

## **Executive Summary (English)**

### **Sand Bajri & Boulder (Minor-Mineral) mining**

at

**Alaknanda River,**

**Khasra No: 1195, 1196, 1197 to 1199, 1203, 1204, 1206,**

**at Village: Ranihat, Patti- Chauras ,**

**Tehsil- Kirtinagar District - Tehri Garhwal Uttarakhand.**

**Lease area: Area- Area -10.65 ha**

**Production: Capacity- 632610 TPA**



### **PROJECT PROPONENT:**

**Sushila Devi W/o Sateye Singh**

**Muni Ki Reti, District- Tehri Garhwal Uttarakhand**

## EXECUTIVE SUMMARY

### 1.0 INTRODUCTION OF PROJECT & PROPONENT

Mining lease was initially granted to M/s C. V. Singh & Co., Prop. Chandrabeer Singh S/o Sh Nath Singh, R/o KailashGate, Muni-Ki-Reti, District- Tehri Garhwal for extraction of Sand Bajri and Boulders from a part of Alaknanda river, Village- Ranihat Patti- Chauras. Khasara No. 1195, 1196, 1197 to 1199, 1203, 1204, 1206; Area- 10.65 Hectare for a period of 10 years, Mining deed was executed on 16 May 1987 between State Government (Uttar Pradesh) & M/s C. V. Singh & Co., Prop. Chandrabeer Singh S/o Sh Nath Singh, R/o KailashGate, Muni-Ki-Reti, District- Tehri Garhwal (ML Deed Attached as Ann.1), Supplementary deed for the same lease was granted on 27 June 1994 in favor of Shri Sateye Singh Rana, S/o Matwar Singh Rana and Smt. Susheela Devi, W/o Shri Sateye Singh Rana, R/o KailashGate Muni-Ki-Reti, District-Tehri Garhwal.

Renewal for the same lease was granted for further 10 years, vide DM Tehri letter no. Memo /30-32, dated Nai Tehri- 01 August 2000, to Smt SushilaDevi Sateye Singh C/o Shri Sateye Singh Rana, Village- KailashGate Muni-Ki-Reti, District- Tehri Garhwal (Attached as Ann. 3), Renewal deed was executed on 01/08/2000 between State Government (Uttar Pradesh) & Sh Sushila Devi, Sateye Singh C/o Shri Sateye Singh Rana, Village- KailashGate Muni-Ki-Reti, District- Tehri Garhwal

