EXECUTIVE SUMMARY

FOR

(ORDINARY SAND) FROM MANNUR SUGURS SAND MINE(BLY OSB-8) THUNGABHADRA RIVER BED AT MANNUR SUGUR VILLAGE, SIRUGUPPA TALUK, BALLARI DISTRICT, KARNATAKA AREA OF 20.23 HA, PRODUCTION-147113 TPA (CATEGORY- B1(as ML Area is<100 Ha) PROPOSAL NO.- SIA/KA/MIN/64223/2021

PROJECT PROPONENT

KARNATAKA STATE MINERALS CORPORATION LIMITED BALLARI, KARNATAKA

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

PREPARED BY

MANTEC CONSULTANTS PVT. LTD.

(QCI Accredited EIA Consultant at S.No. 166 as per List of Accredited Consultant Organizations/Rev. 19, February 14, 2022)

(NABET Accredited EIA consultant, MoEF&CC and NABL approved Laboratory)

Environment Division, D-36, Sector-6, Noida-201 301, U. P., Ph. 0120-4215000, 0120-4215807 Fax. 0120-4215809,

E-mail: environment@mantecconsultants.com

http://www.mantecconsultants.com

EXECUTIVE SUMMARY

1.1 GENERAL

The chapter discuses 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. **57 A/10, 57 A/11, 57 a/14 & 57 A/15**. The lease area is located in Village- Mannur Sugur, Tehsil- Siraguppa & District- Ballari, State-Karnataka.

Table 1-1 Details of the Project

<table>
<tr><th>S. No.</th><th>Particulars</th><th>Details</th></tr>
<tr><td>A.</td><td>Nature and Size of the Project</td><td>Mining of Minor Minerals (Sand) from the riverbed of River Thungabhadra by M/s Karnataka State Mineral Corporation Limited located in village- Mannur Sugur, District-Ballari, Karnataka over an area of 20.23 ha with Production Capacity of 147113 TPA.</td></tr>
<tr><td>B.</td><td colspan="2">Location</td></tr>
<tr><td>Geographical Coordinates</td><td>Latitude and Longitude of</td><td>
<table>
<tr><th>Pillar No.</th><th>Latitudes</th><th>Longitudes</th></tr>
<tr><td>A</td><td>15°29'25.4" N</td><td>76°44'29.6"E</td></tr>
<tr><td>B</td><td>15°29'17.9" N</td><td>76°44'28.4" E</td></tr>
<tr><td>C</td><td>15°29'21.7" N</td><td>76°44'00.60" E</td></tr>
<tr><td>D</td><td>15°29'29.8" N</td><td>76°44'01.9" E</td></tr>
</table>
</td></tr>
<tr><td></td><td>Toposheet (OSM) No.</td><td>57 A/10, 57 A/11, 57 a/14 & 57 A/15</td></tr>
<tr><td>C.</td><td colspan="2">Lease Area Details</td></tr>
<tr><td></td><td>Lease Area</td><td>20.23 ha</td></tr>
<tr><td></td><td>Topography</td><td>Undulated (Riverbed)</td></tr>
<tr><td></td><td>Site Elevation Range</td><td>368m - 369m amsl
(Source: Mining Plan)</td></tr>
<tr><td>D.</td><td>Cost Details</td><td></td></tr>
<tr><td></td><td>Cost of the project</td><td>Rs. 140 Lakhs</td></tr>
<tr><td></td><td>Cost for EMP</td><td>Rs. 9.82 Lakh (Capital Cost)
Rs. 5.46 Lakh/yr (Recurring Cost)</td></tr>
<tr><td></td><td>OH&S</td><td>Rs. 1.00 Lakh (Capital Cost)
Rs 3.00 Lakhs/Yr (Recurring Cost)</td></tr>
<tr><td>E.</td><td colspan="2">Environmental Settings of the area</td></tr>
<tr><td></td><td>Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/ Protected Forest etc.) within 10 Km radius</td><td>Nil</td></tr>
<tr><td></td><td>Inter-state boundary within 5 Km radius</td><td>None</td></tr>
</table>

	Nearest Town/ Major City	Tekkalkote Town- 15.2 km in ENE direction. Mannuru Suguru Village- 0.45 km in SW direction.
	Nearest Railway Station	Daroji Railway station~ 29.30 km, SSW direction.
	Nearest State Highway/ National Highway	SH-49 ~1 km, E direction.
	Nearest Airport	Jindal Vijayanagar Airport 36.30 Km SSW-direction
	Nearest Post Office	Primary Health Care Unit, Sirigeri~ 11.7 Km in ENE direction
	Nearest Police Station	Sugnana Vidya Mandir Primary School Mannur ~ 2.2 Km, WSW direction.
	Medical Facilities	Zone-III (As per 1893:2002)
	Education Facilities	Project site lies on Thungabhadra Riverbed
	Seismic Zone	Tekkalkote Town- 15.2 km in ENE direction. Mannuru Suguru Village- 0.45 km in SW direction.
	Water Body	Daroji Railway station~ 29.30 km, SSW direction.

