

EXECUTIVE SUMMARY OF DRAFT EIA REPORT

FOR

PROPOSED LIMESTONE MINING PROJECT (Minor mineral)

Proposed area is 2.452 ha

Total Cluster area 13.083 ha

Village: Bhinpuri ,Tehsil- Sahaspur Lohar , District-Kabirdham ,

State- Chhattisgarh

Catogory –B1

TOR Number: 824/S.E.A.C.C.G./Mine/1961 Nawa Raipur Atal nagar, dated 26/08/2022

APPLICANT

Shri. Rajesh Kumar Singhaniya

S/o.Shri Ghanshyam Lal Singhaniya

Village – Than Khamhariya

Tahsil: Bemetara

District: Bemetara

Chhattisgarh Pin - 491335

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ENVIRONMENTAL LABORATORY AND CONSULTANCY

NABET Accredited EIA Consulting Organization

NABET Accreditation Number: NABET/EIA/2023/RA0194

Oct, 2022

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EXECUTIVE SUMMARY

1.0 Introduction

The propose Limestone Quarry, mineral project of 1.830 Hectare situated near Village-Bhinpuri , Tehsil-Sahaspur Lohara , District – Kabirdham , State-Chhattisgarh. The Proposed Lease is issued in favour of Shri Kaushal Chandrawanshi by collector office (Mining Branch) District Kabirdham of Chattisgarh under Chhattisgarh Minor Mineral Rule 2015 vide letter no. 510/khali/khanij/U.P./2021, Kabirdham dated 23.09.2021. & LOI Extended on 30.09.2022 by director, Directorate of Geology & Mining Raipur. Mining Plan was prepared and duly approved by Dy. Diretor (Mineral Admin.), office of collector (Mining Branch) dist Bilaspur vide letter no. 3420/Khani/chuna patthar/u.yo./2022 Bilaspur dated 04.03.2022.

The proposed Limestone mining mineral project of area 2.452 Hectare situated near Village –Bhinpuri, Tehsil – Sahaspur Lohara , District –Kabirdham , State-Chhattisgarh. The Proposed Lease is issued in favour of Shri Rajesh Singhaniya by collector office (Mining Branch) District Kabirdham of Chattisgarh under Chhattisgarh Minor Mineral Rule 2015 vide letter no. 547/kha.li/khanij/U.P./2021, Kabirdham dated 29.09.2021. & LoI Extended on 30.09.2022 director Directorate Geology & Mining Raipur C.G. Mining Plan was prepared and duly approved by Dy. Diretor (Mineral Admin.), office of collector (Mining Branch) vide letter no. 3419/2/Khani/chuna patthar/U.Yo./2022 Bilaspur dated 04.03.2022.

This mining project comes under Category ‘B1’ (Cluster situation) Project or activity 1(a) as per EIA Notifications 2006, and its subsequent amendments and will be appraised at SEAC, Chattisgarh. The lease is falling in the cluster as per 15th January 2016 EIA Notification of MoEF&CC and NGT order dated13th September 2018.

Project Location

The proposed mining lease area is located in Bhinpuri village, Sahaspur Lohara Tahsil, and Kabirdham District of Chhattisgrah State. Bhinpuri Limestone Quarry mine of Kaushal Chandrawanshi & Rajesh Kumar Singhaniya who are in same cluster both can be located in the Survey of India Toposheet No. 64 G/1, 64G/2. The mining area is a Pvt. land. Bhinpuri Limestone Quarry mine are located at a distance approx. 22.50 km from district head quarter Kawardha/ Kabirdham and 70 km from State Capital Raipur. Nearest Bus Stand Sahaspur lohara Bus Stop situated about 0.850 km distance whereas Nearest Railway Station is located at Bhilai railway station about 73.20 km in south from the lease cluster. The location Index map of the project sites are given in below-

