

EXECUTIVE SUMMARY

(In English & Hindi)

Of

Draft EIA/EMP Report

For

Pranmati Soap-Stone Mine

Village-Pranmati, Tehsil-Ghat, District-Chamoli, Uttarakhand

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

Mining Lease Area: 11.183 Ha., Production Capacity: 17,508 TPA,

Project Cost: Rs. 20 LAKH

Category-B1

In Favor of	Prepared By
<p>M/S GOLCHA MINERALS PVT. LTD., Swire 40-B, Sardar Patel Marg, CScheme, District: Jaipur, State- Rajasthan, Pin code: 362150 Telephone No.-9799190700 Email-info@golchagroup.com</p>	<p>OVERSEAS MIN-TECH CONSULTANTS ISO 9001:2015 Certified & NABET Accredited 501, Apex Tower, Tonk Road, Jaipur – 302015 Telefax: +91-141-2744509, Mobil: +91-9460221084 E-mail-arun.omtc@gmail.com, Website: www.overseasmintech.com</p>

Table of Contents

1 Executive Summary..... 3

1.1 Introduction and Background..... 3

1.2 Location and Communication 3

1.3 Project Chronology till Date 4

1.4 Project Description..... 4

1.4.1 Study Area at a Glance 4

1.4.2 Utilities 5

1.4.3 Topography and Drainage 5

1.4.4 Regional Geology 5

1.4.5 Mineable Reserve & Life of Mine 6

1.4.6 Mining Method 6

1.5 MeteorologyLong Term Meteorology (Secondary Data)..... 6

1.5.1 Temperature..... 6

1.5.2 Wind 6

1.5.3 Rainfall 7

1.5.4 Relative Humidity..... 7

1.5.5 Site Specific Meteorology 7

1.6 Existing Environment Scenario..... 7

1.6.1 Land Use..... 7

1.6.2 Soil Quality..... 7

1.6.3 Ambient Air Quality 8

1.6.4 Noise 8

1.6.5 Water Environment..... 8

1.6.6 Cropping Pattern..... 9

1.6.7 Socio Economic Status 9

1.6.8 Anticipated Environmental Impact and Mitigation Measure 9

1.6.9 Topography..... 9

1.6.10 Drainage 10

1.6.11 Impact on Air Environment..... 10

1.6.12 Impact of Traffic Density: 10

1.6.13 Impact on Noise Environment..... 10

1.6.14 Impact on Water Environment 10

1.6.15 Impact on Flora and Fauna 11

1.6.16	Impact on Top Soil	12
1.6.17	Impact on Socio Economic Status	12
1.7	Environment Monitoring Program	12
1.8	Additional Studies.....	12
1.8.1	Risk Assessment and Disaster Management Plan.....	12
1.8.2	Ecological Damage Assessment & Remediation Plan.....	Error! Bookmark not defined.
1.9	Environment Management Plan	13
1.10	Project Benefits	13

1 EXECUTIVE SUMMARY

1.1 Introduction and Background

The Soap Stone Mining Project of M/s Golcha Minerals Pvt. Ltd. is situated in village Pranmati, Tehsil: Ghat, District – Chamoli (Uttarakhand) over an area of 11.183 ha in Khasra No. 60, 61, 63 and others for production capacity of 17508 TPA. Coordinates for the lease area are Latitude: N30° 15' 42.7" to N30° 15' 41.5" and longitude: E79° 34' 19.0" to E79° 34' 14.0".

Letter of intent for grant of M.L was issued in favour of Golcha Minerals Pvt. Ltd. vide letter no. 1979/VII- 1/39/Soapstone/2016 dated 30/12/2016 over an area of 11.183 hect. in village Pranmati, Tehsil- Ghat, Dist. - Chamoli for 50 years.

