

EXECUTIVE SUMMARY

FOR

MINING OF MINOR MINERAL (SAND, BAJRI AND BOULDERS) FROM THE RIVER BED
OF RIVER JAKHAN-2 IN VILLAGE MAJRI GRANT, TEHSIL & DISTRICT- DEHRADUN,
UTTARAKHAND

(Category-A PROJECT; CAPACITY: 2866050.00 TPA)

(AS RAJAJI TIGER RESERVE SITUATED AT 5.40 KM FROM RAJAJI TIGER RESERVE)



PROJECT PROPONENT

UTTARAKHAND FOREST DEVELOPMENT CORPORATION



STUDY PERIOD: DEC 2019- FEB 2020

MCPL/EMD/MIN/2019-20/09/01C

JULY, 2021



Prepared By

MANTEC CONSULTANTS PVT.LTD.

(QCI Accredited EIA Consultant at S.No.155 as per List of Accredited Consultant Organizations/Rev12/JULY 09, 2021)

(NABET Accredited EIA consultant, MoEF&CC and NABL approved Laboratory)

Environment Division, D-36, Sector-6, Noida-201 301, U. P., Ph. 0120-4215000, 0120-4215807 Fax.
0120-4215809,

e-mail :environment@manteconsultants.com

1. INTRODUCTION

M/s Uttarakhand Forest Development Corporation (UKFDC) is a statutory body constituted by the State Government of Uttarakhand. The Corporation was formed for the better preservation, supervision and development of forest, also for better exploitation of forest produce within the State and for matters connected therewith.

The Corporation has been progressing forward not only in its financial aspect but also has taken a big leap in the direction of diversification of its activities.

M/s Uttarakhand Forest Development Corporation (UKFDC) has proposed for mining of Sand, Bajri and Boulder minor mineral in their mining lease area of 96.50 hectare in Village Majri Grant, Tehsil and District Dehradun for collection of 2866050.00 TPA.

2. PROJECT PROPOSAL

It has proposed for mining of Sand, Bajri and Boulders (minor minerals) in their mining lease area of 96.50 hectares in village Majri Grant, Tehsil and District- Dehradun for collection of 2866050.00 TPA of minor minerals. The applicant is seeking prior Environmental Clearance for the project as per EIA notification' 2006 and its subsequent amendments, so it has allotted the job for EIA/EMP Study of their proposed project to **Mantec Consultant Pvt. Ltd., Noida**. Since, the applied mine lease area is located at a distance of 5.40 kms from Rajaji Tiger Reserve, it falls under "Category A" & the Schedule Clause number 1(a) of EIA notification 2006 and its subsequent amendments. The Letter of Intent (LoI) has been issued by the Director of Mines & Geology department, Uttarakhand vide ref. no. vide No 536 /खनन/ आशय पत्र / व०वि०नि०/ भू०खनि०ई०/2018-19 dated 24.07.2018 & further ref. no. vide 1037/खनन/आशयपत्र/व०वि०नि०/भू०खनि०ई०/2018-19, dated 05.11.2018.

Table 1 Details of the Project

S. No.	Particulars	Details
A.	Lease Area Details	
	Lease Area	96.50 ha
	Topography	Undulated (Riverbed)
	Site Elevation Range	464.6m amsl to 550.0m amsl (Source: Mining Plan)
B.	Production Details:	
	Proposed Production	2866050.00 TPA
C.	Cost Details	
	Cost of the project	Rs. 5.15 Crores
	Cost for EMP	Rs. 37.10 Lakhs/Yr (Capital Cost) Rs. 12.23 Lakhs/Yr (Recurring Cost)
	OH&S	Rs. 3.00 Lakh/Yr (Capital Cost) Rs 2.00 Lakhs/Yr (Recurring Cost)
	Cost For Biodiversity Conservation	Rs. 4.80 Lakhs (Capital Cost) Rs. 2.03 Lakhs (Recurring Cost)
E.	Environmental Settings of the area	
	Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/ Protected Forest etc.) within 10 Km radius	<ul style="list-style-type: none"> • Rajaji Tiger Reserve~5.40 Km, SW • Lachhiwala Range Reserve Forest ~5.1 Km, NW • Barkot Range Reserve Forest ~1.4 Km. • Rishikesh Reserve Forest ~3.7 Km, N