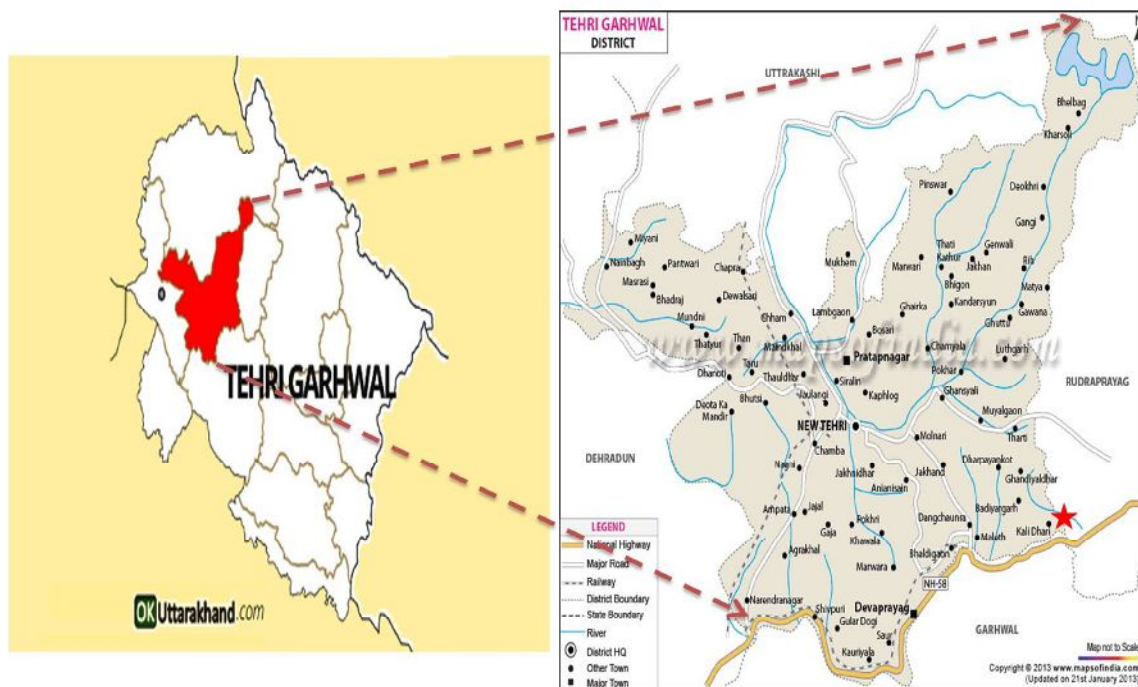
### 1.2 LOCATION

The mining area is located in Khasara No. 1195, 1196, 1197 to 1199, 1203, 1204, 1206 at Village – Village- Ranihat Patti- Chauras Tehsil- Karchhana, District-Tehri Garhwal Uttarakhand . The mining lease / proposed project area falls in Survey of India Toposheet.

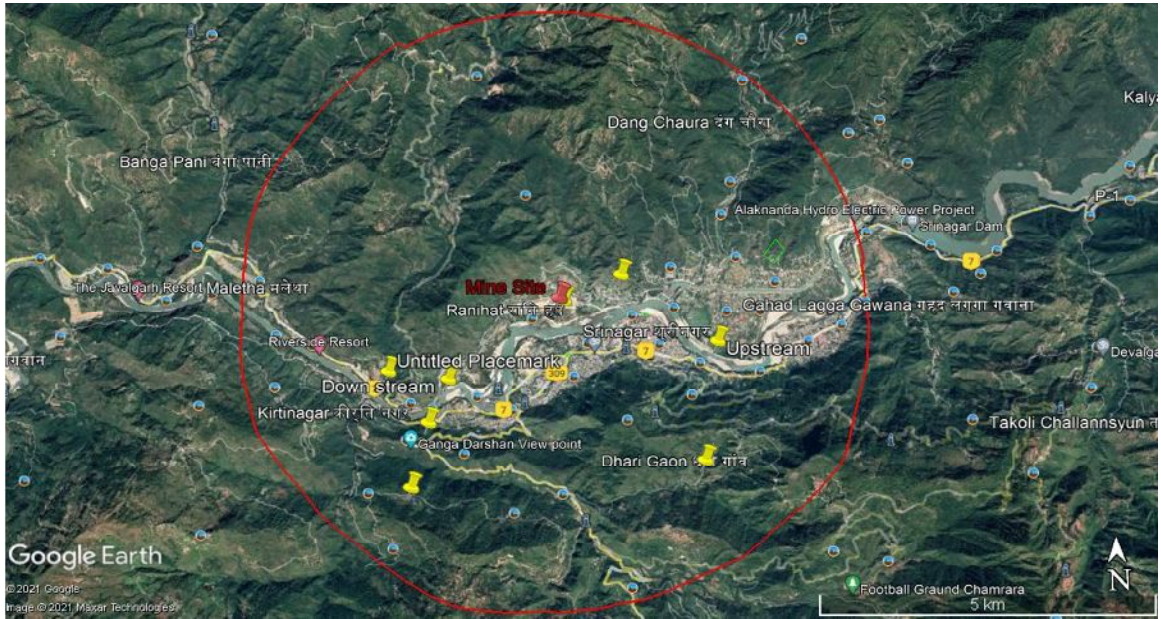
**Table No.2.1:- Details of the Project Location & Surroundings**

