

EXECUTIVE SUMMARY

FOR
BHARDWARI, GOL, POKHRI SOAPSTONE MINE
AT
VILLAGE-BHARDWARI, GOL, POKHRI,
DISTRICT- PITHORAGARH, UTTRAKHAND

Area: 11.160 Ha

Production: 21,597 TPA

PROJECT PROPONENT :

M/s K.S. Minerals
Village- Goraporao, Bareilly Road
Haldwani,
District- Nainital, Uttarakhand.

Environment Consultant :



COGNIZANCE RESEARCH INDIA PVT LTD

(Accredited by QCI/NABET)

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EXECUTIVE SUMMARY

INTRODUCTION

The project has been proposed by M/s K.S. Minerals Proposed project has been allotted to the proponent by District Task Force Auncholi, Pithoragarh, State- Uttarakhand for Soapstone deposits having an area of 11.160 hectare (Production 21,597 TPA of soapstone). State Govt. has given its letter of Intent vide letter no. Patrank:612/G.Ta.Fo.Pitho./ Bhu/Niri/2017-18 dated: 09/03/2018.

Proposed project come under B1 category As per the Hon'ble NGT in O.A. No. 173/2016 & 186/2016 in the matter titled "Shri Sudarsan Das V/s State of west Bengal & Ors" and " Shri Satendra Pandey V/s MoEF&CC and Anr." Respectively MoEF&CC vide letter No. L-11011/175/2018-IA-II (M) of dated 12-12-2018.

PROJECT DESCRIPTION

Location: The mining lease area is in village Bhardwari, Gol, Pokhri, Gangolihat, District-Pithoragarh (Uttarakhand). The mining lease area falls in Survey of India Toposheet No. 53 O/13 & 53 O/14

Toposheet Details

Latitude : 29 45 31.58- 29 45 38.83 N

Longitude: : 79 56 47.70 -79 56 04.85 E

Area & production: The lease area is 11.160 hectare, with Production 21,597 TPA of soapstone.

Connectivity:

The nearest railway station is Kathgodam railway station which is at a distance of about 66 km in SW direction. The Nearest airport is Naini Saini Airport which is around 34.5 km from the mine. The area is well connected with SH-37 is approx. 16 km towards West Direction.

Salient Features of Project

Name of the Applicant	M/s K.S. Minerals
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Address of Lessee	Village- Goraporao, Bareilly Road, Haldwani, District- Nainital, Uttrakhand.
Name of Mine	Bhardwari, Gol, Pokhri Soapstone Mining Project
Village	Bhardwari, Gol, Pokhri,
Tehsil	Gangolihat
District & State	Pithoragarh, Uttrakhand
Latitude	29 45 31.58- 29 45 38.83 N
Longitude	79 56 47.70 -79 56 04.85 E
Toposheet Number	53 O/13 & 53 O/14
Mineral	Soapstone
Area (ha)	11.160 Ha.
Water Bodies Protected Forest/ Reserve Forest	There is a Sarju River Approx. 8.0 KM SW Direction. There is a Kulur Nadi Approx. 4.0 KM East Direction. There is a Maheswari Nadi Approx. 5.0 KM NE Direction. Basnuking RF About 6 km NW Chaukori RF About 8 km NE Lamkeshwar RF About 8 Km SE Jali RF About 7 Km East Bankot RF About 8 km West

Basic Requirements for the Project

S. No.	Requirements	Quantity	Source
1	Land	11.160 Ha.	New Lease
2	Water	20.4 KLD	Ground water from Ground water source within the ML area and mine
3	Manpower	73	From nearby villages

Details of Mining

Method of mining	Opencast other than fully mechanized mining
Bench Height and Width	Height:3m Width:4 m
Overall pit slope of dump	70 -75 maximum
Life of the Mine	5 Years

Drilling : Soapstone is soft mineral; therefore no drilling & blasting will be required.

Mineral Beneficiation

No processing of mineral will be done in the mine. Only simple sizing and sorting will be done manually.