Inter-state boundary within 5 Km radius	None
Nearest Town/ Major City	Dehradun~17.46 Km, N
Nearest Railway Station	Doiwala Railway Station~4.6 Km, W
Nearest State Highway/ National Highway	NH 7 Haridwar Dehradun Road ~2.27 km, W
Nearest Airport	Jolly Grant Airport ~1.8 km, N (Aerial distance)
Nearest Post Office	India Post Office Ranipokhri~4.12 Km, N
Nearest Police Station	Jolly Grant Police Station~1.18 kms in NNW
Medical Facilities	Himalayan Hospital~2.46 Km, N
Education Facilities	Swami Rama Himalayan University~ 2.4 Km, N CNS High School~0.73Km, N
Seismic Zone	Zone-IV (As per 1893:2002)
Water Body	Song River ~ 3.6 kms in W Chandrabhaga River ~ 8.4 kms in E

3. PROJECT DESCRIPTION

The proposed project is for mining of Sand, Bajri and Boulder (Minor Mineral) by open manual method in riverbed over an area of 96.50 Ha with proposed production capacity of 2866050 TPA.

The total geological reserve is 5730420.42 TPA and total mineable reserve is 3184500.00 TPA. Ultimate depth of a bench will be 3.0 m.

Riverbed block will be further replenished during rainy season. Minerals will be transported by trucks. It is widely used in construction, buildings, bridges and other infrastructure.

Total water requirement for the project is 35.7 KLD. Total manpower requirement for the project is 410 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. It is coming under the Zone IV of Seismic Zone (As per 1893:2002)

4. 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 winter season i.e..

December 2019 to February 2020.

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 1-2: Baseline Status

Attribute	Baseline Status
1. Ambient Air Quality	<ul style="list-style-type: none"> • Ambient Air quality Monitoring was carried out in total 8 locations and the maximum value for PM₁₀ is observed as 69 µg/m³ at mine site and minimum value of 39 µg/m³ at Doiwala. • Ambient Air Quality Monitoring was carried out in total 8 locations

	<p>and the maximum value for PM_{2.5} is observed as 38 µg/m³ at mine site and minimum value of 21 µg/m³ observed at Chidderwala</p> <ul style="list-style-type: none"> • Ambient Air Quality Monitoring was carried out in total 8 locations and the maximum value for SO₂ is observed as 15 µg/m³ at Lal Tappad & Narendra Nagar and minimum value 5 µg/m³ is observed at Thano. • Ambient Air Quality Monitoring was carried out in total 8 locations and the maximum value for NO₂ is observed as 30 µg/m³ at Doiwala and the minimum value of 14 µg/m³ is observed at Jolly Grant.
2. Noise Levels	<ul style="list-style-type: none"> • Noise Monitoring was carried out in total 8 locations and the noise levels recorded during the day time were from 46.7 Leq dB to 58.6 Leq dB respectively and level of noise during night time were from 37.5 Leq dB to 43.8 Leq dB respectively.
3. Water Quality	<p>(i) Ground Water-Ground water monitoring was carried out in total 6 locations.</p> <ul style="list-style-type: none"> • The value of pH varies from to 7.11 to 7.56 • Total Hardness varies from 167 to 282 mg/L. • Total Dissolved Solids varies from 261 to 375 mg/L. • Fluoride varies from 0.56 to 0.72 mg/L • Chloride varies from 58.0 to 96.0 mg/L <p>(ii) Surface Water - Surface Monitoring was carried out in 2 locations.</p> <ul style="list-style-type: none"> • pH varies from to 7.33 to 7.48 • Total Hardness varies from 102 to 118 mg/L. • Total Dissolved Solids varies from 192.0 to 212.0 mg/L. • Fluoride varies from 0.31 to 0.63 mg/L • Chloride varies from 36.0 to 54.0 mg/L • COD varies from 18.0 to 54 mg/L • BOD varies from <4.0 to 8 mg/L
4. Soil Quality	<p>Soil Monitoring was carried out in total 8 locations.</p> <ul style="list-style-type: none"> • The value of pH ranges from 7.14-7.63. • Chidderwala village shows maximum conductivity of 384 µmhos/cm, Thano village shows minimum conductivity of 315 µmhos/cm. • Magnesium values ranges from 2.48 meq/100g as lowest at Anthoorwala and Narendra Nagar and 3.41 meq/100g as highest at Mine Site. • The average concentration of Nitrogen, Phosphorus and Potassium in the soil samples varies from 9.4 to 11.3 mg/100gm, 0.41 to 0.72 mg/100gm and 4.2 to 5.2 mg/100gm.