| Sr. No.   | Particular                   | Details                                    |
|-----------|------------------------------|--|
| <b>A.</b> | Nature of the Project        | Sand Bajri & Boulder (Minor-Mineral)       |
| <b>1.</b> | ML Area                      | 10.65 ha                                   |
| <b>2.</b> | Proposed Production Capacity | 632610 TPA                                 |
| <b>3.</b> | Lease Period of Mine         | Lease was granted for a period of 10Years. |
| <b>C.</b> | <b>Method of Mining</b>      |  |
| <b>1.</b> | Method                       | Open-Cast semi-mechanized Mining           |
| <b>2.</b> | Blasting/Drilling            | Not proposed                               |
| <b>D.</b> | <b>Project Location</b>      |  |
| <b>1.</b> | Village                      | Ranihat, Patti- Chauras                    |
| <b>2.</b> | Tehsil                       | Kirtinagar                                 |
| <b>3.</b> | District                     | Tehri Garhwal                              |
| <b>4.</b> | State                        | Uttarakhand                                |
| <b>5.</b> | Topo Sheet No.               | Toposheet No. 53 J/16                      |

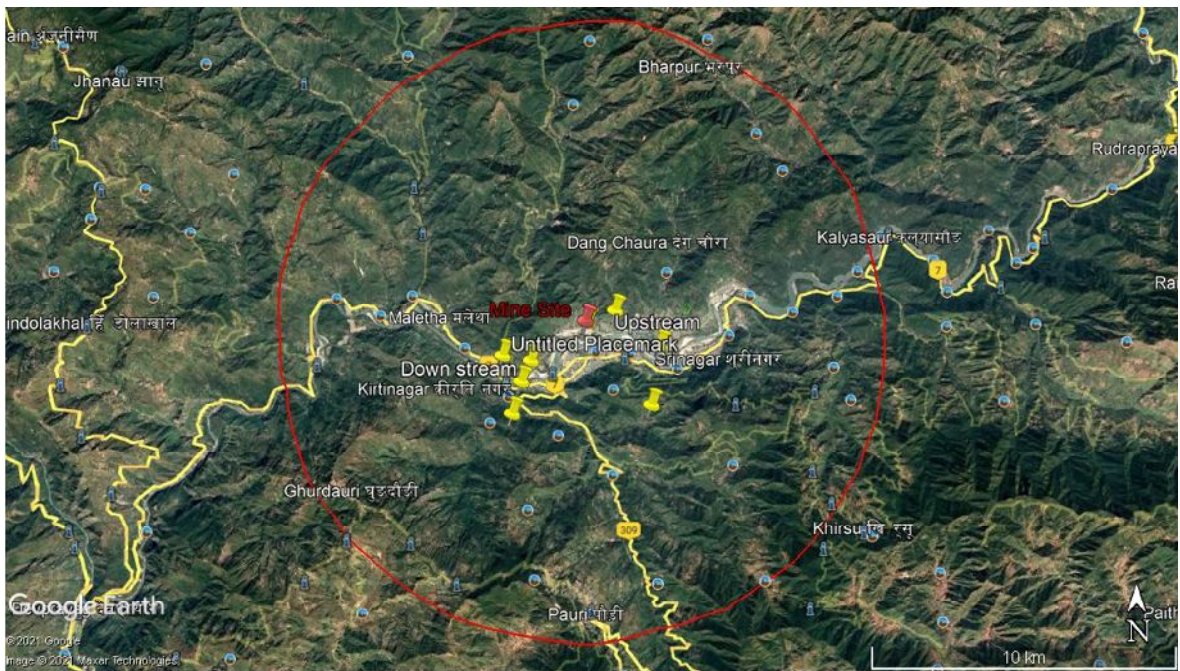
|           |  |   |
|-----------|--|---|
| 6.        | Lease Area Coordinates   | The area lies between<br>Latitude : 30°13'41.86" N<br>Longitude: 78°46'21.14" E<br>To<br>Latitude : 30°13'43.247" N<br>Longitude: 78°46'21.767" E |
| <b>E.</b> | <b>Cost Details</b>  |   |
| 1.        | Project Cost   | Rs.90 Lakh  |
| <b>F.</b> | <b>Water Demand</b>  |   |
| 1.        | Requirement  | 5.0 KLD   |
| 2.        | Source of water  | Nearby villages & natural springs.  |
| <b>G.</b> | <b>Man Power Requirement</b>   | 24  |
| <b>H.</b> | <b>Environmental Setting</b>   |   |
| 1.        | Nearest Village  | Ranihat, Patti- Chauras,1.0 km  |
| 2.        | Nearest Town   | Sri Nagar 2.0 km  |
| 3.        | Nearest National /State Highway  | NH7   |
| 4.        | Nearest Railway Station  | Dehradun ,70 km   |
| 5.        | Nearest Airport  | Jolly Grant 60 km   |
| 6.        | Ecological Sensitive Areas (National Park, Wildlife Sanctuaries, Biosphere Reserve etc.) within 10 km radius | None  |
| 7.        | Water bodies within 10 km radius of the mine site.   | Alaknanda River –River Bed  |
| 8.        | Archaeological Important Place   | None  |
| 9.        | Seismic Zone   | V   |