As per EIA notification 14.08.2018 in the SCHEDULE, for item 1(a), 1(c), and the Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation and in view of order dated 04.09.2018 & 13.09.2018 passed by Hon'ble NGT in O.A. No-173/2016 & 186/2016 in the matter titled "Shri Sudarshan Das V/s State of West Bengal & Ors" and "Shri Satendra Pandet V/s MoEF&CC" respectively MoEF&CC vide letter No. L-11011/175/2018-IA-II (M) Dated 12.12.2018 directed that all the area from 5 to 25 ha falling under category B2 will be considered as B1 by SEIAA/SEAC as well as for cluster situation, Hence the proposed Soap-Stone mining project of M/s Golcha Minerals Pvt. Ltd is over an area of 11.183 Ha, which is individually greater than 5.0 ha. hence project will be categorized as "B1", and thus requiring prior environmental clearance from the State Environmental Impact Assessment Authority (SEIAA)/State Expert Appraisal Committee (SEAC) 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	Soap-Stone Deposit Mine Project
B.	Size of the Project	
1.	Mine area	11.183 ha
2.	Production Capacity	17,508 MTPA
C.	Location Details	
1.	Village	Pranmati
2.	Tehsil	Ghat
3.	District	Chamoli
4.	State	Uttarakhand
6.	Toposheet No.	53 N/11,12,7
D.	Communication	
1	Nearest Town / City/village	Ghat 11.80 km, West from mine site
2	Nearest Railway Station	Rishikesh Railway Station ~ 124.0 km in West Direction from the mine site.
3	Nearest Airport	Jolygrant Airport ~ 200.0 km in West direction from the mine site
4	State Boundary	PWD road ~21.0 km from Nandprayag Mule track ~ 4-5 km from the mine site.

1.3 Project Chronology till Date

1. M/s Golcha Minerals Pvt. Ltd. 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 18th July, 2018.
2. A presentation to the SEAC, Uttarakhand, to finalize the ToR for the EIA study before SEAC was held on 09.01.2019.
3. ToR letter has been issued by SEAC, Dehradun vide letter no. 26/SEAC on dated 12.02.2019.
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 Limestone 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'.

- Study area (10 Km. radius) : 33492.0508 Ha.

1.4.2 Utilities

Table 1-2: Requirement for the mining

S.No.	Requirements			Quantity and Nos.	
1.	Water Requirement	Domestic	Drinking	1.0 KLD	3.0 KLD
		Propose	Sanitation	2.0 KLD	
		Dust Suppression		1582 m ² area per 1.0 L	1.58 KLD
		Greenbelt Development		2306 plants per 2.0 LPD	4.6 KLD
Total					9.18 KLD
2.	Man-Power Requirement			100	

1.4.3 Topography and Drainage

- The Highest RL (2575m) in the Lease area is near Pillar 21 in the southern block and the lowest RL (2510m) is near pillar 1 in north-east corner. The southern block is sloping towards SE from 2575m RL (Pillar 21) to 2510m near pillar 16.
- 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.

1.4.4 Regional Geology

The soapstone pockets/lenses occur within carbonates of Gangolihat Dolomite sequence. The local stratigraphic shows that the mineralized zone lies between upper and lower carbonates, as discussed below:-

Upper Carbonates : Magnesite, Sporadic dolomite.
 Middle Talcose Phyllites : Soapstone in Pockets, Lenses & veins.
 Lower carbonates : Dolomite / Dolomitic intercalation

1.4.5 Local Geology

Soil Cover	Soil
Calcareous sequence	Talcose Phyllite Talc (Soapstone) Mixed with Dolomite & Magnesite

- Showing disposition of all lithological units with clear nomenclature and their descriptions is discussed below and shown on the geological plan:-
- Contacts of lithounits/ rock types as outcrops or inferred.

Alluvium cover:

Entire area is cultivated land and therefore layer of brownish cover of soil exists in the whole area. The thickness of the soil varies from 0.2 to 0.3m.

1.4.6 Mineable Reserve & Life of Mine

Table 1-3: Mineable Reserves

Geological Axis	Level of Exploration	Reserve/Resources in metric tonnes in mineable area	Grade
G1	Detailed exploration	302619	high, medium and low grade
G2	General Exploration	1177685	
G3	Prospecting	84061	
Total		504365	

1.4.7 Mining Method

1. The mine is proposed to be worked by opencast mechanized method using JCB excavator on contract. The mineral soapstone occurs intermix with Dolomite rocks the analysis report shows that the OB is calcite and high silica with low MgO and therefore is not marketable.
2. The over lying soil of 0.2-0.3 m thickness will be removed separately by excavator and will be kept separately by making a toe wall at the bottom of soil dump.
3. The mining will be done from higher level to lower level depending on the availability of space. The soapstone after sorting and sizing will be filled in to 40-50 kg plastic bags, which will be transported to road points.

