

# EXECUTIVE SUMMARY

(In English & Hindi)

Of

Draft EIA/EMP Report

For

## GUNI SOAP-STONE MINING PROJECT

Khasra no. 3851, 3852,3853,3854 and Others,

Near Village Ghuni,

Tehsil -Ghat, District - Chamoli (Uttarakhand)

(Submitted for Public Consultation as per EIA Notification 2006 & its subsequent amendments till dated)

**Mining Lease Area: 4.498 Ha. (Non-Forest Land),  
Production Capacity: approximately 22,116 TPA soap Stone &  
8,523 m<sup>3</sup> OB/waste,  
Project Cost: Rs. 20 LAKH  
Category-B1**

<b>In Favor of</b>	<b>Prepared By</b>
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## 1 EXECUTIVE SUMMARY

### 1.1 Introduction and Background

The Ghuni Soap-Stone Deposit mine area is agricultural land of, village: Ghuni, Tehsil: Ghat,, District: Chamoli (Uttarakhand), State: Uttarakhand over an area of 4.498 ha. For the production capacity of 22,116 TPA soap Stone & 8,523 m<sup>3</sup> OB/waste. Coordinates for the lease area are Latitude: N 30<sup>0</sup>-17'-59.26" to and longitude: E79<sup>0</sup>-30'-28.49"

The Letter of intent for grant of ML was issued vide letter no. 591/VII-1/97 Kha /2015 dated 06/04/2016 over an area of 5.613hect.. As per EIA Notification dated 14th September 2006 and subsequent amendments/Order dated 04.09.2018 & 13.09.2018 passed by Hon'ble NGT in O.A No. 17382016 & 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 respectively MOEF&CC Vide letter No. 11011/175/2018-IA-II(M) of dated 12.12.2018 directed that all mine lease area from 5 to 25ha falling under Category B2 will be considered as B1 by SEIAA/SEAC as well as for cluster situation therefore, EIA, EMP and Public Considered for areas 5 to 25 Ha is required, the project comes under B1 Category with cluster situation.

The proposal falls in projects activity no 1 (a) of schedule of the EIA Notification, 2006 and as the lease area is less than 100 ha. It falls under category B1 vide amendment EIA notification dated 14.08.2018. and the proposal will be appraised and requiring prior environmental clearance by SEIAA, Uttarakhand.

The studies were undertaken by The Consultant namely, Overseas Min-Tech Consultants ('OMTC'). OMTC is a National Accreditation Board for Education and Training (NABET) Accredited Consultant Organization (ACO) and is qualified to prepare EIA reports for Project / Activity 1(a) (Mining of Minerals), a mandatory requirement for agencies submitting such studies to regulators for the purpose of seeking EC.

The EIA study report has been based upon the following :-

- Field data collection on different aspects of environment including air, soil, water, land, meteorology, noise, flora, fauna, agriculture and socio-economy in the study area of 10 km radius with mine as its center.
- Study of opencast mining methodology, water requirement, source of pollutants and pollution control strategy.
- Ecological Prospective and Green Belt Development.

The EIA study evaluates the impact on the present environmental scenario and check out the environmental management plan incorporating further step to mitigate the adverse impacts of air, noise, water, land pollution on environment.

### 1.2 Location and Communication

*Table 1-1: Location and Communication from ML area*

S.No.	Particulars	Details
A.	Nature of the Project	Ghuni Soap-Stone Mine Project
B.	<b>Size of the Project</b>	
1.	Mine area	4.498 Ha.
2.	Production Capacity	22,116 TPA soap Stone & 8,523 m <sup>3</sup> OB/waste
C	<b>Location Details</b>	

1.	Village	Ghuni
2.	Taluka	Ghat
3.	District	Chamoli
4.	State	Uttarakhand
5.	Toposheet Numbers	53 N/7,8,11 and 12
		Latitude : N 30 <sup>0</sup> -17'-59.26" Longitude : E79 <sup>0</sup> -30'-28.49"

### 1.3 Project Chronology till Date

1. Shri Mohan Singh Rawat submitted relevant documents, namely Form-1 (as per the EIA Notification 2006, as amended till date) along with a Pre-feasibility Report, and Approved Mining plan proposed for carrying out environmental studies to the State Environment Impact Assessment Authority, Uttarakhand, on 22<sup>th</sup> Dec, 2018.
2. A presentation to the SEAC, Uttarakhand, to finalize the ToR for the EIA study before SEAC was held on 09.02.2019.
3. ToR letter has been issued by SEAC, Dehradun vide letter no. 40/SEAC on dated 26.02.2019.
4. OMTC carried out monitoring studies during the Pre Monsoon Season-2019 (February, March and April) and presented the findings in draft EIA report.