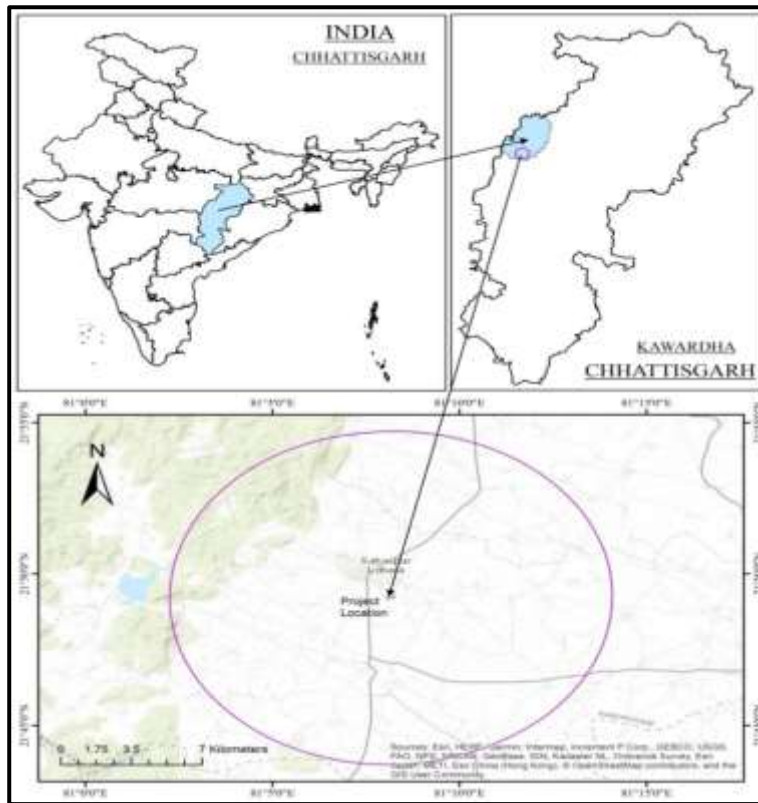


Figure E-1: Location map of the Project Site

Table E.1: Environmental Setting of Proposed Limestone Mining Projects

| Particulars | Details | | | | | |
|-------------------------------|---|---------------|--------------|---|---------------|---------------|
| | Kaushal Chandrawansi | | | Rajesh Kumar Singhaniya | | |
| Name of the Project Proponent | Kaushal Chandrawansi | | | Rajesh Kumar Singhaniya | | |
| Name of the Project | Bhinpuri Limestone Quarry | | | Bhinpuri Limestone Quarry | | |
| Location of the Project | Village- Bhinpuri, Tehsil- Sahaspur Lohara, District- Kabirdham State- Chhattisgarh | | | Village- Bhinpuri, Tehsil- Sahaspur Lohara, District- Kabirdham State- Chhattisgarh | | |
| Geographical Coordinates: | Boundary | Latitude | Longitude | Boundary | Latitude | Longitude |
| | BL1 | 21°49'17.66"N | 81°8'14.38"E | BL1 | 21°49'16.52"N | 81°08'04.69"E |
| | BL2 | 21°49'16.82"N | 81°8'16.68"E | BL2 | 21°49'14.80"N | 81°08'09.13"E |
| | BL3 | 21°49'14.36"N | 81°8'15.58"E | BL3 | 21°49'07.60"N | 81°08'05.33"E |
| | BL4 | 21°49'14.42"N | 81°8'15.94"E | BL4 | 21°49'09.70"N | 81°08'03.15"E |
| | BL5 | 21°49'13.53"N | 81°8'15.96"E | BL5 | 21°49'12.42"N | 81°08'04.56"E |
| | BL6 | 21°49'12.42"N | 81°8'15.48"E | BL6 | 21°49'12.93"N | 81°08'03.26"E |
| | BL7 | 21°49'12.98"N | 81°8'13.95"E | | | |
| | BL8 | 21°49'12.31"N | 81°8'13.64"E | | | |
| | BL9 | 21°49'12.96"N | 81°8'12.01"E | | | |
| | BL10 | 21°49'14.66"N | 81°8'10.17"E | | | |
| | BL11 | 21°49'17.16"N | 81°8'11.76"E | | | |
| | BL12 | 21°49'16.49"N | 81°8'13.74"E | | | |
| Maximum Temperature | 45.2° C | | | 45.2° C | | |
| Minimum Temperature | 7° C | | | 7° C | | |
| Annual rainfall | 1193.40 mm | | | 1193.40 mm | | |
| Size of the Project | 1.83 hect | | | 2.452 hect | | |
| Nearest Highway | NH-30 at 22.70 km | | | NH-30 at 22.90 km | | |

