

EXECUTIVE SUMMARY

FOR

ORDINARY SAND) FROM NITTURU SAND MINE(BLY OSB-7)
THUNGABHADRA RIVER BED AT NITTURU VILLAGE, SIRUGUPPA
TALUK, BALLARI DISTRICT, KARNATAKA AREA OF 15.86 HA,
PRODUCTION-105743 TPA
(CATEGORY- B1(as ML Area is<100 Ha)
PROPOSAL NO.- SIA/KA/MIN/64207/2021

PROJECT PROPONENT



**KARNATAKA STATE MINERALS CORPORATION
LIMITED
BALLARI, KARNATAKA**



DOC. No: MCPL/EMD/MIN/2020-21/03/02(DEIA) _____ October-December,2021



PREPARED BY

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EXECUTIVE SUMMARY

1.1 GENERAL

The chapter discusses about the summary of whole EIA/EMP report along with recommendation and conclusion. The proposed mining lease area falls in Survey of India Toposheet (OSM) No. 53 A/14. The lease area is located in Village- Nitturu, Tehsil- Siraguppa & District- Ballari, State- Karnataka.

Table 1.1 Details of the Project

S. No.	Particulars	Details		
A.	Nature and Size of the Project	Mining of Minor Minerals (Ordinary Sand) from the riverbed of River Thungabhadra by M/s Karnataka State Mineral Corporation Limited located in village Nitturu, District-Ballari, Karnataka over an area of 15.86 ha with Production Capacity of 105743 TPA.		
B.	Location			
Geographical Coordinates	Latitude and Longitude of	Pillar No.	Latitudes	Longitudes
		A	15°32'57.90" N	76°48'51.90" E
		B	15°32'55.20" N	76°48'58.30" E
		C	15°33'06.40" N	76°49'07.70" E
		D	15°33'13.70" N	76°49'20.20" E
		E	15°33'18.20" N	76°49'17.20" E
		F	15°33'12.40" N	76°49'06.10" E
		G	15°33'03.30" N	76°48'56.30" E
		H	15°33'09.20" N	76°49'05.40" E
		I	15°33'10.70" N	76°49'06.40" E
		J	15°33'11.90" N	76°49'08.40" E
		K	15°33'12.60" N	76°49'10.60" E
		L	15°33'11.60" N	76°49'11.20" E
		M	15°33'10.20" N	76°49'10.10" E
		N	15°33'09.30" N	76°49'09.10" E
O	15°33'08.40" N	76°49'06.10" E		
	Toposheet (OSM) No.	53 A/14		
C.	Lease Area Details			
	Lease Area	15.86 ha		
	Topography	Undulated (Riverbed)		
	Site Elevation Range	368m - 369m amsl		
<i>(Source: Mining Plan)</i>				

D.	Cost Details	
	Cost of the project	Rs. 100 Lakhs
	Cost for EMP	Rs. 7.69 Lakh (Capital Cost) Rs. 7.10 Lakh/yr (Recurring Cost)
	OH&S	Rs. 1.00 Lakh (Capital Cost) Rs 3.00 Lakhs/Yr (Recurring Cost)
E.	Environmental Settings of the area	
	Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/ Protected Forest etc.) within 10 Km radius	Nil
	Inter-state boundary within 5 Km radius	None
	Nearest Town/ Major City	Sirugappa ~11 Km, NE
	Nearest Railway Station	Kudatini Railway station approx 37.0 Km in SSW
	Nearest State Highway/ National Highway	SH-95 approx 45.0 km SSE direction.
	Nearest Airport	Ballari Airport 10 Km SSW- direction
	Nearest Post Office	Nathuwala Post office ~1.0 km, W (aerial distance)
	Nearest Police Station	Nada Kacheri Old Police Station ~6.20 kms in ESE direction.
	Medical Facilities	Hospital Nittur ~ 1.20 Km in E direction
	Education Facilities	KVM School Takkalakote ~ 6.21 Km, ESE direction. Govt. Primary School ~ 7.89 Km, SSW direction.
	Seismic Zone	Zone-III (As per 1893:2002)
	Water Body	Project Site lies on Thungabhadra Riverbed.