**Figure: 1.1 - Project Location**



**Figure: 5.0 KM Study area**



**Figure: 1.2 10 KM Study area**

### 1.3 LEASEHOLD AREA

The proposed mine lease area is located at 1195, 1196, 1197 to 1199, 1203, 1204, 1206 at Village – Village: Ranihat, Patti- Chauras , Tehsil- Kirtinagar District - Tehrl Garhwal Uttarakhand . It has been proposed to collect approximately 632610 tonnes per annum sand/morrum will be

extracted by mechanized (OTFM) using EMM and Loaders. There is no National Park, Sanctuary, Elephant/Tiger Reserve, eco-sensitive area, Interstate boundary, migratory routes within 10 km of the project site.

| YEAR          | MINEABLE AREA (M <sup>2</sup> ) | DEPTH (M) | ULTIMATE MINABLE RESERVE (tonnes/year) | PRODUCTION (Saleable Quantity of RBM) (tonnes/year) |
|---------------|---------------------------------|-----------|--|---|
| YEAR-2020-21  | 1,06,500                        | 3.0       | 7,02,900                               | 6, 32,610   |
| YEAR- 2021-22 | 1,06,500                        | 3.0       | 7,02,900                               | 6, 32,610   |
| YEAR- 2022-23 | 1,06,500                        | 3.0       | 7,02,900                               | 6, 32,610   |
| YEAR- 2023-24 | 1,06,500                        | 3.0       | 7,02,900                               | 6, 32,610   |
| <b>TOTAL</b>  | -                               | -         | <b>28,11,600</b>                       | <b>25,30,440</b>                                    |

#### 1.4 ESTIMATION OF THE RESERVE

Main aspects of the lease area are as discussed below Total demarcated Area- 10.65 ha Area found suitable for mining- 10.65 Ha. (as per Joint Demarcation Report Attached as ann.08) As per Uttarakhand Minor Mineral Policy,

Quantity of ultimate reserve (tonnes) = mining area (10.65 ha) x 3.0 m depth x 2.2 bulk density- 7.02.900 tonnes/year

Deposit/material (in cum) at maximum allowable depth i.e. 3.0m Depth= 3,19.500 M<sup>3</sup> • As per the data collected & slice wise mineral assessment/ survey, about 90% of ultimate reserve been considered/planned as annual production quantity i.e. 6, 32,610 tonnes: rest about 10% of material available is planned as residue/waste material including Mining loss. (accordingly planned & backfilled used for river bank protection work & Plantation work).

#### 1.5 PROJECT DESCRIPTION (Technology & Process)

The proposed project is to mine sand from river bed sustainably and scientifically. Mining will be opencast and mechanized (OTFM) using EMM and Loaders, along the river bed keeping both the shores unaffected.