| | | |
|--|--|--|
| Nearest railway station | Bhilai railway Station at 73.20 km | Bhilai railway Station at 73.20 km |
| Nearest Airport | Raipur -94.00 km | Raipur -94.00 km |
| Nearest town/City | Sahaspur –Lohara at 1.40 km | Sahaspur –Lohara at 1.40 km |
| Nearest water body | Nalla at 0 m (However 50 m is maintained as safety distance from nalla & mine pit) | Nalla at 0 m (However 50 m is maintained as safety distance from nalla & mine pit) |
| Major water bodies within 10 km radius | Karra River at 3.90 km | Karra River at 3.65 km |
| Densely populated or built-up area | Sahaspur –Lohara at 1.40 km | Sahaspur –Lohara at 1.40 km |
| Archaeologically important places | None within 10 km radius | None within 10 km radius |
| Protected areas as per Wildlife Protection Act (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves) | None within 10 km radius | None within 10 km radius |
| Reserved / Protected Forests | Gandai R.F in 5.4 , NW Koylari P.F in 8.72, SW Bhibhauri Open Jungle in 6.3, SW Nunchhapar P.F. in 7.97, SW | Gandai R.F in 5.4 , NW Koylari P.F in 8.72, SW Bhibhauri Open Jungle in 6.3, SW Nunchhapar P.F. in 7.97, SW |
| Defense Installations | None within 10 km radius | |
| Seismicity | Since project site comes under Seismic zone II, which is least active zone for earthquakes as per IS: 1893 (Part 1: 2002). | Since project site comes under Seismic zone II, which is least active zone for earthquakes as per IS: 1893 (Part 1: 2002). |
| Wildlife Sanctuary | None within 10 km radius | None within 10 km radius |
| National Park | None within 10 km radius | None within 10 km radius |
| Biosphere reserves | None within 10 km radius | None within 10 km radius |
| Important migration routes of birds | None within 10 km radius | None within 10 km radius |
| Ramsar sites (Wetlands of International Importance) | None within 10 km radius | None within 10 km radius |
| Unique or threatened ecosystems | None within 10 km radius | None within 10 km radius |
| Important topographical features, including ridges, river valleys, shorelines, and riparian areas | None within 10 km radius | None within 10 km radius |
| Mangrooves | None within 10 km radius | None within 10 km radius |
| Physical Sensitive Receptors | None within 10 km radius | None within 10 km radius |
| Notified Ground Water Zone by CGWA | None within 10 km radius | None within 10 km radius |
| Critically Environmental polluted Area | None within 10 km radius | None within 10 km radius |
| Pollution Sources | None within 10 km radius | None within 10 km radius |

2.0 Project Description

The proposed project of Bhinpuri Limestone Quarry covers an area of 1.83 Ha. under Khasra No. 7, 8/1, 10/1, 10/4 of Kaushal Chandrawanshi and Area of 2.452 Ha. under khasra no. 44/1, 44/2, 44/3, 44 of Rajesh Kumar Singhaniya respectively. The proposed method of mining is open cast semi mechanized mining.

