres
Proponenet: Sri Ratikanta Rout

EXECUTIVE SUMMARY

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**“Sand Mining Project Kanapala Samil Mahulpal Sand
Quarry on Brahmani River,
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Samil Mahulpal, Tahasil-Bhuban,
District-Dhenkanal, State-Odisha; Production-25000
Cum/Year
Area: 9.967 Hectares or 24.63 Acres**

Submitted by

**Shri Ratikanta Rout At- Patala, Ps- Balaram Prasad,
District-Dhenkanal, State- Odisha.**

Prepared by



AEGIS ENVIRONMENT RESEARCH PVT. LTD

Suit No-B04, H-61, Sector-63, Noida-201301 (U.P.)

Contact: +91-9910047760, +91-9958486431



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1.0 INTRODUCTION OF PROJECT&PROPONENT

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for proposed projects. It aims predicting environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision makers. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects prediction & mitigation, early benefits in project planning, protection of environment, optimum utilization of resources, thus saving overall time & cost of the project.

The Sand Mining Project of Kanapala Samil Mahulpal Sand Quarry on Brahmani River, Khata No.452, Plot No. 4265, 4266 & 4267 Village- Kanapala Samil Mahulpal, Tahasil-Bhuban, District-Dhenkanal, State-Odisha; Production-25000 Cum/Year Area: 9.967 Hectares or 24.63 Acres. District Dhenkanal has been allotted to Sri Ratikanta Rout, the lessee through long term quarry lease basis for quarrying of sand (minor mineral) by the Tahasildar Bhuban on behalf of Government of Odisha in accordance with the provision of the Odisha Minor Mineral Concession Rules, 2016 through long term quarry lease for the purpose of excavation of sand **Form F vide letter no. 3710 dated 22.12.2020 attached as Annexure II**. The EIA-EMP report has been prepared as per the TOR granted under the EIA Notification of September 14th 2006. In order to assess the impact on environment due to proposed mining, it is necessary to ascertain the present status of environment prevailing at the project site and identification and assessment of impacts on the environment of the proposed operations.

As per NGT Order Dated 13-09-2018 and MOEF & CC OM No L-11011/175/2018-IA-II (M) Dated 12-12-2018 the project comes under B1 Category as the area is more than 5 Ha which is 9.967 Ha. Environmental Impact Assessment report is prepared to comply with the Terms of Reference (TOR) received from SEIAA, Odisha



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1.1 LOCATION

Name of the Project- Sand Mining Project: Kanapala Samil Mahulpal Sand Quarry, Khata No.452, Plot No. 4265, 4266 & 4267 Village- Kanapala Samil Mahulpal, Tahasil-Bhuban, District-Dhenkanal, State-Odisha; Production-25000 Cum/Year Area: 9.967 Hectares or 24.63 Acres.

Village	Tahasil	District	State	Area in Ha.
Kanapala Samil Mahulpal	Bhuban	Dhenkanal,	Odisha	9.967

Table1.1- Site & Surrounding

Nearest Settlements	Brahmapur Village is about 145 m in NW direction. Purastampur Village is about 330 m in W direction.
Nearest Road	NH 53 at a distance of 5.70 km in NW SH 20 at a distance of 18.60 km in NE Major District Road is Bentashalia at a distance of 1.90 km in NE
Nearest Airport	Bhubaneshwar Airport approx. at 67 km in S direction.
Nearest Railway Station	Jenapur Railway Station at distance of approx. 19 km in SE direction.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 Km Radius. Nearest Kapilasa Wildlife Sanctuary at distance of 18.0 km in SW.
Water body	Project lies on Brahmani River
Nearest School/ college	Mahulpal Nodal School 1.76 km NE
Reserve/ Protected Forest	Reserve/ Protected Forest, within 10 km buffer area
Nearest Hospital	CHC Mahulpal Medical Centre at 3.50 km in NE Primary Health Centre at Bhuban at approx. 5 km in NW
Temple	Maa ghata Tarini Temple 1.17 km W Maa Mangla Temple 1.5 km NW Sri Baladev Jew Temple 4.02 km SE

Table 1.2- Details of Project

On-line proposal No.	SIA/OR/MIN/62730/2021
Name of Proponent	Shri Ratikant Rout
Full correspondence address of	Shri Ratikanta Rout