Following geo-scientific methods are proposed to carry out the activity:

- ✓ Mining will be confined to extraction of Sand from the river bed only.
- ✓ Mining of gravelly sand from the river bed will be restricted to a maximum depth of 3mt. from the surface.
- ✓ No drilling, blasting and beneficiation is proposed.
- ✓ Approximately 6, 32,610 tonnes per annum minor mineral will be extracted.
- ✓ No mining activity will be undertaken during the monsoon season. So the river bed material will be replenished during the monsoon season every year.

- ✓ The mining activity will be restricted to daytime only in order to avoid environmental pollution or any accidental hazards.
- ✓ The operation will be done by mechanized (OTFM) using EMM and Loaders During the lease period, the deposit will be worked from the top surface of the river bed to 3.0m bgl or above water level whichever is less.

## 1.6 WATER SUPPLY

There will be very less requirement of water is anticipated to carry out operations as it will be done by mechanized (OTFM) using EMM and Loaders Considering the fresh water requirement for site laborers it is estimated that 0.69 KLD (@ 10 lpcd) water will be required. Apart from this 3.60 KLD water will be required for sprinkling on roads & 0.16 KLD for plantation. Thus, total water requirement of 5.0 KLD will be met through nearby existing borewells/ private water tankers.

## 1.7 BASE LINE DATA

This section contains the description of baseline studies of the 10 km radius of the area surrounding "Sand/Morrum Mine", at River Alaknanda in Village- Ranihat Patti- Chauras. Khasara No. 1195, 1196, 1197 to 1199, 1203, 1204, 1206; Area- 10.65 Hectare. The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

Environmental data has been collected in relation to proposed mining for:-

- (a) Air
- (b) Noise
- (c) Water
- (d) Soil
- (e) Ecology and Biodiversity
- (f) Socio-economy

**Table 1: BASELINE ENVIRONMENTAL STATUS**

| Attribute           | Baseline status  |   |  |   |  |  |
|---------------------|--|---|--|---|--|--|
| Ambient Air Quality | Ambient Air Quality Monitoring reveals that the minimum & maximum concentrations of PM10 for all the 6 AQ monitoring stations were found to be |   |  |   |  |  |
|                     | Particulate Matter PM10 ( $\mu\text{g}/\text{m}^3$ )   | Particulate Matter PM2.5 ( $\mu\text{g}/\text{m}^3$ ) | Sulphur Dioxide SO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ ) | Nitrogen Dioxide NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ ) | Carbon monoxide CO (mg /m <sup>3</sup> ) | Particulate Matter PM10 ( $\mu\text{g}/\text{m}^3$ ) |
|                     | <b>Minimum</b>   | <b>65.05</b>  | <b>32.49</b>   | <b>6.29</b>   | <b>14.62</b>                             | <b>&lt;0.5</b>                                       |
|                     | <b>Maximum</b>   | <b>71.59</b>  | <b>38.00</b>   | <b>8.27</b>   | <b>18.54</b>                             | <b>&lt;0.5</b>                                       |