### 1.4 Project Description

#### 1.4.1 Study Area at a Glance

The study area is taken in accordance with the provisions of sector specific EIA guidance manual for Mining of Minerals manual, published by Ministry of Environment and Forests, during 2010. The study area for the Soapstone Mining Project was as follows:

- The proposed project area (M. L. area) is considered as 'Core Zone'.
- 10 km radius from the boundary limits of the M.L. area is considered as 'Buffer Zone'.

#### 1.4.2 Utilities

*Table 1-2: Requirement for the mining*

S.No.	Requirements		Quantity and Nos.		
1.	Water Requirement	Domestic	Drinking	0.94KLD	2.82 KLD
		Propose	Sanitation	1.88KLD	
		Dust Suppression		251 m <sup>2</sup> . area per 0.1 L	0.25 KLD
		Greenbelt Development		931 plants per 2.0LPD	1.9 KLD
		<b>Total</b>		<b>4.97 KLD</b>	
2.	Man-Power Requirement		94		

### 1.4.3 Topography and Drainage

The area has mild slope towards west & south west direction. Rain water flows through the slope & meet the Wan Gadhera. It is outside the area which is perennial dendritic pattern, first & second order & flow as north to south direction. The highest level is 2053.50mRL towards south eastern flank at pillar 9 while the lowest level is 1988.10mRL towards west direction at pillar 20.

The two prominent seasonal Gadheras passes from south to north both on east side & west side of the ML area about 500 m distance from the lease boundary which finally meets Nandakini River at a distance about 3 Km from the lease area. The area is drained by second and third order streams which control flow of Nandakini River flowing in north side of the lease area from east to west. The seasonal water flows from upper reaches down the slope and has curbed courses through erosion process over long geological period.

### Regional Geology

The area forms the part of Calc Zone of Tejam. The stratigraphical sequence of the region as per monumental work (Geology of Lesser Himalayas; 1980 of Prof. K.S. Valdiya is as below:  
Berinag Quartzite

~~~~~Unconformity~~~~~

Gangolihat Dolomite Dolomite and dolomitic soapstone with algal structures. Magnesite with minor talc/talcosite phyllite and dolomite intercalations.

~~~~~Unconformity~~~~~

Sor Slates Shales, Slates and Phyllites

The above sequence as observed in this region is considered to be an inverted one. Soapstone pocket occur within carbonates of Gangolihat Dolomite..

### 1.4.4 Mineable Reserve & Life of Mine

*Table 1-3: Mineable Reserves*

|                                     | UNFC Code | Quantity in million tons | Grade                      |
|-------------------------------------|-----------|--------------------------|----------------------------|
| <b>A. Total Mineral Reserve</b>     |           | <b>Medium</b>            |                            |
| Proved Mineral Reserve              | 111       | 0.277986                 | Cosmetic Paper & Detergent |
| Probable mineral Reserve            | 121       | 0.079876                 | Cosmetic Paper & Detergent |
| <b>B. Total Remaining Resources</b> |           |                          |                            |
| Feasibility mineral Resource        | 211       | 0.086674                 | Cosmetic Paper & Detergent |
| Prefeasibility mineral resource     | 222       | 0.041562                 | Cosmetic Paper & Detergent |
| Measured mineral resource           | 331       | Nil                      | Nil                        |
| Indicated mineral resource          | 332       | Nil                      | Nil                        |
| Inferred mineral resource           | 333       | 0.072930                 | Cosmetic Paper & Detergent |
| Reconnaissance mineral resource     | 334       | Nil                      | Nil                        |
| <b>Total Reserves + Resources</b>   |           | <b>0.559028</b>          |                            |

|              |          |
|--------------|----------|
| Life of mine | 16 Years |
|--------------|----------|