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proponent	At- Patala, Ps- Balaram Prasad, District-Dhenkanal, State- Odisha.	
Name of Project	Sand Mining Project Kanapala Samil Mahulpal Sand Quarry on Brahmani River	
Name of River	Brahmani River	
Name of Village	Kanapala Samil Mahulpal	
Name of Tehsil/Anchal	Bhuban	
District	Dhenkanal	
Name of Minor Mineral	Sand	
Sanctioned Lease Area (in Ha.)	9.967 ha/24.63 Acres	
Category of the project	"B1"	
Total Geological Reserves	398710 Cum.	
Total Mineable Reserves	357840 Cum.	
Proposed Production/year	25000 Cum. Per Annum	
Sanctioned Period of Mine lease	5 years	
Method of Mining	Open Cast Manual Method	
No. of working days	250 days	
Working hours/day	8hrs	
No. of workers	42	
Type of Land	Government land	
Water Requirement	Purpose	Requirement (KLD)
	Drinking & Domestic	0.84
	Dust Suppression	12.0
	Green Belt Development	1.0
	Total	13.84
Any litigation pending against the project or land in any court	No	
Proposed Project cost (INR)	The total cost of project would be around Rs. 60,00,000/- (60 lakh).	
Proposed EMP budget (INR)	Recurring Cost- Rs.2,00,000/- Capital Cost –Rs.2,00,000/-	
Proposed CER (2% of Project Cost) (INR)	Rs. 1,20,000/-	
Length and breadth of Haul Road	Length: 1000 m, width: 6 m	
No. of Trees to be Planted	500 plants	

1.2 WATER DEMAND



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In the river bed mining projects there is as such no need of water to carry out operations, except for dust suppression, Plantation & drinking for the working people. The total water requirement will be around **13.84 KLD**. This water will be supplied from the nearby area through tankers.

Table 1.3- Water Demand

S. No.	Purpose	Manpower/Area	Water Demand KLD	Source
1.	Drinking & Domestic	Manpower (42) (42*20= 840 L/D)	0.84	Nearby Village
2.	Green Belt Development	500 trees*2L= 1000 L/D	1.0	Private Tanker
3.	Dust Suppression	Haul Road = 1000m length, *6m width= 6000 m2 *2L= 12000 L/D	12.0	Private Tanker
Total			13.84	

1.3 BASE LINE DATA

This section contains the description of baseline studies of the 10 km radius of the area surrounding Village- Kanapala Samil Mahulpal, Tahasil-Bhuban, District-Dhenkanal, State-Odisha. The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

Environmental data has been collected in relation to proposed mining for:-

- (a) Air
- (b) Noise
- (c) Water
- (d) Soil
- (e) Ecology and Biodiversity
- (f) Socio-economy

Table 1.4 Baseline Environmental Status

Attribute	Baseline status
Ambient Air Quality	Ambient Air Quality Monitoring (AAQM) has been carried out at eight locations during pre- monsoon season from March 2025 to May 2025. The minimum and maximum level of PM2.5 recorded within the study area was in the range of 25.12 µg/m ³ to



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Ambient air quality was monitored at 8 locations within a 5 km radius of	59.05µg/m ³ with the 98th percentile 39.90 µg/m ³ to 59.13 µg/m ³ at. The minimum and maximum level of PM10 recorded within the study area was in the range of 43.51µg/m ³ to 93.20 µg/m ³ with the 98th percentile 75.12 µg/m ³ to 92.92 µg/m ³ . The minimum and maximum concentration of SO ₂ recorded within the study area was in the range of 4.12 µg/m ³ to 15.5µg/m ³ with the 98th percentile 7.15µg/m ³ to 14.63µg/m ³ . The minimum and maximum level of NO ₂ recorded within the study area was in the range of 5.2 µg/m ³ to 18.9 µg/m ³ with the 98th percentile 12.02 µg/m ³ to 18.85 µg/m ³ . The results thus obtained indicate that the concentrations of PM10, PM2.5, SO ₂ and NO ₂ in the Ambient Air are well within the National Ambient Air Quality (NAAQ) standards for Industrial, Residential, Rural and other areas.
Noise Levels	Noise monitoring was carried out at six locations. The results of the monitoring program indicated that both the day time and night time levels of noise were well within the prescribed limits of NAAQS, at all the four locations monitored.
Water Quality	4 Groundwater samples and 2 surface water samples were analyzed and concluded that: The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500. From the Surface water analysis, it is evident that most of the parameters of the samples comply with 'Category 'B' standards of CPCB indicating their suitability for Drinking water source after conventional treatment and disinfection.
Soil Quality	Samples collected from identified locations indicate the soil is sandy loam type and the pH value ranging from 6.32 – 6.70, which shows that the soil is acidic in nature. Iron is found to be from 518 mg/kg to 563 mg/kg. The water holding capacity is found in between 40.87% to 44.15%.
Ecology and Biodiversity	There are no Ecologically Sensitive Areas present in the study area, but many reserved forests regions surround the project area. No forest land is also present within the mine area.
Socio-economy	The implementation of the Sand mining project on river Brahmani will throw opportunities to local people for both direct and indirect 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.