1.2 INTRODUCTION

As per MoEF, New Delhi Gazette dated 14th September 2006 and amended thereof, the proposed mining project is categorized as category 'B', The project involves extraction of Sand from River bed of Thungabhadra river of Village Nitturu, Tehsil & District-Ballari, State-Karnataka.

1.3 PROJECT DESCRIPTION

The proposed project is for mining of Ordinary Sand (Minor Mineral) by open manual method in riverbed over an area of 15.86 Ha. with proposed production capacity of 105743 TPA. Ultimate depth of a bench will be 1.0 m. Riverbed block will be further replenished during rainy season. Minerals will be transported by trucks. It is widely used in construction, buildings, bridges, roads and other infrastructure. It is free from clay and non-sticky in nature. Total water requirement for the project is 17.4 KLD. Total man power requirement for the project is 22

numbers. The site facilities like canteen, rest-shelter, first aid facility, water and electricity supply etc. will be provided as per requirement. There is no litigation pending against this project.

1.4 DESCRIPTION OF THE ENVIRONMENT

Environmental data has been collected in relation to proposed mining for Air, Noise, Water, Soil, Ecology and Biodiversity. The generation of primary data as well as collection of secondary data and information from the site and surroundings was carried out during post monsoon season i.e. **October 2021 to December 2021**.

The EIA study is being done for the Mine Lease (core zone) and area within 10 Km distance from mine lease boundary (buffer zone), both of which together comprise the study area.

Table 1-2: Baseline Status

Attribute	Baseline Status
<p>1. Ambient Air Quality</p>	<p>Ambient Air quality Monitoring was carried out in total 7 locations and the maximum value for PM₁₀ is observed as 79 µg/m³ at mine site and minimum value of 43 µg/m³.</p> <p>Ambient Air Quality Monitoring was carried out in total 7 locations and the maximum value for PM_{2.5} is observed as 46 µg/m³ at mine site and minimum value of 28 µg/m³ observed.</p> <p>Ambient Air Quality Monitoring was carried out in total 7 locations and the maximum value for SO₂ is observed as 15 µg/m³ and minimum value 5 µg/m³ is observed.</p> <p>Ambient Air Quality Monitoring was carried out in total 7 locations and the maximum value for NO₂ is observed as 26 µg/m³ at Doiwala and the minimum value of 20 µg/m³ is observed.</p>
<p>2. Noise Levels</p>	<p>Noise Monitoring was carried out in total 7 locations and the noise levels recorded during the day time were from 46.2 Leq dB to 52.4 Leq dB respectively and level of noise during night time were from 36.8 Leq dB to 40.9 Leq dB respectively.</p>
<p>3. Water Quality</p>	<p>Analyses of Ground water and Surface water were taken in the Post Monsoon Season October 2021 to December 2021.</p> <p>Ground Water-Ground water monitoring was carried out in total 6 locations.</p> <ul style="list-style-type: none"> • pH varies from to 7.28 to 7.64 • Total Hardness varies from 254 to 524 mg/L. • Total Dissolved Solids varies from 435 to 859 mg/L. • Fluoride varies from 0.58 to 0.85 mg/L • Chloride varies from 98 to 174 mg/L <p>Surface Water - Surface Monitoring was carried out in 4 locations.</p> <ul style="list-style-type: none"> • pH varies from to 7.28 to 7.64 • Total Hardness varies from 188 to 224 mg/L.

	<ul style="list-style-type: none"> • Total Dissolved Solids varies from 284 to 368 mg/L. • Fluoride varies from 0.67 to 0.84 mg/L • Chloride varies from 58 to 72 mg/L • COD varies from 26 to 48 mg/L • BOD varies from 8 to 14 mg/L
4. Soil Quality	<p>Soil Monitoring was carried out in total 7 locations.</p> <ul style="list-style-type: none"> • The data shows that value of pH ranges from 7.28-7.96. • Maximum conductivity of 492 µmhos/cm, minimum conductivity of 326 µmhos/cm. • Values of CEC ranges from 11.88 meq/100g as lowest and 15.34 meq/100g as maximum . • Magnesium values ranges from 3.15 meq/100g as lowest at and 3.83 meq/100g as highest. • The average concentration of Nitrogen, Phosphorus and Potassium in the soil samples varies from 12.93 to 18.50 mg/100gm, 0.57 to 0.93 mg/100gm and 8.92 to 10.48 mg/100gm

1.4.1 Socio Economic Environment

Socio-Economic Impact Assessment (SEIA) refers to systematic analysis of various social and economic characteristics of human being living in a given geographical area (study area/impact area). The prime objective of SEIA is to identify and evaluate potential socio-economic and cultural impacts of a proposed development project on the lives & conditions of people, their families and communities.

