EXECUTIVE SUMMARY

1.0 GENERAL

The chapter discuses about the summary of whole EIA/EMP report along with recommendation and conclusion. The proposed mining lease area falls in Survey of India Toposheet (OSM) No.64C/4. The lease area is located in Village- Tankapur, Tehsil- Poornagiri & District- Champawat, State-Uttrakhand.

Table 1.1: Details of the Project

<table>
<tr><th>S. No.</th><th>Particulars</th><th colspan="3">Details</th></tr>
<tr><td>A.</td><td>Nature and Size of the Project</td><td colspan="3">Mining of Minor Mineral (Sand, Bajri and Boulders) from the river bed of River Sharda by M/s Uttarakhand Forest Development Corporation, located in Haldwani Forest Division, District Champawat, Uttarakhand over an area of 384.69 ha with Production Capacity of Maximum Production: 21,60,000 TPA,.</td></tr>
<tr><td>B.</td><td colspan="4">Location</td></tr>
<tr><td>Geographical Coordinates</td><td>Latitude and Longitude of</td><td colspan="3"><table>
<tr><th>Pillar No.</th><th>Latitudes</th><th>Longitudes</th></tr>
<tr><td>A</td><td>29°4'34.99" N</td><td>80°7'53.37" E</td></tr>
<tr><td>B</td><td>29°4'32.42" N</td><td>80°7'53.37" E</td></tr>
<tr><td>C</td><td>29°4'23.89" N</td><td>80°7'50.27" E</td></tr>
<tr><td>D</td><td>29°4'13.56" N</td><td>80°7'46.57" E</td></tr>
<tr><td>E</td><td>29°3'56.73" N</td><td>80°7'39.22" E</td></tr>
<tr><td>F</td><td>29°3'46.37" N</td><td>80°7'33.90" E</td></tr>
<tr><td>G</td><td>29°3'37.04" N</td><td>80°7'29.11" E</td></tr>
<tr><td>H</td><td>29°3'27.07" N</td><td>80°7'24.22" E</td></tr>
<tr><td>I</td><td>29°3'20.13" N</td><td>80°7'42.13" E</td></tr>
<tr><td>J</td><td>29°3'6.56" N</td><td>80°7'37.41" E</td></tr>
<tr><td>K</td><td>29°2'51.40" N</td><td>80°7'30.41" E</td></tr>
<tr><td>L</td><td>29°2'32.76" N</td><td>80°7'21.61" E</td></tr>
<tr><td>M</td><td>29°2'29.23" N</td><td>80°7'31.01" E</td></tr>
<tr><td>N</td><td>29°2'13.95" N</td><td>80°7'26.20" E</td></tr>
<tr><td>O</td><td>29°2'17.74" N</td><td>80°7'11.59" E</td></tr>
<tr><td>P</td><td>29°2'22.20" N</td><td>80°6'52.47" E</td></tr>
<tr><td>Q</td><td>29°2'26.80" N</td><td>80°6'33.82" E</td></tr>
<tr><td>R</td><td>29°2'49.44" N</td><td>80°6'40.88" E</td></tr>
<tr><td>S</td><td>29°2'9.84" N</td><td>80°6'49.12" E</td></tr>
<tr><td>T</td><td>29°3'21.94" N</td><td>80°6'58.21" E</td></tr>
<tr><td>U</td><td>29°3'21.87" N</td><td>80°7'2.58" E</td></tr>
<tr><td>V</td><td>29°3'32.37" N</td><td>80°7'7.92" E</td></tr>
</table></td></tr>
</table>