1.4 LAND ENVIRONMENT

No adverse impact is anticipated on land use of buffer zone due to present mining operations. As all the related activities are confined to the core zone.



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The area likely to be degraded due to quarrying, pitting & roads. The impact on the land form or physiography will be limited to the modification of the slope. The landscape and land use will undergo a radical change due to open cast mining. The impact during next five years is limited as benches will be formed. Besides these benches, roads will also modify the physiography. The impact on land use will also be limited.

Impact on Land use Pattern including change of River course:

- If mining is not carried out in systematic manner by leaving sufficient safety barriers from the bank than it may disturb the river flow/course.
- Stacking of uncoated material including mineral or spillage (if any) on the bank side of river will hinder the flow of water in monsoon season, raise water level upstream, which may lead to bank cutting or flouting.
- Deviation from planned mining procedures can lead to river channel shifting as well as degradation of surrounding land, causing loss of properties & degradation of land scape.

Mitigation measures:

- Mineral will be mined out in central portion of stream & sufficient safety barrier 15% of width will be left towards bank side, so that river flow/course will not get disturbed.
- Mining of mineral will be started towards rise at the centre & also laterally in 1m slice so that river course will not get affected. Unwanted material or spillage (if any) will not be stacked by the side of excavation voids created. This is to be done so, because it will otherwise hinder flow of water in monsoon period.
- Mining is to be done by leaving safety barrier on both sides & maximum barrier should be do concave side of river preferably the flow channel (excavation void created) should be kept straight so as to help avoid erosion as side cuttings, Upto next depth of 2.0 m from river bed level.

No waste water will be generated from the mining activities of minor minerals as the project. Only involves lifting of Sand from the river bed.

1.5 AIR ENVIRONMENT

Anticipated impacts and evaluation



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Information on air quality was studied and various modelling techniques predicted that the mining activity will not affect the air quality in a significant manner. In mining operations, loading, transportation and unloading operations may cause deterioration in air quality due to handling dry materials. In the present case, only wet materials will be handled, thus eliminating problems of fugitive dust. Also, the collection and lifting of minerals will be done manually without any blasting. Therefore the dust generated is insignificant as compared to mining process of other hard minerals like the process of drilling, blasting, mechanized loading etc.

Mitigation measures

- In control the emission regular preventive maintenance of equipment will be carried out on contractual basis.
- Proper mitigation measures like water sprinkling will be adopted to control dust emission.
- Plantation will be planted at place which authorized by Local Authority.
- It is being certified that all transportation vehicles will carry a valid PUC certified. The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads.
- There is no toxic element present in the mineral which may contaminate the soil.

1.6 WATER ENVIRONMENT

Impacts on hydrological Conditions:

- The study area is itself part of river course carries surface as well as ground water (under current). The flow of surface/ground water (sub surface flow is following the trend of topography).
- The area is part of dry river bed for more than nine months in a year except for the rainy season. The Sand mining is up to the depth of 2.0m will have in significant impact on water regime.

Impact on Water Quality:

- Mining causes lowering of riverbed level as well as riverbed water level resulting in lowering in ground table due to excessive extraction & drainage out of ground water from the adjacent areas, if general ground water table is higher than the river bed level. In case the general ground



water level is lower than riverbed water level, than it will have positive impact on ground water table will recharge vertically as well as laterally. In the former case may cause shortage of water for the vegetation & human settlement in the vicinity, but in later case it will help improve situations

- River is recharging the ground water, excessive mining will reduce the thickness of the natural filter material (sediments), infiltration through which the ground water recharged, so restriction in depth becomes necessity.

Mitigation Measures:

Mining in the area will be done above the water table as well as above river bed water level, therefore much impact on water regime is not anticipated.

1.7 NOISE ENVIRONMENT

The sand mining projects are mainly not noisy as these are mainly manual in nature. But in this case the methodology adopted for mining is opencast semi mechanized mining method which may generate noise.