Table E.2: Salient Features of Proposed Project

| INFORMATION | DETAILS | |
|---|--|---|
| Name of Lease holders | Kaushal Chandrawanshi | Rajesh Kumar Singhaniya |
| Address and Contact details of Lease Holders | Kaushal Chandrawanshi S/o.ShriJagdish Chandrawanshi Ramnagar ward no -03 Tahsil: Kabirdham District: Kabirdham Chhattisgarh | Rajesh kumar Singhaniya S/o Ghanshyam lal Singhaniya Village:Than Khamhariya Tahsil: Bemetara District: Bemetara, Chhattisgarh |
| Name of the project | Bhinpuri Limestone Quarry | Bhinpuri Limestone Quarry |
| Village | Bhinpuri | Bhinpuri |
| Tahsil | Sahaspur Lohara | Sahaspur Lohara |
| District | Kabirdham | Kabirdham |
| State | Chhattisgarh | Chhattisgarh |
| Toposheet No | 64 G/1, 64 G/2, | 64 G/1, 64 G/2, |
| Name of the Mineral to be mined | Limestone | Limestone |
| Type of land | Private Land. There is no Forest land. No human settlement. | Private Land. There is no Forest land. No human settlement. |
| Status of Operation (New Project or Existing Project operating since) | New Project | New Project |
| Mine Area | 1.83 ha | 2.452 ha |
| Ultimate depth of mining | 18 m | 18 m |
| Mineable Reserve | 2,68,413.00 Ton | 4,59,265.625 Ton |
| Production Capacity | 57,750 T/ Year | 96,795 T/ Year |
| Life of Mine | As per Lease period -30 years | As per Lease period -30 years |

| | | |
|--|--|--|
| Quantity of topsoil and Overburden estimated to be removed | Top soil –1.0 m | Top soil –1.0 m |
| Depth of Ground Water Table | Approx. 40 meters of below from the normal surface level | Approx. 40 meters of below from the normal surface level |
| Method of Mining | Opencast Semi-Mechanized | Opencast Semi-Mechanized |
| No. of working days | 280 Days | 280 Days |
| Seismic Zone | Seismic Zone II | Seismic Zone II |

2.1 Mining methodology

The mode of working will be open cast semi mechanized method of mining with low capacity blast. Small scale drilling and blasting will be carried out for exploration of stone. Rock breaker, Jack Hammer will yield the sufficient quantity of stone. Further the stone will be sized and dressed according to the required specification and stacked on the mine surface.

2.2 Water Requirement

The total water requirement shall be 3.73KLD and 4.24 KLD for Kaushal chandrawanshi and Rajesh Singhaniya respectively for domestic, green belt and sprinkling purpose, which will be sourced from Water Tankers from nearby village. Or from borewell. Detail of water requirement is given below:

Dust suppression – 4.0 KLD

Green Belt –2.49 KLD

Domestic – 1.475 KLD

Table E. 3.1: Water Requirement Details (Kaushal Chandrawanshi)

| Sr. No. | Usage | Water Requirement | |
|-----------------|--|--|-----------------|
| 1. | Greenbelt Development@ 2.5 L/tree | 417 Trees X 2.5Lit/day = 1042 or say 1050 Lit/day | 1.050 KLD |
| 2. | Dust Suppression @ 0.5 L/Sqm (twice a day) | Haul road Area = (500 m Length x 4 m width = 2000 sqm.) x 0.5 li/sqm = 1000 lit /day x 2 time = 2000 lit/day | 2.000 KLD |
| 3. | Domestic Purpose @25 lpd/worker | 27 workers x 25 lit per day = 675 Lit/Day | 0.675 KLD |
| Total :: | | | 3.73 KLD |

Table E. 3.2 : Water Requirement Details (Shri Rajesh Kumar Singhaniya)

| Sr. No. | Usage | Water Requirement | |
|---------|----------------------------|---|----------|
| 1. | Greenbelt Development@ 2.5 | 573 Trees X 2.5Lit/day = 1432 or say 1440 Lit/day | 1.44 KLD |

| | | | |
|-----------------|--|--|-----------------|
| | L/tree | | |
| 2. | Dust Suppression @ 0.5 L/Sqm (twice a day) | Haul road Area = (500 m Length x 4 m width = 2000 sqm.) x 0.5 li/sqm = 1000 lit /day x 2 time = 2000 lit/day | 2.00 KLD |
| 3. | Domestic Purpose @25 lpd/worker | 32 workers x 25 lit per day = 800 Lit/Day | 0.80 KLD |
| Total :: | | | 4.24 KLD |

2.3 Power Requirement

No power is required for mining purpose only for labor, admin building and for crusher plant. State electricity board will supply the electricity. Electric power is available in the lease area.