|                                  |   |              |              |             |              |                |                |             |             |                |             |             |                |             |             |
|----------------------------------|---|--------------|--------------|-------------|--------------|----------------|----------------|-------------|-------------|----------------|-------------|-------------|----------------|-------------|-------------|
|                                  | <b>Average</b>  | <b>68.10</b> | <b>35.52</b> | <b>7.38</b> | <b>16.45</b> | <b>&lt;0.5</b> |                |             |             |                |             |             |                |             |             |
|                                  | <b>98<sup>th</sup> Percentile</b>   | <b>71.46</b> | <b>37.87</b> | <b>8.24</b> | <b>18.43</b> | <b>&lt;0.5</b> |                |             |             |                |             |             |                |             |             |
| <b>Noise Levels</b>              | <p>Noise monitoring reveals that the maximum &amp; minimum noise levels at day time were recorded .</p> <p>There are several other sources in the 10 km radius of study area, which contributes to the local noise level of the area. Traffic activities as well as activities in nearby villages and agricultural fields add to the ambient noise level of the area.</p> <table border="1"> <tr> <td><b>Minimum</b></td> <td><b>49.2</b></td> <td><b>38.0</b></td> </tr> <tr> <td><b>Maximum</b></td> <td><b>53.6</b></td> <td><b>42.5</b></td> </tr> <tr> <td><b>Average</b></td> <td><b>51.1</b></td> <td><b>40.5</b></td> </tr> </table>  |              |              |             |              |                | <b>Minimum</b> | <b>49.2</b> | <b>38.0</b> | <b>Maximum</b> | <b>53.6</b> | <b>42.5</b> | <b>Average</b> | <b>51.1</b> | <b>40.5</b> |
| <b>Minimum</b>                   | <b>49.2</b>   | <b>38.0</b>  |              |             |              |                |                |             |             |                |             |             |                |             |             |
| <b>Maximum</b>                   | <b>53.6</b>   | <b>42.5</b>  |              |             |              |                |                |             |             |                |             |             |                |             |             |
| <b>Average</b>                   | <b>51.1</b>   | <b>40.5</b>  |              |             |              |                |                |             |             |                |             |             |                |             |             |
| <b>Water Quality</b>             | <p>Analysis of results of ground water reveals the following: -</p> <ul style="list-style-type: none"> <li>• pH varies from 7.31 at GW-1 and 7.59 at GW-2 of study area.</li> <li>• Total hardness varies from 110 mg/l at GW-3 and 128 mg/l at GW-2 of study area.</li> <li>• Total dissolved solids vary from 476 mg/l at GW-3 and 712 mg/l at GW-2 of study area.</li> </ul> <p>The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500.</p> <p>Analysis of results of Surface water reveals the following: -</p> <p>The analysis results indicate that the pH ranges between 7.77 and 8.08.</p> <p>BOD values were observed to be in the range of 9 - 12 mg/l.</p> <p>The Sulphates were found to be in the range of 42.1 - 52.2 mg/l.</p> <p>Based on the results it is evident that most of the parameters of the samples comply with 'Category 'B' standards of CPCB indicating their suitability for Outdoor Bathing.</p> |              |              |             |              |                |                |             |             |                |             |             |                |             |             |
| <b>Soil Quality</b>              | <p>Monitoring data shows that the texture of soil at all locations is Sandy Loam. The data shows that value of</p> <ul style="list-style-type: none"> <li>• pH ranges from 6.85- 6.89 indicating that all soil samples are neutral.</li> <li>• Magnesium values ranges from 505-1028 mg/kg</li> </ul>   |              |              |             |              |                |                |             |             |                |             |             |                |             |             |
| <b>Ecology and Bio-diversity</b> | <p>There are no Ecologically Sensitive Areas present in the study area, but many reserved forests regions surround the project area.</p>  |              |              |             |              |                |                |             |             |                |             |             |                |             |             |
| <b>Socio-economy</b>             | <p>The implementation of the Village: Ranihat, Patti- Chauras , Tehsil &amp; District: Tehri Garhwal, Uttarakhand Tehsil- Kirtinagar District - Tehri Garhwal Uttarakhand. Sand bajari boulder mining project on river</p>  |              |              |             |              |                |                |             |             |                |             |             |                |             |             |

|  |  |
|--|--|
|  | <p>Alaknanda River will throw opportunities to local people for both direct and indirect employment.</p> <p>The study area is still lacking in education, health, housing, water, electricity etc. It is expected that same will improve to a great extent due to proposed mining project and associated industrial and business activities.</p> |
|--|--|