The demographic profile of the study area is given below:-

S. No.	Description	Number	Percentage to Respective Total
1	Total Population	138319	100
	Male	68840	49.8
	Female	69479	50.2
	Sex Ratio	1009	
2	Population (0-6 age group)	20404	100
	Male	10475	51.3
	Female	9929	48.7
	Sex Ratio	948	
3	Population- Scheduled Caste	28595	100

	Male	14104	49.3
	Female	14491	50.7
	Sex Ratio	1027	
4	Population- Scheduled Tribe	27182	100
	Male	13472	49.6
	Female	13710	50.4
	Sex Ratio	1018	
5	Total Literates	61148	100
	Male	36733	60.1
	Female	24415	39.9
	Gender Gap in Literates	20.2	
6	Overall Literacy Rate	51.9	
	Male	62.9	
	Female	41.0	
	Gender Gap in Literacy Rate	21.9	
7	Total Workers	71123	100
	Male	39157	55.1
	Female	31966	44.9
	Gender Gap in Work Participation	10.2	
8	Main Workers	62137	100
	Male	35665	57.4
	Female	26472	42.6
	Gender Gap in Work Participation	14.8	

9	Marginal Workers	8986	100
	Male	3491	38.8
	Female	5495	61.2
	Gender Gap in Work Participation	22.4	
10	Household Industrial Workers	489	100
	Male	325	66.5
	Female	164	33.5
11	Total Agricultural Workers	51407	100
	Male	27597	53.7
	Female	23810	46.3
12	Cultivators	19110	100
	Male	13034	68.2
	Female	6076	31.8
13	Agricultural Labour	32297	100
	Male	14563	45.1
	Female	17734	54.9
14	'Other Workers'	10240	100
	Male	7744	75.6
	Female	2496	24.4

1.4.2 Biological Environment

The State is endowed with diverse climate, topography and soils which has resulted in rich biodiversity. The diverse ecological niches support characteristic flora and fauna. As per the Champion & Seth Classification of Forest Types (1968), the forests in Karnataka belong to eight Forest Type Groups, i.e., Group-1 Tropical Wet Evergreen Forests, Group-2 Tropical Semi-

Evergreen Forests, Group-3 Tropical Moist Deciduous Forests, Group-5 Tropical Dry Deciduous Forests, Group-6 Tropical Thorn Forests, Group-8 Subtropical Broadleaved Hill Forests and Group-11 Montane Wet Temperate Forests, which are further sub-divided into 21 Forest Types. Study area fall in Tropical Dry Mixed Deciduous forest.

The states are falls under The Deccan Peninsula category as far as the Indian Biogeographical Zones (Rodger, Panwar, Mathur 2000) are concerned. Under the Biogeographical provinces, the study area falls under the category of 6 E Deccan Peninsula- Deccan South.

The core zone (at the project site) mainly Comprises of Govt. waste land and agriculture land. The core zone is dominated with species like *Acacia sp.*, *Albizia sp.*, *Azadirachta indica* (Turakabevu), *Prosopis juliflora* (Bellary Jaali), *Tamarindus indica* (Hunise), *Dalbergia sissoo* (Shimshape), *Lantana camara* (Lantaana), *Calotropis procera* (Bili Aekka), *Nerium indicum* (Oleande), *Mimosa hamata* (Sagari Mullu), *Datura metel* (Kari Ummatti), *Asparagus racemosus* (Halavu makkala taayi Beru) and *Parthenium hysterophorus* (Congress Grass) etc.