		W	29°3'40.77" N	80°7'11.92" E
		X	29°3'34.99" N	80°7'11.17" E
		Y	29°3'4.06" N	80°7'20.85" E
		Z	29°3'18.25" N	80°7'526.01" E
		A1	29°3'29.78" N	80°7'33.79" E
		B1	29°3'36.09" N	80°7'44.13" E
	Toposheet (OSM) No.	62C/4.		
C.	Lease Area Details			
	Lease Area	384.69 ha		
	Topography	Undulated (Riverbed)		
	Site Elevation Range	252m - 240m amsl (*Source: Mining Plan*)		
D.	Cost Details			
	Cost of the project (in lakhs)	Rs. 2110		
E.	Environmental Settings of the area			
	Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/ Protected Forest etc.) within 10 Km radius	Nandhour Wildlife Sanctuary~ 9.7 km		
	Inter-state boundary within 5 Km radius	International Boundary (India-Nepal)~ approx. 217m in East direction.		
	Nearest Town/ Major City	Tanakpur Village~ 1.38 km in West direction		
	Nearest Railway Station	Tanakpur Railway Station~1 km, W Pantnagar Airport at a distance of 62.47 km in W direction.		
	Nearest State Highway/ National Highway	NH-9 ~1.22 km, W		
	Nearest Airport	Pantanagar Airport ~62.47 km, W (Aerial distance).		
	Medical Facilities	Govt. Hospital Tanakpur~ 0.82 km in West direction.		
	Education Facilities	Nanda Convent School~ 1.65 km in West direction		
	Seismic Zone	Zone IV		
	Water Body	Project site lies on Sharda Riverbed		

1.1 INTRODUCTION

The Proposal of extraction of Sand, Bajri and Boulders(RBM) from a part of Sharda River (Sharda River RBM mining Lot.) of M/s Uttarakhand Forest Development Corporation (UKFDC) having mine lease area of 384.69 Ha is The mine is situated at Sharda riverbed area, Village-Tanakpur, Tehsil- Poornagiri**,**

District- Champavat, Uttarakhand, under Haldwani Forest Division , Haldwani. Mine lease area falls in the survey of India Toposheet no 62C/4.

1.2 PROJECT DESCRIPTION

The proposed project is for mining of Orinary Sand (Minor Mineral) by open manual method in riverbed over an area of 384.69 Ha. with proposed production capacity of 21,60,000 TPA. Ultimate depth of a bench will be 1.5 m. Riverbed block will be further replenished during rainy season. Minerals will be transported by trucks. It is widely used in construction, buildings, bridges, roads and other infrastructure. It is free from clay and non-sticky in nature. Total water requirement for the project is 161.25 KLD. Total man power requirement for the project is 3050 numbers. The site facilities like canteen, rest-shelter, first aid facility, water and electricity supply etc. will be provided as per requirement. There is no litigation pending against this project.

1.3 DESCRIPTION OF THE ENVIRONMENT

Environmental data has been collected in relation to proposed mining for Air, Noise, Water, Soil, Ecology and Biodiversity. The generation of primary data as well as collection of secondary data and information from the site and surroundings was carried out during post monsoon season i.e. **March 2022 to May 2022.**

The EIA study is being done for the Mine Lease (core zone) and area within 10 Km distance from mine lease boundary (buffer zone), both of which together comprise the study area.

Table 1.20: Baseline Status

Attribute	Baseline Status
1. Ambient Air Quality	Ambient Air Quality Monitoring reveals that the minimum and maximum concentrations of PM_{10} were found to be 45 to 69. Minimum and maximum concentrations of $PM_{2.5}$ were found to be 26 µg/m^3 and 44 µg/m^3 respectively. The minimum and maximum concentrations of NO_2 were found to be 6 µg/m^3 and 32.0 µg/m^3 respectively. The minimum & maximum concentrations of SO_2 for all the 8 AAQM stations were found to 5.0 µg/m^3 and 18.0 µg/m^3 respectively. From the above study and discussions, it can be concluded that air quality of the area is good as the levels are well within the prescribed limits as