Bench parameters

Height of bench-3m

Width of bench-3m

Slope of bench-70⁰

Over all pit slope 45⁰

Table 1-4: List of Machineries & Equipment

Operation	Machine Name	No's	Capacity
Excavation	Excavator	1	-
Transportation	Dumper	8	10 T
Water tanker	Tractor	1	1000 L

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 indicates that the predominant wind during the study period (February, March and 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 was 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 89-85% in monsoon mornings to a low of 57-61% in winter evenings.

1.5.5 Site Specific Meteorology

Environmental monitoring was carried out for Pre Monsoon season covering the months of (February, March and 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 33°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 Mine Lease Area

The total lease area of Pranmati Soap-Stone mining is 11.183 ha. out of which 0.583 ha is govt. land and 10.600 ha area is pvt. Land. 0.04 ha. area is mule track and 11.143 ha. area will be remain untouched.

Land Use of the Study Area

The land use land cover map of the study area has been prepared using recent the recent satellite ID: LC08_L1TP_145039_20190131_20190206_01_T1. The total study area within 10 km from the core zone is 33492.0508 ha, out of which 0.02% is Open land, 8.69% is crop land, 0.21 % is river, 0.51% is Buildup land, 0.10% is road and 90.47% is Hill land.

1.6.2 Soil Quality

The soil sample were collected from 6 locations, the soils of study area are predominantly Sandy loam. The pH of the soil is ranges from 7.66 to 7.88. The soil being of friable consistency, ulk 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 36.64%

and water holding capacity are in the range of 30.24 to 35.82. It was observed that the Values of bulk density, porosity and water holding capacity varied according to the soil texture.

1.6.3 Ambient Air Quality

The major contribution to the air pollution is dust and other pollutant present in the air are SO₂ and NO₂. To assess the pre mining condition ambient air monitoring was carried out.

The 98 percentile value of PM₁₀ level at the proposed mining site ranges from 53.83 to 45.04ug/m³, PM_{2.5} ranges from 27.95 to 20.38 ug/m³, SO₂ ranges from 15.31 to 13.26 ug/m³ and NO_x ranges from 24.60 to 17.14 ug/m³. 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).

- **Residential area:** The day time (Leq day) noise levels observed in the range of 42.4 to 38.4 dB (A) in residential area.
- **Industrial Area:** The noise levels at the mine site were found to be 58.4 dB (A) during day time and 56.4 dB (A) during night time.

1.6.5 Water Environment

Groundwater Resources

The other source of ground water in the district is in the form of springs. Large-scale ground water development is not possible in the Chamoli district since it is a hard rock area with steep slopes and low ground water potential.

Groundwater Quality

The analysis results shows that the pH for the ground water samples GW1, GW2, GW3, GW4, GW5, GW6 and GW7 ranged from 7.24 to 7.80 indicating slightly alkaline in nature. The TDS (Total Dissolved Solids) were found to be in the range 212 mg/l to 262 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 122 to 212 mg/l which is within permissible limit. Alkalinity indicates better buffering capacity of water and ranges between 76.0 to 116.0 mg/l.

Fluoride content varies from 0.22 mg/l – 0.54 mg/l which is within permissible limit. The overall ground water quality in the study area was found to be mineralized with respect to total dissolved solids (212 to 262 mg/l), chloride (26.0 mg/l to 64.0 mg/l), and Sulphate (26.0 mg/l to 54mg/l).

Surface Water Resources

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.

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 7.76 to 8.04 which indicate that surface water is alkaline in nature, TDS was found to be 212 mg/l to 252. Dissolve oxygen were found about 6.4 to 7.4 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. The overall surface water quality of the available sources within the study area was found to be good physico-chemically with respect to all the parameters. There is no organic load-observed in the sources monitored indicating no pollution load in the source.

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.

Flora of the Study Area

Floral study was carried out during Post Monsoon season; some species of plant observed during the survey are. *Pinus roxburghii* (Cheer), *Toona ciliata* (Tooun) and *Aegle marmelos* (Bel).