The main vegetation in buffer area (around the project site in 10 km radius) are *Albizia lebeck* (Baage), *Azadirachta indica* (Turakabevu), *Cassia fistula* (Kakke), *Acacia nilotica* (Babli), *Bauhinia purpurea* (Kanchuvaala), *Dalbergia sissoo* (Shimshape), *Eucalyptus globulus* (Blue gum), *Ficus sp.*, *Mangifera indica* (Maa), *Polyalthia longifolia* (Ubbina), *Prosopis juliflora* (Bellary Jaali), *Syzygium cumini* (Neril) and *Tamarindus indicus* (Hunise) etc.

Xanthium strumarium (Maruluummatti), *Datura metel* (Kari ummatti), *Calotropis sp.*, *Lantana sp.*, *Parthenium hysterophorus* (Congress Grass) and *Argemone mexicana* (Arasina ummatta) the most common plant species observed on the waste lands of study area.

The present project of sand mining in Nittru village is safe the project is not likely to cause any significant impact on the ecology of the area. To mitigate adverse impacts on biological environment, adequate preventive measures have been proposed to contain the various pollutants within permissible limits. Green belt development around the area and approach road would also be taken up as an effective pollution control technique, as well as to mitigate the adverse impact due to mining activity

1.5 ANTICIPATED ENVIRONMENT IMPACT AND MITIGATION MEASURES

1.5.1 AIR ENVIRONMENT

The air quality in the mining area depends upon the nature and concentration of emissions and meteorological conditions.

1.5.1.1 Anticipated Impact

- Mining Operation carried out by opencast manual & semi mechanized method generate dust particles due to various activities like Loading & Unloading of sand, and Transportation.
- The impact on ambient air quality in the area surrounding the mining area depends upon the pollutant emission rate and prevailing meteorological conditions. As it is an open cast semi mechanized mine, particulate Matter (Dust) of various sizes is the only pollutant of any significance.

1.5.1.2 Mitigation measures

- The speed of trucks on haul road will be controlled as increased speed increases dust emissions. Overloading of transport vehicles will be avoided.
- Transportation of minerals will be done by covered vehicles.
- Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
- Masks will be provided to workers.
- To control the emissions regular preventive maintenance of equipment will be carried out on contractual basis.
- Green belt of adequate width will be developed.

1.5.2 NOISE ENVIRONMENT

The area in general represents calm surroundings. There is no heavy traffic, industry or noisy habitation in the area except the existing mine. As the project is proposed for open cast manual mining method there will be no blasting or drilling activities.

1.5.2.1 Anticipated Impact

- The source of Noise pollution will be the vehicular movements.
- Noise generated by manual extraction of river bed material, using shovels, crowbars etc., will be negligible.

1.5.2.2 Mitigation Measures

- Proper maintenance of all transportation vehicles will be carried out which help in reducing noise during operations. No other equipment except the transportation vehicles will be allowed.
- Noise generated by hand equipment will be negligible and will not cause detectable adverse impact.
- Awareness will be imparted to the workers about the permissible noise levels and maximum exposure to those levels.

1.5.3 WATER ENVIRONMENT

The impact of mining project on groundwater hydrology and surface water regime are site specific and depends upon the characteristics of the mineral, hydrogeology and requirement of groundwater for other uses.

1.5.3.1 Anticipated Impacts

- The Mining in the riverbed area may cause the groundwater contamination due to the intersection of the water table.
- Waste water disposed from the mining activity may contaminate the surface water.

- River recharges the ground water; excessive mining may be reduce the thickness of natural filter materials (Sediments), through which the ground water is recharged.

1.5.3.2 Mitigation Measures

- Mining will be done above the water table as well as river bed water level therefore much impact on water regime is not accepted.
- Proper analysis/Monitoring will be done to check the ground water

1.5.4 LAND ENVIRONMENT

Impact assessment study on land environment can be done by considering land use pattern/land cover, topography, drainage pattern and geological features of the mine site as well as the study area.

1.5.4.1 Anticipated Impact

- Mining activity will impact river bed topography by formation of excavation voids.
- River bed mining may bring in some change in topography at the nearby area of the mine lease
- Stacks of solid waste generated from mining activity may hinder the flow of water in monsoon season.

1.5.4.2 Mitigation Measures

Adopting suitable, site specific mitigation measures can reduce the degree of impact of mining on land. Some of the land-related mitigation measures are as follows:-

- Excavated pits will get replenished annually in monsoon itself & will be restored to original
- Mining work will be executed only by manual open cast method and the depth of pits will be restricted up to 1.00 meter or the river water level whichever is less.
- Mineral will be mined after leaving the 3m width as a safety zone on both sides of the riverbed.