## **1.8 OVERALL JUSTIFICATION FOR THE IMPLEMENTATION OF THE PROJECT**

### **1.8.1 Sustainable Mining**

- ❖ Proposed mining project is an open cast mining where no drilling or blasting is required.
- ❖ Mining sites & points will be selected in the riverbed where the concentration of minor mineral is higher & preferably at places or points where the minor mineral is well exposed & present in dunes of higher elevation.
- ❖ The mining will be carried out by using mechanized (OTFM) using EMM and Loaders etc. In order to reduce or minimize hazards of erosion, mining will be done in the river bed.
- ❖ To reduce the further chances of erosion & landslides at the bank of the river, mining will not be done in the concave areas of the rivers.
- ❖ To safe guard the river banks as per mining rules, mining will be done at least 7.5 m inside of the either banks inside the river bed in the lateral form. Mining will be done as per norms of mining rule and the depth of excavation shall not exceed 3 m BGL as suggested by MoEF.
- ❖ Mining at any case will not be carried out below the water table.
- ❖ Mining will be done in the dry season only at places where the replenishment of sediments is high.
- ❖ Mining operation will be carried out in the day time only.
- ❖ Mining will be carried out in the dry season only & will be stopped completely during monsoon.
- ❖ Thus the mining area leftover will get replenished with the sediments of minor mineral in the monsoon itself.
- ❖ The mine owner will carry out mining work as per UPMMCR, 1963 and under all the rules and regulations, term and condition laid down therein.
- ❖ Mine area once dug will not be mined until they are replenished in the monsoon till next year.
- ❖ Mining in any case will not be done below the water table. During the lease period, the deposit will be worked from the top surface of the river bed to 2.22m BGL or above groundwater level whichever is less.



- ❖ No mining operation shall be carried out on at or to any point within a distance of 50m from any of railway line, reservoir, canal or other public works, such as roads and buildings or inhabited site.
- ❖ In order to reduce the noise pollution in the vicinity only PUC certified vehicles will be allowed for the transportation of minor mineral.

### **1.8.2 ENVIRONMENTAL BENEFITS**

- ✓ This activity promotes the emergence of the primary succession species; hence it is silvicultural operation extremely important for maintaining ecology and environment of the area.
- ✓ It controls river bank erosion by deepening of river channel, thus prevents flooding and other natural hazards.
- ✓ It helps in Regeneration & Establishment of Pioneer Species like Shisham & Khair on the banks of rivers besides saving agricultural land & land cutting.
- ✓ It regulates & maintains the existing course of the river, and improves the water holding capacity of channels.

### **1.8.3 SOCIAL BENEFITS**

- ✓ Generates employment to the locals engaged directly in extraction of sand as well as indirectly transportation and sale of mineral.
- ✓ Leads to improvement in lifestyle and standard of living.
- ✓ Earns huge sum of revenue in the form of mineral royalty or dead rent for the State Exchequer.

### **1.9 SOCIO-ECONOMIC PROFILE**

The implementation of the Devlan, sand/Morrum mining project will generate both direct and indirect employment. Besides, it will provide a check on existing system of mining operation. Since the quarries will be allotted on lease basis, mining operation will be legally valid and it will bring income to the state exchequer. It will also reduce flooding of river banks, destruction of standing crops, land and property to a great extent. The project will also provide impetus to industrialization of the area. At present agriculture is the main occupation of the people as more than half of the population depends on it. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people engaged in industrial and business activities rather in agriculture. Thus there will be a gradual shifting of population from agriculture to mining and industry. Further, the mining and industrial activities in the area may lead to rapid increase in population and thereby urbanization. Due to urbanization of the area, employment opportunities will further increase.

### **1.10 ENVIRONMENTAL MANAGEMENT PLAN (EMP)**

Proper environmental management plan is proposed for “Sand/Morrum” mining project to mitigate the impact during the mining operation.

- i.** Care will be taken that no labour camps are allowed on river bed.
- ii.** Care will be taken that no cooking, or burning of woods will be allowed in the adjoining area.
- iii.** No lighting will be allowed in the area.
- iv.** Prior to mining, short awareness program will be conducted for labours to make them aware to way of working.
- v.** If some causality or injury to animal occurs, it will be informed to forest department and proper treatment will be given.
- vi.** No tree cutting, chopping, lumbering, uprooting of shrubs and herbs will be allowed.
- vii.** Maintenance of roads will be done from time to time.
- viii.** Corridor movement of wild mammals (If exists) will not be disturbed.
- ix.** Care will be taken that noise produced during vehicles movement for carrying sand is within the permissible noise level.
- x.** No pilling of RBM material will be allowed in adjoining area.
- xi.** If wild animals are noticed crossing the river bed, they will not be disturbed or chased away, instead the labours will move away from their path.