Shrubs and Herbs: The dominant shrub community in this area was represented by Kaphal (*Myrica esculenta*) and Aak (*Calotropis gigantea*) etc.

Fauna of the Study Area

A general faunal survey was also conducted during the Pre Monsoon Season 2019 (February, March and April), Common langur (*Presbytis entellus*) were found.

1.6.6 Cropping Pattern

The climatic conditions of a region affect the agriculture cropping pattern of that area Main crops in the study area are wheat, Maize, Mustered, Chana , Rice, Dale (Urad, Peas, Masur, Soyabean, Teel, Mungfaly, Guar are major crops grown in the study area.

1.6.7 Socio Economic Status

The study area includes 27 villages within the 10 km. radius with a total population 13150 forming 2550 household as per census 2011. In the study area about 8037 of the total population is literates. As per census 2011, about 596 of the total are main workers, 223 are marginal workers and 6866 are non-workers.

1.6.8 Anticipated Environmental Impact and Mitigation Measure

1.6.9 Topography

Mining will be done from 2575-2449 mRL in only four block from the surface according to availability of Mineral in the entire mineable area since simultaneous back filling will be done,

terraces will be formed and land will be handed over to the cultivators after developing the land suitable for the cultivation.

1.6.10 Drainage

The retaining walls having 0.5m width & 0.75m height for waste rock and soil backfilled area will be provided at the base of the backfilled area to prevent pollution of surface water bodies. The water drains are constructed at the top of the soil stack waste dumps) and mining pits.

. Impact on Air Environment

Opencast mining activity causes some adverse impacts on the surrounding environment unless proper environment management plan is adopted. Selecting suitable sites for mining and also adopting all the guidelines prescribed by the Ministry of Environment Forest and Climate Change (MoEF&CC) and Department mine & Geology, Uttarakhand can minimize the major possible impact. 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.

Mitigation Measures

- Plantation of trees along haul roads, to help reduce the impact of dust on the nearby villages;
- Planning transportation routes of mined material so as to reach the nearest paved roads by shortest route. (minimize transportation over unpaved road);
- Dust mask shall be provided to the workers engaged at dust generation points like excavations and loading points;

1.6.11 Impact on Noise Environment

Adverse impact on noise level is due to vehicular movements during mining phase, during operation of Excavator, etc. and vehicle movement during reclamation phase.

Mitigation Measures

- Proper and timely maintenance of machine, transport vehicle will help to reduce sound nuisance as much as possible.
- Trees will be planted on both the sides of the roads and near the office etc. to attenuate noise generated during mining.
- Noise level measurement in the mine area will be carried out quarterly. Use of personal protective equipment i.e. ear plugs/ear muffs etc. to the operator of excavator and transport vehicle will be provided.

1.6.12 Impact on Water Environment

Impact on Surface Water Quantity

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.

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

- Surface water will not likely to be affected. All water drains from the pits/dumps will be constructed in such a way that the water will be drained to nallas through check dams.
- The vertical drains and horizontal drains will be provided on the dumps, mining pits and benches to properly channelize the mine water flow and surface water flow and will be connected to final drainage with check measures.

Impact on Groundwater Quantity

Groundwater will be used for mining activities, only 9.18 KLD water will be used during mining operation; and only fresh water will require for drinking propose which will be sourced from nearby village.

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 mining activity will be restricted above the ground water table which is 40 m to 50m bgl. Therefore, the mining activity in the leasehold area will not make any impact on ground water quality.

Mitigation Measures of Groundwater

- No pumping of water from mine will be done except offer testing to local farmers for irrigation purposes.
- The mine water from sump will mostly be used for mining, afforestation and allied activities.
- A monitoring network of dug wells will be established to monitor the ground water level.
- No waste water will be generated.
- Monitoring of water quality of mine discharge water and domestic water will be conducted at regular interval to evaluate the performance of the mitigation measures.

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

Soil quality may be affected by mining activity. The impacts would be degradation of soil or change in its structure due to compaction and erosion during excavation, stacking activities and plying of trucks during operational phase.

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 seven 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.

The Company will undertake activities for the upliftment of the social community through community development in various ways as under: Education, water, Health and Employment Avenues

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. 3.48 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.

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.