	prescribed by CPCB.
2. Noise Levels	Ambient noise levels were measured at 8 locations around the proposed project site. The noise levels recorded during the day time were from 44.2 Leq dB to 56.8 Leq dB respectively and level of noise during night time were from 36.5 Leq dB to 42.2 Leq dB respectively. Thus noise levels at all locations were observed to be within the prescribed limits. From the above study and discussions it can be concluded that noise levels in the study area are well within the prescribed limits as prescribed by the CPCB and State Pollution Control Board
3. Water Quality	Analyses of Ground water and Surface water were taken in the Pre Monsoon Season March 2022 to May 2022. **Analysis result of Surface water:** • pH varies from to 7.42 to 7.62 • Total Hardness varies from 154 to 180 mg/L. • Total Dissolved Solids varies from 243 to 276 mg/L. • Fluoride varies from 0.64 to 0.72 mg/L • Chloride varies from 42 to 56 mg/L • COD varies from 16 to 22 mg/L • BOD found <4 mg/L **Analysis results of Ground water;** • pH varies from to 7.21 to 7.56 • Total Hardness varies from 192 to 242 mg/L. • Total Dissolved Solids varies from 292 to 332 mg/L. • Fluoride varies from 0.53 to 0.73 mg/L • Chloride varies from 44 to 56 mg/L
4. Soil Quality	Soil Monitoring was carried out in total 8 locations. • The data shows that value of pH ranges from 7.25-7.63. • Maximum conductivity of 415 µmhos/cm, minimum conductivity of 328 µmhos/cm. • Values of CEC ranges from 11.94 meq/100g and 15.28 meq/100gas maximum • Magnesium values ranges from 2.53 meq/100g as lowest and 2.82 meq/100g as highest. • The average concentration of Nitrogen, Phosphorus and Potassium in the soil samples varies from 9.6 to 10.8 mg/100gm, 0.42 to 0.48 mg/100gm and 4 to 5mg/100gm respectively

1.4 SOCIO ECONOMIC ENVIRONMENT

Socio-Economic Impact Assessment (SEIAA) refers to systematic analysis of various social and economic characteristics of human being living in a given geographical area (study area/impact area). The prime objective of SEIAA is to identify and evaluate potential socio-economic and cultural impacts of a proposed development project on the lives & conditions of people, their families and communities.

The demographic profile of the study area is given below:-

S. No.	Description	Number	Percentage to Respective Total
1	**Total Population**	**23077**	**100**
	Male	11908	51.6
	Female	11169	48.4
	Sex Ratio	938	
2	**Population (0-6 age group)**	**3216**	**100**
	Male	1703	53.0
	Female	1513	47.0
	Sex Ratio	888	
3	**Population- Scheduled Caste**	**3710**	**100**
	Male	1895	51.1
	Female	1815	48.9
	Sex Ratio	958	
4	**Population- Scheduled Tribe**	**126**	**100**
	Male	75	59.5
	Female	51	40.5
	Sex Ratio	680	
5	**Total Literates**	**15889**	**100**
	Male	9172	57.7
	Female	6717	42.3
	Gender Gap in Literates	15.4	
6	**Overall Literacy Rate**	**80.0**	
	Male	89.9	
	Female	69.6	
	Gender Gap in Literacy Rate	20.3	
7	**Total Workers**	**8475**	**100**
	Male	5701	67.3
	Female	2774	32.7
	Gender Gap in Work Participation	34.6	
8	**Main Workers**	**6399**	**100**

	Male	4514	70.5
	Female	1885	29.5
	Gender Gap in Work Participation	41.0	
9	**Marginal Workers**	**2076**	**100**
	Male	1187	57.2
	Female	889	42.8
	Gender Gap in Work Participation	14.4	
10	**Household Industrial Workers**	**64**	**100**
	Male	49	76.6
	Female	15	23.4
11	**Total Agricultural Workers**	**3375**	**100**
	Male	1951	57.8
	Female	1424	42.2
12	**Cultivators**	**3114**	**100**
	Male	1740	55.9
	Female	1374	44.1
13	**Agricultural Labour**	**261**	**100**
	Male	211	80.8
	Female	50	19.2
14	**'Other Workers'**	**2960**	**100**
	Male	2514	84.9
	Female	446	15.1