#### 1.4.5 Mining Method

- The proposed method of Mining will be Open-cast semi-mechanized mining method by forming benches of 3.0 m height and width more than height using JCB excavator on contract.
- The mining benches will be formed along the contours, the height of the benches will be kept of 3m and width more than 4m initially to facilitate separation of soapstone and remove the mineral and interburden and soil by mules.
- Drilling and blasting is not Proposed.
- All the benches will be connected by mule track, so that mule can reach to the working faces the slope of the benches will be kept 70<sup>0</sup> but for exploitation of mineral benches will be steepened and width will be reduced and average slope of the faces will be kept 65<sup>0</sup>-70<sup>0</sup>

*Table 1-4: Extent of Opencast Mechanized*

| Activities   | Manual/ mechanization               |
|--|-------------------------------------|
| Removal of top soil  | By manual labour / excavator        |
| Excavation and removal of OB re-handling of OB & back filling etc. | By manual labour / excavator        |
| Excavation and sorting of mineral soapstone                        | By manual labour                    |
| Packing of mineral in bags   | By manual labour                    |
| Transportation of mineral from pit head to nearest road point      | By Khachhars / Manually to PWD road |
| Unloading of bags & stocking of bags at road stock yard            | By manual labour                    |
| Loading of bags into the trucks at PWD road                        | By Manual labour                    |
| Transportation of mineral from road point to Haldwani              | By Trucks                           |

#### 1.5 Meteorology Long Term Meteorology (Secondary Data)

Information presented in subsequent paragraphs is from the Indian Meteorological Department (IMD), Long Term Climatological Tables, 1971-2000, Joshimath. These tables give useful information about a region's weather, since it was collected over a period of 30 years.

##### 1.5.1 Temperature

The month from March to May are considered as hottest with increase in temperatures. June is generally the hot month with a mean daily maximum temperature of about 24.8°C and mean daily minimum of about 16.3°C. The highest temperature recorded at Joshimath is 34.2°C on 14th June 1974. From October, both day and night temperatures start decreasing rapidly. January is generally the coldest month with the mean daily maximum temperature at

about 11.0°C and mean daily minimum at about 2.0°C. Minimum temperature sometimes drops down to subzero temperatures and the lowest temperature recorded -15.1°C on 15th January 1974.

### **1.5.2 Wind**

Long- term wind direction data indicates that the predominant wind during the study period (February, March & April 2019) is East to West and second dominate direction is NE to SW.

### **1.5.3 Rainfall**

As per IMD station at Joshimath the rainfall in region was observed to be 1104.1 mm in a year, bulk of rainfall was received in monsoon months from July and August. Maximum cloud cover was observed in the months of July and August.

### **1.5.4 Relative Humidity**

Most humid conditions were found in the monsoons, followed by post-monsoons, winter and summer in that order. Mornings were more humid than evenings and humidity ranged from a high of 83-90% in monsoon mornings to a low of 52-55 % in winter evenings.

### **1.5.5 Site Specific Meteorology**

Environmental monitoring was carried out for Pre Monsoon season covering the months of (February, March & April) 2019. Meteorological data is collected for wind speed, wind direction, temperature, rainfall and cloud cover.

Mean average temperature recorded during study period was 26.5°C with mean maximum temperature of 26.5°C and mean minimum of 18°C.

Average wind speed recorded was 2.56 m/sec

Rainfall is not recorded during the study period.

## **1.6 Existing Environment Scenario**

### **1.6.1 Land Use**

#### **Land Use of the Study Area**

The land use land cover map of the study area has been prepared using recent Landsat satellite image, area and distance calculations have been carried out using GIS software after geo- referencing and interpretation. Total Land covers an area of 326806958.8835ha. Out of which 272307296.9293 Hill land, 1325666.1529 is open land, 47691154.0134 Crop Land, 3155771.8525 Buildup Land 682509.4971 Road & 1644560.4383 River.

### **1.6.2 Soil Quality**

The soils of study area are predominantly Sandy loam in texture. The pH of the soil is ranges from 7.42 to 7.82. The soil being of friable consistency, the bulk density of the soil is in the range of 1.66 to 1.72 g/ml whereas the porosity is found range of 33.84 to 35.65% and water holding capacity are in the range of 28.56 to 33.24. It was observed that the Values of bulk density, porosity and water holding capacity varied according to the soil texture. Density of soils was found to be in definite range as per the texture, porosity and water holding capacity was found in marginal range rather poor water holding capacity as per the texture.