b) Socio Economic Environment

Socio-Economic Impact Assessment (SEIA) 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 SEIA 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:-

**EXECUTIVE SUMMARY FOR MINING OF MINOR MINERALS FROM JAKHAN-2 RIVER BED, DEHRADUN BY
M/S UTTARAKHAND FOREST DEVELOPMENT CORPORATION**

S. No.	Description	Number	Percentage to Respective Total
1	Total Population	142288	100
	Male	74081	52.1
	Female	68207	47.9
	Sex Ratio	920	
2	Population (0-6) Age Group	17575	100
	Male	9410	53.5
	Female	8165	46.5
	Sex Ratio	867	
3	Population- Scheduled Caste	15222	100
	Male	8020	52.7
	Female	7202	47.3
	Sex Ratio	898	
4	Population- Scheduled Tribe	1790	100
	Male	946	52.8
	Female	844	47.2
	Sex Ratio	892	
5	Total Literates	104315	100
	Male	58484	56.1
	Female	45831	43.9
	Gender Gap in Literates	12.2	
6	Overall Literacy Rate	83.6	
	Male	90.4	
	Female	76.3	
	Gender Gap in Literacy Rate	14.1	
7	Total Workers	51193	100
	Male	37803	73.8
	Female	13390	26.2
	Gender Gap in Work Participation	47.6	
8	Main Workers	38784	100
	Male	30591	78.9
	Female	8193	21.1
	Gender Gap in Work Participation	57.8	
9	Marginal Workers	12409	100
	Male	7212	58.1
	Female	5197	41.9
	Gender Gap in Work Participation	16.2	
10	Household Industrial Workers	1757	100
	Male	1181	67.2
	Female	576	32.8
11	Total Agricultural Workers	9533	100
	Male	6875	72.1

	Female	2658	27.9
12	Cultivators	6982	100
	Male	4765	68.2
	Female	2217	31.8
13	Agricultural Labour	2551	100
	Male	2110	82.7
	Female	441	17.3
14	Other Workers	27494	100
	Male	22535	82.0
	Female	4959	18.0

(Source: Primary Census Abstract, 2011)

(c) Biological Environment

The study area falls in the Forests land. The list of total number of different plant species (trees, shrubs, herbs and climbers) has been prepared based on the site observations and along with consultation with local peoples.

The most common floral species are "*Bombaxceiba, Lannea coromandelica, Mallotus philippensis, Dalbergia sissoo, Aegle marmelos, Melia azadirachta, Tectona grandis, Shorea robusta, Trewia nudiflora, Adhatoda vasica, Boehmeria macrophylla, Callicarpa macrophylla, Carissa carandas, Cassia occidentalis, Commelina benghalensis, Jasminum pubescens, Lantana camara, Solanum torvum, Urtica dioica*" etc. Whereas, common herbs are "*Achyranthes aspera, Ageratum conyzoides, Artemisia nilagirica, Chenopodium album, Euphorbia hirta, Justicia procumbens, Oxalis corniculata, Rauwolfia sp. Sida cordifolia and Xanthium strumarium*" etc.

There are no Rare or Critically Endangered and Threatened plant species in the study area as per "IUCN category". The floral species found in the study area are common and wide spread occurrence.

Various kinds of birds are found flying across the project area. There are no species- specific major nesting sites near the project site. The site is also not known for any migratory bird halt. Snakes such as **Cobra** (*Najanaja*) and Common **green whip snakes** (*Hierophisviridiflavus*) have been spotted in the study area.

Amphibians such as **Cascades frog** (*Rana cascadae*), **Common Asian Toad** (*Duttaphrynus melanostictus*) are more frequent along the river during monsoon. Small fish species are found in the river.