1.5 BIOLOGICAL ENVIRONMENT

The study area of the project is surrounded by forests and natural vegetation. The vegetation of the study area is dominated by Bombax-Holoptelea forest and Khair-Shisham forest etc. The species observed in the study area are generally found in abundance. Among faunal species, nine species are falling under Schedule-I of Wildlife (Protection) Act, 1972 (amendment 2022); i.e. Panthera pardus (Leopard), Panthera tigristigris (Bengal Tiger), Manis crassicaudata (Indian Pangolin), Accipiter badius (Shikra), Naja naja (King cobra), Urva edwardsi (Common Mongoose), Urva auropunctata (Small Indian Mongoose), Hystrix indica (Indian Porcupine) and Pavo cristatus (Indian Peafowl). The wildlife conservation plan will be submitted in the final EIA report

ANTICIPATED ENVIRONMENT IMPACT AND MITIGATION MEASURES

1.5.1 AIR ENVIRONMENT

The air quality in the mining area depends upon the nature and concentration of emissions and meteorological conditions.

Anticipated Impact

- Mining Operation carried out by opencast manual & semi mechanized method generate dust particles due to various activities like Loading & Unloading of sand, and Transportation.
- The impact on ambient air quality in the area surrounding the mining area depends upon the pollutant emission rate and prevailing meteorological conditions. As it is an open cast semi mechanized mine, particulate Matter (Dust) of various sizes is the only pollutant of any significance.

Mitigation measures

- The speed of trucks on haul road will be controlled as increased speed increases dust emissions. Overloading of transport vehicles will be avoided.
- Transportation of minerals will be done by covered vehicles.
- Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
- Masks will be provided to workers.
- To control the emissions regular preventive maintenance of equipment will be carried out on contractual basis.
- Green belt of adequate width will be developed.

1.5.2 NOISE ENVIRONMENT

The area is general represents calm surroundings. There is no heavy traffic, industry or noisy habitation in the area except the existing mine. As the project is proposed for open cast manual mining method there will be no blasting or drilling activities.

Anticipated Impact

- The source of Noise pollution will be the vehicular movements.
- Noise generated by manual extraction of river bed material, using shovels, crowbars etc., will be negligible.

Mitigation Measures

- Proper maintenance of all transportation vehicles will be carried out which help in reducing noise during operations. No other equipment except the transportation vehicles will be allowed.
- Noise generated by hand equipment will be negligible and will not cause detectable adverse impact.
- Awareness will be imparted to the workers about the permissible noise levels and maximum exposure to those levels.

1.5.3 WATER ENVIRONMENT

The impact of mining project on groundwater hydrology and surface water regime are site specific and depends upon the characteristics of the mineral, hydrogeology and requirement of groundwater for other uses.

Anticipated Impacts

- The Mining in the riverbed area may cause the groundwater contamination due to the intersection of the water table.
- Waste water disposed from the mining activity may contaminate the surface water.
- River recharges the ground water; excessive mining may be reduce the thickness of natural filter materials (Sediments), through which the ground water is recharged.

Mitigation Measures

- Mining will be done above the water table as well as river bed water level therefore much impact on water regime is not accepted.
- Proper analysis/Monitoring will be done to check the ground water

1.5.4 LAND ENVIRONMENT

Impact assessment study on land environment can be done by considering land use pattern/land cover, topography, drainage pattern and geological features of the mine site as well as the study area.

Anticipated Impact

- Mining activity will impact river bed topography by formation of excavation voids.
- River bed mining may bring in some change in topography at the nearby area of the mine lease
- Stacks of solid waste generated from mining activity may hinder the flow of water in monsoon season.