### 1.6.3 Ambient Air Quality

The above analysis report shows that since this mine is not operating and traffic on the National Highway is also less, population in the village is not more. The baseline ambient air quality was found to be within the permissible limits of NAAQS.

### 1.6.4 Noise

Ambient noise samples were collected from 6 locations in the study area; samples were collected from residential as well as industrial area (Mine site).

#### Day time Noise Levels (Leq day)

The day time (Leq day) noise levels observed in the range of 49.8 to 48.4 dB (A) in residential area.

#### Night time Noise Levels (Leq night)

The night time (Leq night) Noise levels observed in the range of 46.6 to 43.2 dB (A) which is within the prescribed limit of 45 dB (A) in residential area.

### 1.6.5 Water Environment

#### Groundwater Resources

The Ground Water Resources and Irrigation Potential of the district were estimated during 2011 in collaboration with the Government of Uttarakhand using the methodology suggested by “Ground Water Estimation Committee (GEC-97)”.

#### Groundwater Quality

The analysis results shows that the pH for the ground water samples GW1, GW2, GW3, GW4, GW5, GW6 and GW7 ranged from 7.26 to 7.52 indicating slightly alkaline in nature. The TDS (Total Dissolved Solids) were found to be in the range 254 mg/l to 364 mg/l which is within the permissible limit of 2000 mg/l. Total Hardness of Ground water samples in the study area was found to be 196 to 226 mg/l which is within permissible limit. Alkalinity indicates better buffering capacity of water and ranges between 104 to 136.0 mg/l.

Fluoride content varies from 0.28 mg/l – 0.80 mg/l which is within permissible limit. The overall ground water quality in the study area was found to be mineralized with respect chloride (52.0 mg/l to 68.0 mg/l), and Sulphate (40.0 mg/l to 62 mg/l).

#### Surface Water Quality

Surface water samples were collected, analyzed and compared with Indian standard for drinking water 10500:2012, pH value was found to be 7.12 which indicate that surface water is alkaline in nature, TDS was found to be 246 mg/l. Dissolve oxygen were found about 7.2 mg/l. It is seen that the physicochemical analysis of other parameters like chloride, calcium, magnesium, nitrate and fluoride were found within the desirable limit.

#### Biological Environment

Ecological study is essential to understand the impact of industrialization and urbanization on existing flora and fauna of the study area.

There is no wildlife sanctuary, National park, Biosphere reserve, Wildlife corridors, Tiger/ Elephant reserve within 10 km radius of the mining lease.

### 1.6.6 Cropping Pattern

| Crop | Name | Season |
|------|------|--------|
|------|------|--------|

|        |   |                  |
|--------|---|------------------|
| Rabi   | Massar, Gram, Mustard Seeds, Potatoes, Onions | September-April  |
| Kharif | Maize, Paddy, Mash, Rice                      | June – September |

### **1.6.7 Socio Economic Status**

The study area includes 39 villages within the 10 km. radius with a total population 20195 as per census 2011. In the study area about 36% of the total population is literates. As per census 2011, about 4592 of the total are main workers, 5289 are marginal workers.

### **1.6.8 Anticipated Environmental Impact and Mitigation Measure**

#### **1.6.9 Impact on Air Environment**

- Water sprinkling will be done twice during the day in summer season and once during the day in winter season for settling of dust particles.
- Sharp drill bits will be used for drilling and they will be maintained periodically to reduce the generation of dust.
- Transportation of mineral will be done on Kaccha road which will generate dust and rest of the distance will be on National Highway will not cause air pollution.
- Drilling machines will have bag filters attached to them also to prevent the dust to get air borne.

#### **1.6.10 Impact of Traffic Density:**

Traffic analysis is carried out by understanding the existing carrying capacity of the roads near to the project site and the connecting main roads in the area. Existing traffic on these roads was compared with the carrying capacity of these roads as per IRC guidelines and it was found that the roads are capable of handling the additional traffic/load.

#### **1.6.11 Impact on Noise Environment**

The expected noise levels in the working environment are compared with standards prescribed by occupational safety and health administration (OSHA-USA) & CPCB-NEW DELHI, the noise levels are expected to be in the acceptable range.

#### **1.6.12 Impact on Water Environment**

##### **Impact on Surface Water Quantity**

Surface water will not be utilized and impact on surface water quantity is not anticipated due to the proposed activity.