1.5.5 SOCIO ECONOMIC

1.5.5.1 Anticipated Impact

- Impact on the Demographic Composition
- Impact on Employment Opportunities

1.5.6 Solid Waste

1.5.6.1 Anticipated Impact

- As there is practically no soil cover observed in the river bed, this RBM project does not involve any waste generation. Thus, no waste dump sites are needed for the project. However, there will be 22 workers on site.
- No municipal waste other than domestic sewage shall be generated.

1.5.6.2 Mitigation Measures

- Only clayey soil generated during mining process which will be used for the plantation.
- Domestic sewage will be disposed off into septic tanks followed by soak pits

1.5.7 TRAFFIC ENVIRONMENT

1.5.7.1 Anticipated Impact

- The increase in traffic density will lead to the air pollution and it cause the effect on human health like damage to lung tissue, cancer, asthma etc.
- The movement of vehicles cause the noise pollution

1.5.7.2 Mitigation Measures

- Vehicles with PUC certificate will be hired.
- Regular maintenance of vehicles will be compelled to ensure smooth running of vehicles.
- Regular health checkups camps will be organised for the safety purpose of the workers.
- Unnecessary blowing of horn will be avoided.

1.5.7.3 Analysis of alternatives

No alternative site had been considered since proposed Capacity Enhancement is in existing sand mine and hence it is site specific.

1.6 ENVIRONMENT MONITORING PROGRAMME

KSMCL has formulated well laid-out Environmental Policy, wherein preservation of environment has been accorded a most strategic and prime position. The various protocol procedures in connection with communication channels upwards and downwards, for dealing with violations or departures in environmental standards involvement of Board of Directors as well as shareholders about such incidences, etc, have been described in detail in chapter VI.

Regular monitoring of environmental parameters of immense importance to assess the status of environment during project operation. With the knowledge of baseline conditions, the monitoring programme will serve as an indicator for any deterioration in environmental conditions due to operations of the project, which will enable to take suitable mitigation steps in time to safeguard the environment.

1.7 ADDITIONAL STUDIES

The possible risks in the case of river bed mining project are bank erosions, floods, accidents due to the transport etc. At present the mining is proposed in a mild sloping forest land in river beds. Pits will be created of limited depth 1.0 m from first to fifth year or river water levels whichever less, thus the chance of failure of pit slope not seems to be appeared,

1.8 PROJECT BENEFIT

The proposed project brings overall improvement in the locality, neighbourhood and the state by bringing employment generation at local level and revenue to state government. Hence it will be helpful for the economic growth and support to enhance quality of life through employment

1.9 ENVIRONMENTAL COST BENEFIT ANALYSIS

It is considered desirable that the mining project may be implemented. Project cost for the proposed Mining project having area of 15.86 Ha. falling in Village-Nitturu, District- Ballari, Karnataka is Rs. 1 Crore.

1.10 ENVIRONMENTAL MANAGEMENT PLAN

As per Above discussion there is no major impact on the environment due to mining except fugitive emission in the form of dust generated during handling of mineral. The adequate

preventive measures will be adopted to contain the various pollutants within permissible limits. Plantation development will be carried out along the approach roads, around Govt. buildings etc. It will prove an effective pollution mitigate technique, and help avoid soil erosion during monsoon season. Employment opportunities will be provided to the locals only as providing extraction of minerals from the mine site is the only prevailing occupation for them for their livelihood. A budget of Rs. 7.69 Lakhs (Capital Cost) & Rs. 7.10 Lakh/yr (Recurring Cost) under EMP head are incurred by Project Proponent.

1.11 CONCLUSION

The proposed project will provide the employment to local people in different activities such as mining, transportation and plantation activities. The project activity will not have any major impact on the environment. At post mining stage of proposed project, the existing land use will remain same i.e. riverbed, and it will get replenished yearly during monsoon season. Also the extracted sand will be used in construction activities like building, infrastructure facilities. The Corporate Social Responsibility initiatives will have a positive impact on socio economic environment of the region.