Around 102 faunal species are reported from this area (24 mammals, 51 birds, 9 reptilians, 8 amphibians and 10 butterflies species). The major animals reported from surrounding forest areas include Elephant (*Elephas maximus*), **Leopard** (*Panthera pardus*), **Leopard Cat** (*Prionailurus bengalensis*), Bengal Tiger (*Panthera tigris*), **Indian Pangolin** (*Manis crassicaudata*) and **Indian Peafowl** (*Pavo cristatus*) some of which are endangered and accorded protection under the "Wildlife Protection Act, 1972". All the listed species were compared with "IUCN Red Data Book and "Indian Wildlife Protection Act, 1972".

5. ANTICIPATED ENVIRONMENT IMPACT AND MITIGATION MEASURES

(a) 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.
- 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.

(b) NOISE ENVIRONMENT

The area generally represents calm surroundings. There is no heavy traffic, industry or noisy habitation in the area. 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.

(c) 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 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.

(d) 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 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.
- Mineral will be mined after leaving the 25% width as a safety zone on both sides of the riverbed.
- Solid waste will not be stacked on the bank side as it will hinder the flow of water in monsoon season.
- The mine working will remain confined to allotted river bed only, so it will not disturb any surface area outside the mine lease area which may affect topography or drainage.

(e) ECOLOGY & BIODIVERSITY

Anticipated Impact

- There shall be negligible air emissions or effluents from the project site. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

Mitigation Measures

- Plantation will be done along the approach roads. These activities will help to improve the Floral cover of the area, which helps in countering soil erosion.
- All the preventive measures will be taken for growth & development of flora.
- Although, the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality by plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.
- Suitable plan for conservation of Schedule-I Species have prepared and necessary fund to implement for the same will be made.

(f) SOCIO ECONOMIC

Anticipated Impact

There will be positive impact on the employment and nearby society due to the following reasons:

- The project will generate 410 employment opportunities for the local people in the mining project. Indirect employment is also expected due to the associated mining activities.
- The project will prevent widening of the river bed due to the deposition of sediments which if not mined out, will result in rising of the river bed, thereby causing flood, damage to the adjoining areas, destruction of life & property.
- The project will incur towards the corporate social responsibility for wellbeing of the nearby villagers.

(g) Solid Waste

Anticipated Impact

- As there is practically no soil cover observed in the river bed, this 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.

(h) 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 done to ensure smooth running of vehicles.
- Regular health checkup camps will be organised for the safety purpose of the workers.
- Unnecessary blowing of horn will be avoided.

6. ANALYSIS OF ALTERNATIVES

No alternate site is suggested as it is site specific. Since, the Letter of Intent (LoI) has been issued by the Director of Mines & Geology department, Uttarakhand for the river bed mining.

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,

Regular monitoring of environmental parameters will be carried out 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.

8. ADDITIONAL STUDIES

At present, the mining is proposed in a mild sloping in river bed to protect the forest from the erosion. Pits will be created upto depth 3.0 m or ground water levels whichever less during mining

period.

A replenishment study was undertaken by "ICAR-Indian Institute of Soil and Water Conservation, Dehradun (Uttarakhand) on 'Assessment of extractable river bed material from river'. On the basis of recommendations, permissible quantity of RBM and the methodology of extraction will be followed so as to maintain the hydrological profile of the river along with the extraction of the RBM.

9. PROJECT BENEFITS

The project will bring 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.

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 96.50 Ha. falling in Village-Majri Grant, Tehsil & District-Dehradun, Uttarakhand is Rs. 5.15 Crores.

11. ENVIRONMENTAL MANAGEMENT PLAN

There are no major impacts on the environment due to the 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 mitigation technique and help to avoid soil erosion during monsoon season. Employment opportunities will be provided to the locals only through extraction of minerals from the mine site and is the only prevailing occupation for them to their livelihood. A budget of Rs.3.00 Lakhs (Capital Cost) & Rs. 2.00 Lakhs (Recurring Cost) for Occupational Health and Safety and a budget of Rs. 37.10 Lakhs (Capital Cost) & Rs. 12.23 Lakhs (Recurring Cost) under Environmental management control measures.

12. 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 extraction of sand, Bajri and Boulder used in construction activities like building, infrastructure facilities, construction etc. will contribute to the overall development of the region.

The Corporate Social Responsibility initiatives will have a positive impact on socio economic environment of the region. Therefore, this Project should be implemented at the earliest in the State and National interest.