##### **Impact on Surface Water Quality**

The proposed opencast mining operation may cause water pollution. The sources of pollution generally are:

- Wash off from dumps
- Soil Erosion

##### **Mitigation Measures**

In open cast mining pits as well as on dumps, it is necessary that the rainwater falling outside the edge limit of the working areas will not be allowed to enter into the pit and working areas. Therefore it is proposed to develop garlands drains around the mining pits and dumps to arrest the surface runoff water and divert it to lower synclines without any contact with the mining operations.

In the lease for proper drainage of water, a set of garland drainages will be made in the mining lease area and the water will be accumulated at the lower most gradient by constructing siltation tanks which will act as water storage in the area as well as collection of silts. Silts will be regularly cleared regularly.

#### **Impact on Groundwater Quality**

Since water table is very deep & mining will be carried out much above the water table & therefore there will be no impact on ground water. The impact of mining on groundwater is not anticipated as the mining will be done till 3m only & not going to encounter the groundwater table.

#### **Mitigation Measures of Groundwater**

Since water table is very deep & mining will be carried out much above the water table & therefore there will be no impact on ground water. The mining is proposed maximum up to 12 m below the surface during the life of the mine .No working id expected below the water table will be about 40-50m below the bottom of the pit.

#### **1.6.13 Impact on Flora and Fauna**

As the mining activities will be confined to core zone only, no adverse impact is foreseen on the flora & fauna in the core zone. To prevent the entry of wildlife animals from entering the lease area proper fencing will be done all around the lease area.

#### **1.6.14 Impact on Top Soil**

During mining activity Soapstone is exposed on the surface itself hence no mineral reject & top soil will be generated during this scheme period (five years). This will in turn result in minor changes of topsoil structure.

#### **Mitigation Measures for Top Soil**

However, the project design will take into account the preservation of the top soil and its subsequent use during the restoration of the site.

#### **1.6.15 Impact on Socio Economic Status**

Socio-economic survey was conducted in five villages within the study area located in all directions with reference to the project site.

The respondents were asked for their awareness/opinion about the project and their opinion about the impacts of the project, which is an important aspect of socio-economic environment, viz. job opportunities, education, health care, transportation facility and economic status.

#### **1.7 Environment Monitoring Program**

The monitoring of pollutant in mine will be carried out for air, water, soil and noise. It takes care of all monitoring needs of the mine. Additionally ambient air and work zone monitoring in mine will be conducted in every season near mining operation, loading and transportation (haul road) areas by Government approved private agency. The analysis results of air monitoring will be properly recorded and submitted to the statutory authorities from time to time. Noise measurement of mine equipment will be done once in a year, ambient air monitoring will be done once in one season at three locations (1 in upwind, 1 in downwind, 1 in lease area. Ambient noise monitoring will be carried out at 3 locations, 1 within the lease area, and 2 locations of nearest habitation to the lease. Water quality monitoring will be done once in season at two locations& soil quality monitoring will be done

once in a year at 2 locations within the study area. A total of Rs. 0.20 lakhs/- every year will be spent on monitoring of environmental parameters.

## **1.8 Additional Studies**

### **1.8.1 Risk Assessment and Disaster Management Plan**

The following natural /industrial problems may be encountered during the mining operation are:

Inundation-filling of the mine pit due to excessive rains.  
Slope failures at the mine faces or stacks.

Water table will not be encountered during proposed working. No high risk accidents like landslides, subsidence flood etc. have been apprehended. But possibility of accidental disaster is also not ruled out. Therefore, all the statutory precautions will be taken for quick evacuation as per the Mines Act 1952, the Mines Rules 1955, Rule of MMR- 1961 and the Rules of MCDR-1988.

## **1.9 Environment Management Plan**

The environment management plan is prepared with a view to facilitate effective environmental management of the project. Apart from having an Environmental Management Plan, environment management cell consisting of mines manager, safety officer and environmental officer is constituted. A total of Rs3.65 Lakhs/- would be spent on environment management activities every year.

## **1.10 Project Benefits**

The surrounding inhabitants around the mine lease area are mainly agricultural oriented. Opportunities for jobs activities will be created and mining will serve as a source of permanent livelihood. The mine will create employment directly or indirectly. Additional, certain works like transportation will be outsourced on contract. So, overall effect of mining is expected to be positive.