Land Use Pattern

Sl. No	Description	Existing Land (ha.)	Plan Period (5 years) (ha.)	Conceptual Plan (ha.)
1	Mining pits	0.10	2.862	5.112
2	Waste dumps	Nil	0.497	Nil
3	Backfilled pit	0.10	Nil	Nil
4	Soil stack	Nil	0.104	Nil
5	Foot track	0.014	0.038	Nil
6	Retaining wall	Nil	0.080	0.124
7	Balance undisturbed agricultural land	10.946	7.579	5.924
	TOTAL :	11.160	11.160	11.160

DESCRIPTION OF THE ENVIRONMENT

The baseline environment study was carried out over an area with radial distance of 10 km around the mining lease area during pre -monsoon season of **March - May 2019**

To assess the ambient air quality level, 6 monitoring 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.

The minimum and maximum level of PM_{2.5} recorded within the study area was in the range of 25.6 µg/m³ to 51.2 µg/m³. The minimum and maximum level of PM₁₀ recorded within the study area was in the range of 52.9 to 89.6 µg/m³. The minimum and maximum concentration of SO₂ recorded within the study area was 4.3 µg/m³ to 6.8 µg/m³

The minimum and maximum level of NO₂ recorded within the study area was in the range of was 10.2 µg/m³ to 28.9 µg/m³.

S.No.	Expected Impact	Impact zones	Management Plan
1	Emission of Dust due to mining operation	Nearby Village Bhardwari, Gol, Pokhri & Workers inside the mine	<ol style="list-style-type: none"> 1. Regular Water Sprinkling will be done. 2. Ambient Air Quality Monitoring will be conducted on regularly basis to assess the quality of ambient air 3. Use of Personal Protection Equipments (PPE) like dust masks, ear plugs etc. by the mine workers

Noise Levels

The baseline noise levels have been monitored at 5 locations within the study zone, using a sound level meter and noise level measurement locations were identified for assessment of Noise Pollution. 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 42.1 to 47.3 dB (A) and the hourly daytime Leq (Ld) varies from 52.3 to 56.4 dB (A) within the study area.

S.No.	Expected Impact	Impact zones	Management Plan
1	Emission of Noise due to Machinery Movement & Mining Operation	Mine Site and Nearby Village Bhardwari, Gol, Pokhri	<ol style="list-style-type: none"> 1. Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce the generation of noise 2. Adequate Silencer will be provided to all diesel engines. 3. Plantation along the sides of approach roads and mine area will be done to minimize the propagation of noise

Water Quality

Selected water quality parameters for water resource of the study area have been used for describing the water environment and assessing the impacts. Four surface water samples & Five ground water samples were drawn from various location. For surface water quality, comparing the values of pH, DO, BOD and total coli forms with ‘Use based classification of surface waters’ published by Central Pollution Control Board; it can be seen that all the analyzed surface waters can be compared with class ‘B’ and can be used as drinking water sources after conventional treatment and disinfection.

S.No.	Expected Impact	Impact zones	Management Plan
1	There is no any possible impact on water. However there may be impact on water quality due to mine effluent discharge.	Nearby Mine Area	1. Garland Drains have been constructed around waste dump for preventing wash-offs from dumps 2. Monitoring of water will be carried out periodically. Water analysis will be carried out seasonally.

Soil Characteristics

The soil samples were collected in the month of March 2019. Soil samples were collected from 5 locations to assess the existing soil conditions representing various land use conditions and geological features and each of these locations were identified randomly from where soil was collected from 30 cm below the surface. In the study area, variations in the pH of the soil were found to be slightly alkaline (7.53 to 7.96). Electrical conductivity (EC) is a measure of the soluble salts and ionic activity in the soil. In the collected soil samples the conductivity ranged from 206-345 $\mu\text{mhos/cm}$.

Socioeconomic Scenario

According to 2011 Population Census the study area has a total population of 17881 persons. About 46.54 percent of population is male and the remaining 53.46 percent is female. Further 13.13 percent of the total population is in the age group of 0-6 years. The overall sex ratio in the study area has been worked out to 1149 females per 1000 males, which is much higher than the national average of 933 females per 1000 males. The sex ratio of the population of age group 0-6 years in the

study area has been worked out to 845 females per 1000 males, which is very much high than the national average of 927 females per 1000 males in this age group.

Biological Environment

Flora of the Core zone:-

The core zone comprises of private agriculture land, where mining operation is proposed. There is no tree species found in core zone. Few shrub species like lantana, ank, cannabis etc. are grown as weed in area. No ecologically sensitive plant species has been reported from this area.