2.4 Manpower

The mining project will generate direct & indirect employment. About 59 per day people will get direct employment, and some persons will also be affected indirectly and employed with allied and related industries, such as transportation, maintenance, etc. Following staff & workers are proposed to be employed: -

Table E. 4: Manpower Details

| S.No. | Category | No. of persons | |
|--------------|-------------|----------------------|-------------------------|
| | | Kaushal Chandrawansi | Rajesh Kumar Singhaniya |
| 1 | Manager | 1 | 1 |
| | Mining Mate | 1 | 1 |
| 2 | Skilled | 10 | 15 |
| 3 | Unskilled | 15 | 15 |
| Total | | 27 | 32 |

3.0 Description of Environment

The area around the proposed mining site has been surveyed for physical features and existing environmental scenario. The field survey and baseline monitoring has been done from the period of October **2022 to December 2022** (Post Monsoon Season)

The observations for post monsoon season-(October 2022 –December 2022) are summarized below:

3.1 Meteorology

The secondary meteorological data of the study period collected from [www. imdpune.gov.in/](http://www.imdpune.gov.in/). The month wise meteorological data is given in **Table E-5**.

Table E 5: Summary of the Meteorological (Raipur)

| Period | Wind Speed (m/s) | | Temp (°C) | | Relative Humidity (%) | | Rainfall (mm) |
|----------|------------------|------|-----------|-------|-----------------------|-------|---------------|
| | Max | Min | Max | Min | Max | Min | |
| Oct - 22 | 6.09 | 0.08 | 29.95 | 13.14 | 99.69 | 50.94 | 1.63 |
| Nov - 22 | 3.99 | 0.02 | 29.8 | 10.09 | 100 | 33.62 | 0 |
| Dec - 22 | 4.41 | 0.11 | 27.73 | 9.54 | 100 | 17.94 | 0.01 |

Source: Weather Summary for October 2022-December 2022(<https://www.imdpune.gov.in/>)

3.2 Air Environment

The ambient air quality is carried out at 8 locations in and around the project site and studies are carried out as per CPCB standards. It is observed that, all the values are within the prescribed limits as per National Ambient Air Quality Standards (NAAQS), 2009.

The observations for Post Monsoon season - (October 2022 – December 2022) are summarized below

Particulate Matter (PM₁₀) :

A maximum concentration of PM₁₀ is 70 µg/m³ was observed at the AAQM-1 and minimum value of 61 µg/m³ was observed at AAQM – 6

Respirable Particulate Matter (PM_{2.5}) :

A maximum concentration of PM_{2.5} is recorded to be 40 µg/m³ at AAQM-1, 5 and minimum value of 31 µg/m³ was observed at AAQM-7.

Sulphur Dioxide (SO₂):

Maximum concentration of SO₂ is observed to be 16 µg/m³ at AAQM -5 and minimum value of 5 µg/m³ observed at AAQM- 8,2.

Oxides of Nitrogen (NO_x):

Maximum concentration of NO_x is observed to be 27µg/m³ at AAQM –5 and minimum value of 11 µg/m³ observed at AAQM – 7

Carbon Monoxide (CO):

Maximum concentrations in the region are observed to be 1.4 mg/m³ at AAQM-6, 5 and minimum value of 0.5 mg/m³ observed at AAQM-2, 3, 7, 8.

Silica

Silica in the ambient air of the 10 Km radius of the study area of the project site has been analysed from the PM₁₀ filter paper of the Ambient Air quality monitoring stations (7601, Issue

3 as per NIOSH Methods of the EIA Report). The result indicates that silica concentration in the surrounding of project site was found to be in the range of $0.1 \mu\text{g}/\text{m}^3$ to $0.3 \mu\text{g}/\text{m}^3$.