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- Mannur Sugur, Tehsil & District-Ballari, State-Karnatka.

1.3 PROJECT DESCRIPTION

The proposed project is for mining of Orinary Sand (Minor Mineral) by open manual method in riverbed over an area of 20.23 Ha. with proposed production capacity of 147113 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 21.75 KLD. Total man power requirement for the project is 24 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
1. Ambient Air Quality	Ambient Air Quality Monitoring reveals that the minimum and maximum concentrations of PM_{10} were found to be 41 to 79 Minimum and maximum concentrations of $PM_{2.5}$ were found to be 24.0 µg/m³ and 46.0 µg/m³ respectively. The minimum and maximum concentrations of NO_2 were found to be 18.0 µg/m³ and 28.0 µg/m³ respectively. The prescribed CPCB limit of SO_2 and NO_2 is 80 µg/m³ for residential and rural areas has never surpassed at any monitoring station. The minimum & maximum concentrations of SO_2 for all the 8 AAQM stations were found to 5.0 µg/m³ and 17.0 µg/m³ respectively. From the above study and discussions, it can be concluded that air quality of the area is good as the levels are well within the prescribed limits as prescribed by CPCB.
2. Noise Levels	Noise Monitoring was carried out in total 7 locations and the noise levels recorded during the day time were from 48.7 Leq dB to 54.8 Leq dB respectively and level of noise during night time were from 36.2 Leq dB to 44.7 Leq dB respectively.
3. Water Quality	Analyses of Ground water and Surface water were taken in the Post Monsoon Season October 2021 to December 2021. **Ground Water-**Ground water monitoring was carried out in total 6 locations. • pH varies from to 7.18 to 7.62 • Total Hardness varies from 244 to 432 mg/L. • Total Dissolved Solids varies from 418 to 730 mg/L. • Fluoride varies from 0.60 to 0.80 mg/L • Chloride varies from 82 to 152 mg /L **Surface Water -** Surface Monitoring was carried out in 4 locations. • pH varies from to 7.26 to 7.63 • Total Hardness varies from 192 to 216 mg/L. • Total Dissolved Solids varies from 267 to 341 mg/L. • Fluoride varies from 0.64 to 0.79 mg/L • Chloride varies from 58 to 66 mg/L • COD varies from 30 to 46 mg/L • BOD varies from 8 to 12 mg/L
4. Soil Quality	Soil Monitoring was carried out in total 7 locations. • The data shows that value of pH ranges from 7.25-7.94. • Maximum conductivity of 471 µmhos/cm, minimum conductivity of 326 µmhos/cm. • Values of CEC ranges from 9.48 meq/100g as lowest and 14.92 meq/100gas maximum . • Magnesium values ranges from 3.37 meq/100g as lowest at

	and 3.92 meq/100g as highest. • The average concentration of Nitrogen, Phosphorus and Potassium in the soil samples varies from 12.93 to 17.84 mg/100gm, 0.57 to 0.93 mg/100gm and 8.47 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**	**116619**	**100**
	Male	58024	49.8
	Female	58595	50.2
	Sex Ratio	1010	
2	**Population (0-6 age group)**	**16607**	**100**
	Male	8485	51.1
	Female	8122	48.9
	Sex Ratio	957	
3	**Population- Scheduled Caste**	**27066**	**100**
	Male	13346	49.3
	Female	13720	50.7
	Sex Ratio	1028	
4	**Population- Scheduled Tribe**	**13851**	**100**
	Male	6855	49.5
	Female	6996	50.5

	Sex Ratio	1021	
5	**Total Literates**	**56227**	**100**
	Male	33273	59.2
	Female	22954	40.8
	Gender Gap in Literates	18.4	
6	**Overall Literacy Rate**	**56.2**	
	Male	67.2	
	Female	45.5	
	Gender Gap in Literacy Rate	21.7	
7	**Total Workers**	**60111**	**100**
	Male	33415	55.6
	Female	26696	44.4
	Gender Gap in Work Participation	11.2	
8	**Main Workers**	**51991**	**100**
	Male	30307	58.3
	Female	21684	41.7
	Gender Gap in Work Participation	16.6	
9	**Marginal Workers**	**8120**	**100**
	Male	3108	38.3
	Female	5012	61.7
	Gender Gap in Work Participation	23.4	
10	**Household Industrial Workers**	**467**	**100**
	Male	337	72.2