Flora of the Buffer zone: -

Buffer zone of the proposed project falls in Lesser and Greater Himalaya region. Many tree species are planted in the area because of their usefulness, economic and aesthetic values. The tree species observed in the area are, Aam (*Mangifera indica*), Jamun (*Syzygium cumini*), Bail (*Aegle marmelos*), Dakain (*Melia azedarach*), Neem (*Azadirachta indica*), Peepal (*Ficus religiosa*), Bhimal (*Grewia optiva*) etc. In agricultural waste land and along the road side, growth of weeds like *Argemone mexicana*, *Cannabis sativa*, *Cenchrus ciliaris*, *Lantana camara*, *Parthenium hysterosporus*, etc. are very common. These weeds are affecting the agricultural productivity of the region due to fast growth, short life cycle and enormous production of seeds.

Agricultural land

Agriculture is the main occupation of the people. However, intensive cultivation is not possible as major part of the district is mountainous. Agricultural activities are common on gentle hill slopes and in relatively plain, broad river valleys of Gomti and Saryu Rivers. Rice, wheat, mandua, barley, maize and sawan are the principal crops grown in the district. Garur valley has the maximum cultivated area.

Vegetation in and around human settlement

Vegetation pattern in villages and surrounding areas are slightly different from the rest of the areas. The common species grown near villages are mostly edible or useful plants such as *Mangifera indica*, *Azadirachta indica*, *Albizia lebbeck*, *Delonix regia*, *Ficus religiosa*, etc.

Fauna of Core Zone

Core zone of the proposed mine area is devoid of any habitat. During the field survey, domesticated mammal species reported from buffer zone of present mine. Permanent habitat of mammals and

avifauna were not observed during the study period. There is no any aquatic habitat in the core zone, so aquatic flora and fauna also does not exist in the respective area. On the other hand, no any bird's nest in the core zone was observed.

Buffer zone:

The major part of the study area lies under Forest and Jungle-Jhari and some human settlements. Most of the mammalian species reported in the study area are domesticated animals. A list of animals of the study area has been prepared on the basis of present survey, inquiry from local people and from the available published literatures. The animals thus recorded were cross checked with Wildlife Protection Act (1972) for their schedule. The fauna of study area have been categorized into aquatic and terrestrial fauna.

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 water environment

Impact on surface water bodies- There is no perennial source of surface water such as river or nalla in the lease area. There is no toxic element in and around the applied area or in OB. Hence contamination of any nature is not expected for surface or any ground water source.

Impact on ground water table

The only source of water is Sump and Ground water from dug wells in nearby villages. There is no adverse effect on water quality since the over burden or ore has no toxic contamination. The water table will not be lowered as mining acidity will be carried out much the above water table. Water available in the village is potable.

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. Plantation will be done 3.682 Ha area.

S.No.	Expected Impact	Impact zones	Management Plan
1	Change in Topography of ML area Topography will be change	ML area	1. Afforestation will be done on 3.682 Ha of area.

Impact on forest and vegetation

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.

Socio economic environment

The impact of mining activity in the area is positive on the socio-economic environment of the region. Bhardwari, Gol, Pokhri Soapstone Mine will be providing employment to local population employing only local people whenever there is requirement of manpower.

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

ADDITIONAL STUDIES

Public Hearing

Public hearing is yet to be conducted.

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.
- Wet drilling shall be carried out to prevent drilling dust getting airborne.
- Water spraying shall be done before the mineral is loaded in dumpers/trucks.

Water Management

No waste water 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 and wash off from the stacked mineral in monsoon period. During monsoon season the run-off water flows into natural water courses. The surface water entering into the mines during the rainy season would be diverted through a suitable garland drain to reduce wash off of soil. No toxic material is encountered in the deposit, the mine drainage, if any, will not be harmful to the biotic life. 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

Till the end of conceptual period, a total of 5.112 Ha area of the worked out portion of the pit shall be backfilled, top soiled.

Budget for Environmental Protection

Sl. No.	Measures	Capital Cost (In Rs.)	Recurring Cost (In Rs.)
1.	Pollution Control Dust Suppression /Water Sprinkling	4,00,000	2,00,000
2.	Pollution Monitoring i) Air pollution ii) Water pollution iii) Soil Pollution iv) Noise Pollution	--	80,000 80,000 70,000 70,000
3.	Green belt development	3,00,000	2,00,000
4.	Construction & maintenance of road	--	2,00,000
Total		7,00,000/-	9,00,000

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 mitigative 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.