The results are compared with the standards prescribed by Central Pollution Control Board (CPCB). The overall ambient air quality around the proposed mine lease is within the limits of ambient air quality standards prescribed by CPCB.

3.3 Noise Environment

Noise levels were monitored in eight locations including project within the study area. The noise levels ranged between 52.3 to 55.4 dB (A) during day time and noise levels ranged between 42.5 to 45.4 dB (A) during night time. Over all the monitored noise levels are found to be within the stipulated standards set by CPCB.

3.4 Water Environment

In order to establish the baseline water quality, 4 ground water and 4 surface water samples were collected and analyzed in the study area. The quality of surface water samples was compared with surface water specification IS 2296:1982 and the surface water quality comes under Class D (Propagation of wildlife and fisheries). The ground water samples were compared with drinking water specification IS 10500:2012 standards.

3.5 Soil Quality

A total of 8 samples in and around the project site are collected and analysed. It has been observed that the pH of the soil quality ranged from 7.4 (S5) to 7.8 (S6) indicating that the soil is slightly alkaline in nature.

| Particular | Number of Locations | Description |
|--|---|--|
| Background Ambient Air Quality Monitoring | Sampling was done at 8 Locations | PM ₁₀ :-61 to 70 $\mu\text{g}/\text{m}^3$ PM _{2.5} :-31 to 40 $\mu\text{g}/\text{m}^3$ SO ₂ :-5.0 $\mu\text{g}/\text{m}^3$ to 16.0 $\mu\text{g}/\text{m}^3$ NO _x :-11.0 to 27.0 $\mu\text{g}/\text{m}^3$ CO:-0.5 to 1.4 mg/m^3 |
| Noise Level Monitoring | Monitored at 8 Locations | Noise Level During Day Time :- 52.3 to 55.4 dB(A) Noise Level During Night Time:-42.5 to 45.4 dB(A) |
| Water Sampling | Ground water sampling was done at 4 Locations | pH :- 6.2 to 7.5 TDS :- 490 -568 mg/l ; Total Hardness :- 320 -387 mg/l SO ₄ :-58 mg/l to 76 mg/l ; Chloride :- 68 mg/l to 82 mg/l ; Zn & Fe:- Below detectable limit. |

| | | |
|----------------------|----------------------------------|---|
| | Sampling:- 4 at Surface water | pH :- 7.2 to 7.5 ; TDS :- 258 mg/l to 298 mg/l; Dissolve oxygen: - 4.0 to 4.7 mg/l. Chloride :- 31 mg/l to 36 mg/l; Calcium :- 36 mg/l to 43 mg/l; Magnesium :- 20 mg/l to 25 mg/l; Total Hardness :- 172 to 210 mg/l ; |
| Soil Sampling | Sampling was done at 8 Locations | pH :- 7.4 to 7.8 Nitrogen:- 123 to 153 kg/ha Phosphorus:- 58 to 77 kg/ha Potassium :- 189 to 256 kg/ha Electric Conductivity:- 0.277 to 0.496 ms/cm |

Land Use/Land Cover of the Study Area

Bhinpuri villages in the sahaspur Lohara Tehsil of the Kabirdham District in Chattisgarh State, India. Figure 4 depicts the village area as covered by Survey of India topo sheets 64G/1, 64G/2, (SOI).

Figure E.2 shows a pie diagram of the 10-kilometer research region's land use and land cover maps. The LULC map, shown in Figure E.2, shows that the analysis is separated into eight areal classes: Built up area, Water body, Vegetation, Open Land, Agriculture, Barren Land, Fallow Land, Harvested Land.