### **1.11 ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION**

Environmental Management Plan serves no purpose if it is not implemented with true spirit. Some loopholes in the EMP can also be detected afterwards when it is implanted and monitored. Thus, an implementation and monitoring programme has to be prepared.

The major attributes of environment are not confined to the mining site alone. Implementation of proposed control measures and monitoring programme has an implication on the surrounding area as well as for the region. Therefore, mine management will strengthen the existing control measures as elaborated earlier in this report and monitor the efficacy of the control measures implemented within the mining area relating to the following specific areas for eco-friendly mining:

- a.** Collection of air and water samples at strategic locations with frequency suggested and by analyzing thereof. If the parameters exceed the permissible tolerance limits, corrective regulation measure will be taken.
- b.** Collection of soil samples at strategic locations once in every two years and analysis thereof with regard to deleterious constituents, if any.
- c.** Measurement of water level fluctuations in the nearby ponds, dug wells and bore wells.

- d. Regular visual examination will be carried out to look for erosion of river banks. Any abnormal condition, if observed will be taken care of.
- e. Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done in every six months for first two years, thereafter once a year.
- f. Plantation/afforestation as will be done as per program i.e. along the road sides and near civic amenities, which will be allotted by Government bodies as it is not feasible to plant trees near the mine lease area. Post plantation, the area will be regularly monitored in every two years for evaluation of success rate. For selection of plant species local people will also be involved.

**11.13 BUDGET ALLOCATION FOR EMP IMPLEMENTATION**

The EMP Cost is Rs. 6.73 lacs

**11.14 MONITORING SCHEDULE AND PARAMETERS:**

**Table 11.3 Monitoring Schedule and Parameters**

| S No | Description of Parameters  | Schedule and Duration of Monitoring/Execution   |
|------|--|---|
| 1    | Air Quality:<br>a) In the vicinity of the mine<br>b) In the vicinity of the transportation Network<br>c) Dust suppression on roads<br><br>d) Scraping/ bulldozing of road to shift accumulated dust to the sides | 24 hourly samples twice a week for one month in each season except monsoon season<br><br>Regularly in non- monsoon months and whenever occurrence of fugitive dust takes place<br><br>Fortnightly |
| 2    | Water Quality near or around the site:<br>a) Surface water quality<br>b) Ground water quality  | Once in a season for 4 seasons in a year  |
| 3    | Ambient Noise Level  | Twice a year for two years & then once a year   |
| 4    | Soil Quality   | Once in two years on project monitoring area  |
| 5    | Inventory of Flora(tree plantation, survival etc) & Fauna  | Once in two years on project monitoring area  |
| 6    | Socio-economic condition of local, population, physical survey   | Once in 3 years   |

**1.12 BENEFITS OF MINING**

- i. Controlling river channel.
- ii. Protecting river banks.
- iii. Reducing submergence of adjoining agricultural lands.
- iv. Reducing aggradations of river level.
- v. Generating useful economic resource for construction.
- vi. Generating employment.

- vii. Improvement in socio economic conditions of the people of the study area.

### **1.13 CONCLUSION**

This Project will provide several benefits to the near Village: Ranihat, Patti- Chauras , Tehsil- Kirtinagar District - Tehrl Garhwal Uttarakhand by a proper planning and management. This project will employ most of the worker from nearby villages. Only supervisor Staff will be hired from outside. There will not be any increase in population due to the project. However, few people from other area may migrate in this area for business opportunities. During the operation of this project no adverse impact on the surrounding environment. So project is beneficiary for the surrounding village.

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