Impact on environment

At mines, noise is created by movement of machinery & transportation vehicles, etc. The noise level in the working environment are compared with the standards prescribed by Occupational Safety and Health Administration (OSHA-USA) which has been adopted and enforced by the Govt. of India through model rules framed under Factories Act, 1980 and CPCB 2000 norms. The summary of the permissible exposures in cases of continuous noise as per above rules is given below:

Table 1.5 Noise impact

Total time of exposure per day in hour	Sound pressure dB(A)	Remarks
1	2	3
8.0	90	No exposure in excess of 115 dB(A) is permissible
6.0	92	--
4.0	95	For any period of exposure falling in between any figure and lower figure as indicated in
3.0	97	
2.0	100	



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1 ½	102	column (1), the permissible sound is to be determined by extrapolation or proportionate scale.
1	105	
¾	107	
½	110	
¼	115	

Noise at lower levels (sound pressure) is quite acceptable and does not have any bad effect on human beings, but when it is abnormally high- it incurs some maleficent effects.

Mitigation measures

The off-site receptors are not significantly affected as noise generated by mines is insignificant but for some disturbances due to vehicle movement. The following measures have been envisaged to reduce the impact from the transportation of minerals.

- Periodical monitoring of noise will be done.
- Transportation vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Noise generated by these Equipment shall be intermittent & does not cause much adverse impact.
- Proper maintenance of all equipment/machines will be carried out which help in reducing noise level during operations.
- In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones.

1.8 TRAFFIC ANALYSIS

The traffic analysis it can be revealed that the V/C ratio will change from 0.21 to 0.123 for Nilakanthapur Village Road with LOS remaining the same i.e, “A” that is Very good respectively, and the V/C ratio for MDR will change from 0.160 to 0.169 with LOS remaining the same i.e, “A” that is Very good so the additional load on the carrying capacity will be affected to a very minimum level.

1.8 ENVIRONMENTAL MANAGEMENT PLAN BUDGET

EMP Capital Cost is 2,00,000/- & EMP Recurring Cost is 2,00,000/-

Table 1.6 Budget allotted for Environmental Management Plan



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Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	Nil	0.50
2	Pollution Monitoring i) Air pollution ii) Water pollution iii) Soil Pollution iv) Noise Pollution	--	0.50
3	Plantation for 500 saplings @Rs.200 per sapling	1.0	0.50
4	Haul road Maintenance Cost	1.0	0.50
TOTAL		2.0	2.0

1.10 BENEFIT OF MINING

➤ **PHYSICAL BENEFITS**

The impact on the civic amenities will be substantial after the commencement of mining activities. The basic requirement of the community needs will be strengthened by extending health care, educational facilities developed in the township to the community, providing drinking water to the villages, building/strengthening of existing roads in the area. The proponent will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities. Medical facilities will be provided in the form of first-aid facility at the mine. These medical facilities will also be available to local people in the surrounding in case of emergencies.

➤ **SOCIAL BENEFITS**

- Generation of employment and improved standard of living;
- Increased revenue to the State by way of royalty, taxes and duties; and
- Superior communication and transport facilities etc.
- There will be significant change in the socio-economic scenario of the area.
- The proposed project will enhance the prospects of employment. Recruitment for the unskilled and semiskilled workers for the proposed project will be from the nearby villages.



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- The development of the basic amenities viz. roads, transportation, electricity, drinking water, proper sanitation, educational institutions, medical facilities, entertainment, etc. will be developed as far as possible.
- Overall, the proposed project will change living standards of the people and improve the socio-economic conditions of the area.

ENVIRONMENTAL BENEFITS

➤ Enhancement Of Green Cover

Plantation/afforestation will be done as per program 500 plants will be planted along the place which would be authorized by local authority within 5km from lease boundary along with provision for maintenance for 5 years. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people will also be involved. The management will provide free saplings of fruit and other trees, etc. to local during rain for plantation. This will increase the consciousness in workers and near-by villagers for greenery. Fruit trees can contribute towards their financial gains.

1.11 CORPORATE ENVIRONMENTAL RESPONSIBILITY

2 % of Project cost of the project cost will be allotted for the Corporate Environmental Responsibility as per OM dated 1st May 2018.

CER cost will be 2% of the total project cost. This amount will be used for social welfare. CER cost is Rs. 1, 20,000/-. For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority/people and the beneficiaries during public hearing. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CER programme.

1.12 CONCLUSIONS

- The mining operations will meet the compliance requirements of MoEF & CC;
- Community impacts will be beneficial, as the project will generate significant economic benefits for the region;
- Adoption of Best Available Technology and Best Management Practices with more environmentally friendly process



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- With the effective implementation of the Environment Management Plan (EMP) during the mining activities, the proposed project can proceed without any significant negative impact on environment.



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