Mitigation Measures

Adopting suitable, site specific mitigation measures can reduce the degree of impact of mining on land. Some of the land-related mitigation measures are as follows:-

- Excavated pits will get replenished annually in monsoon itself & will be restored to original
- Mining work will be executed only by manual open cast method and the depth of pits will be restricted up to 1.5 meter or the river water level whichever is less.
- Mineral will be mined after leaving the 3m width as a safety zone on both sides of the riverbed.

1.5.6 Socio Economic

Anticipated Impact

- Impact on the Demographic Composition
- Impact on Employment Opportunities

1.5.7 Solid Waste

Anticipated Impact

- As there is practically no soil cover observed in the river bed, this RBM project does not involve any waste generation.
- No municipal waste other than domestic sewage shall be generated.

Mitigation Measures

- Only clayey soil generated during mining process which will be used for the plantation.
- Domestic sewage will be disposed off into septic tanks followed by soak pits

1.5.8 Traffic Environment

Anticipated Impact

- The increase in traffic density will lead to the air pollution and it cause the effect on human health like damage to lung tissue, cancer, asthma etc.
- The movement of vehicles cause the noise pollution

Mitigation Measures

- Vehicles with PUC certificate will be hired.
- Regular maintenance of vehicles will be compelled to ensure smooth running of vehicles.
- Regular health checkups camps will be organised for the safety purpose of the workers.
- Unnecessary blowing of horn will be avoided.

1.6 ANALYSIS OF ALTERNATIVES

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

1.7 ENVIRONMENT MONITORING PROGRAMME

UKFDC has formulated well laid-out Environmental Policy, wherein preservation of environment has been accorded a most strategic and prime position. The various protocol procedures in connection with communication channels upwards and downwards, for dealing with violations or departures in environmental standards involvement of Board of Directors as well as shareholders about such incidences, etc, have been described in detail in chapter VI.

Regular monitoring of environmental parameters of immense importance to assess the status of environment during project operation. With the knowledge of baseline conditions, the monitoring programme will serve as an indicator for any deterioration in environmental conditions due to operations of the project, which will enable to take suitable mitigation steps in time to safeguard the environment.

1.8 ADDITIONAL STUDIES

The possible risks in the case of river bed mining project are bank erosions, floods, accidents due to the transport etc. At present the mining is proposed in a mild sloping forest land in river beds. Pits will be created of limited depth 1.5 m from first to fifth year or river water levels whichever less, thus the chance of failure of pit slope not seems to be appeared,

1.9 PROJECT BENEFIT

The proposed project brings overall improvement in the locality, neighbourhood and the state by bringing employment generation at local level and revenue to state government. Hence it will be helpful for the economic growth and support to enhance quality of life through employment

1.10 ENVIRONMENTAL COST BENEFIT ANALYSIS

It is considered desirable that the mining project may be implemented. Project cost for the proposed Mining project having area of 384.69 Ha. falling in Village- Tanakpur, Tehsil- Poornagiri, District- Champavat, Uttarakhand, under Haldwani Forest Division , Haldwani is Rs. 2110 Lakhs.

1.11 ENVIRONMENTAL MANAGEMENT PLAN

As per Above discussion there is no major impact on the environment due to mining except fugitive emission in the form of dust generated during handling of mineral. The adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Plantation development will be carried out along the approach roads, around Govt. buildings etc. It will prove an effective pollution mitigate technique, and help avoid soil erosion during monsoon season. Employment opportunities will be provided to the locals only as providing extraction of minerals from the mine site is the only prevailing occupation for them for their livelihood. A budget of Rs. 12 Lakhs (Capital Cost) & Rs. 81.4 Lakh (Recurring Cost) under EMP head are incurred by Project Proponent.

CONCLUSION

The proposed project will provide the employment to local people in different activities such as mining, transportation and plantation activities. The project activity will not have any major impact on the environment. At post mining stage of proposed project, the existing land use will remain same i.e. riverbed, and it will get replenished yearly during monsoon season. Also the extracted sand will be used in construction activities like building, infrastructure facilities. The Corporate Social Responsibility initiatives will have a positive impact on socio economic environment of the region.