	Female	130	27.8
11	**Total Agricultural Workers**	**45041**	**100**
	Male	25190	55.9
	Female	19851	44.1
12	**Cultivators**	**19095**	**100**
	Male	13662	71.5
	Female	5433	28.5
13	**Agricultural Labour**	**25946**	**100**
	Male	11528	44.4
	Female	14418	55.6
14	**'Other Workers'**	**6483**	**100**
	Male	4780	73.7
	Female	1703	26.3

1.4.2 Biological Environment

It is observed that the **BLY-OSB -8** Mannur sugar, River sand mine study area is dominated by agriculture fields. However, the mine lease area is Govt. waste land which is dominated by shrubby species (*Agave* sp.,*Acacia sp*., *Albizia sp.,Calotropis procera,Mimosa hamata,Lantana camara and Prosopis sp.*etc. The species observed in the study area are generally found in abundance.

Since the core area comprises mainly waste land and is having predominantly shrubby vegetation, it does not support higher faunal species. No Schedule-I faunal species as per the Indian Wildlife (Protection) Act 1972 hasbeen reported from the study area.

Mining which leads to the removal of channel substrate, re-suspension of streambed sediment and stockpiling on the streambed, will have ecological impacts. These impacts may have an effect on the direct loss of stream reserve habitat, disturbances of species attached to streambed deposits, reduced light penetration, reduced primary production, and reduced feeding opportunities. Sand mining generates additional traffic which also impacts the environment.

The proposed project of river bed sand mining shall be carried out on the riverbed of Tungabhadra River. The project site area is waste land, devoid of vegetation except a few thorny bushes on the banks of the river.The project shall also not lead to any change in landuse and will

be replenished every year after successive rains. The proposed mining activity, which although is an economically gainful activity, also constitutes river training work. It allows for necessary dredging activity which may otherwise lead to flooding of the surrounding area.

There shall be negligible dust emissions during loading of the truck or effluents from the project site. Mining activities will not disturb the existing aquatic ecology as there is no effluent discharge proposed from the River Sand quarry and mining will be done during dry non-monsoon season.

MITIGATION MEASURES

As the proposed mining will be carried out in a scientific manner as per Mining Plan, not much significant impact is anticipated.However, following mitigation measures will be implemented to further minimize it:

i) Although, the project does not involve any tree cutting, plantation activities shall be undertaken toimprove the vegetation cover of the area. Green belt development in the project area and approach road would be taken up as an effective pollution control technique as well as to mitigate the adverse impact due to mining activity.

ii) To avoid dust emissions, the mined materials will becovered with tarpaulin during transportation. Water sprinkling will be done on the haul road to control fugitive dust emission.

iii) Periodic maintenance of haul road and mineral transport road will be done.

iv) Speed of the truck will be limited to avoid spillover of sand. Regular maintenance of trucks will be done to minimize exhaust emission. The trucks having PUC will be hired for transportation of sand.

v) Drivers will be trained guided not to blow un-necessary horn at the project site.

The workers shall be directed to not venture out of the leased area for collecting fuel wood, or hunting. They shall also be trained not to harm any wildlife. No work shall be carried out after sunset.

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.

1.5.2 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.

1.5.3 1.5.1.2Mitigation 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.

1.6 1.5.2NOISE ENVIRONMENT

The area is 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.

1.6.1 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.

1.6.2 1.5.2.2Mitigation 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.

1.7 1.5.3WATER 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.

1.7.1 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.

1.7.2 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

1.8 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.

1.8.1 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.

1.8.2 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.

1.9 SOCIO ECONOMIC

1.9.1 Anticipated Impact

- Impact on the Demographic Composition
- Impact on Employment Opportunities

1.10 Solid Waste

1.10.1 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.

1.10.2 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

1.11 TRAFFIC ENVIRONMENT

1.11.1 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

1.11.2 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.

1.12 Analysis of alternatives

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

1.13 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.

1.14 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,

1.15 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

1.16 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 20.23 Ha. falling in Village-Mannur Sugur , District-Ballari, Karnataka is Rs. 1.40 Crore.

1.17 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. 9.82 Lakhs (Capital Cost) & Rs. 5.46 Lakh/yr (Recurring Cost) under EMP head are incurred by Project Proponent.

1.18 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

.

1.18.1