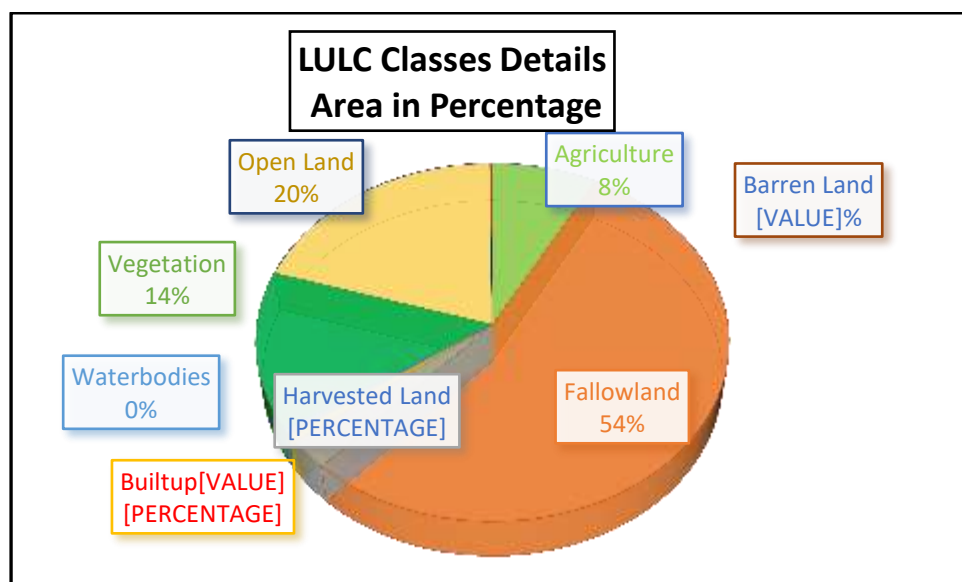


Figure E-2: LULC Classification (10 km radius of the Proposed Project Area)

3.6 Ecology and Biodiversity

The ecological study of the area has been conducted within 10 km radius of the project site in order to understand the existing status of flora and fauna to generate baseline information. Following Rf and PF are being observed within 10 km surrounding from the project site.

| Sr. No. | Name of forest block | Type of Forest | Direction | Distance (km) |
|---------|-----------------------|------------------|-----------|---------------|
| 1 | Gandai | Reserved Forest | NW | 5.4 |
| 2 | Koylari | Protected Forest | SW | 8.72 |
| 3 | Bhibhauri Open Jungle | | SW | 6.3 |
| 4. | Nunchhapar | Protected Forest | SW | 7.97 |

3.7 Socio Economics

The setting up of any kind project would undoubtedly include significant impact on socio-economic and cultural life of the people in the project area. Here, an attempt is made to visualize and discuss such tentative impacts likely to be induced by the project. The likely impacts due to project activity are described below:

Positive Outcomes:

Mining is the foundation of building the country's economy. As given below the proposed project has the following benefits:

- Revenue for the State Govt. in form of taxes and duties.
- The proposed mining project activity does not involve any resettlement and rehabilitation process as the project is freshly designed at representative site where none of the settlement is present.
- Mining and dragging phase could lead to creation of employment and procurement opportunities.
- A multiplier effect will be felt on the creation of indirect employment through the local community like labour contract, transport suppliers.
- The operation of the mining would help to improve socio-economic condition of people in villages through separate fund allocated for CSR.

Negative Outcomes:

Due to the planned activity of the project, the population inflow would increase during the construction period at local level only. This could lead to a strain on infrastructure

resources in the area. However, this consequence would be of a limited time and temporary nature only.

- During mining phase, increase level of dust and other air pollutants may lead to health problems.
- Vehicular traffic and construction activities may create noise pollution.
- The mining activity could lead to increased nuisance level from air emissions and noise due to transportation of material and equipment as well as laborers.
- There would be influx of workers during mining phase which could lead to pressure on key local infrastructure such as Road Transportation.
- Mining and dragging activities that generate a large amount of dust and suspended particles. Blasting, excavations, handling and loading of aggregate onto storage piles, and vehicle transport of the material, are the main sources of particles in an open pit mine.

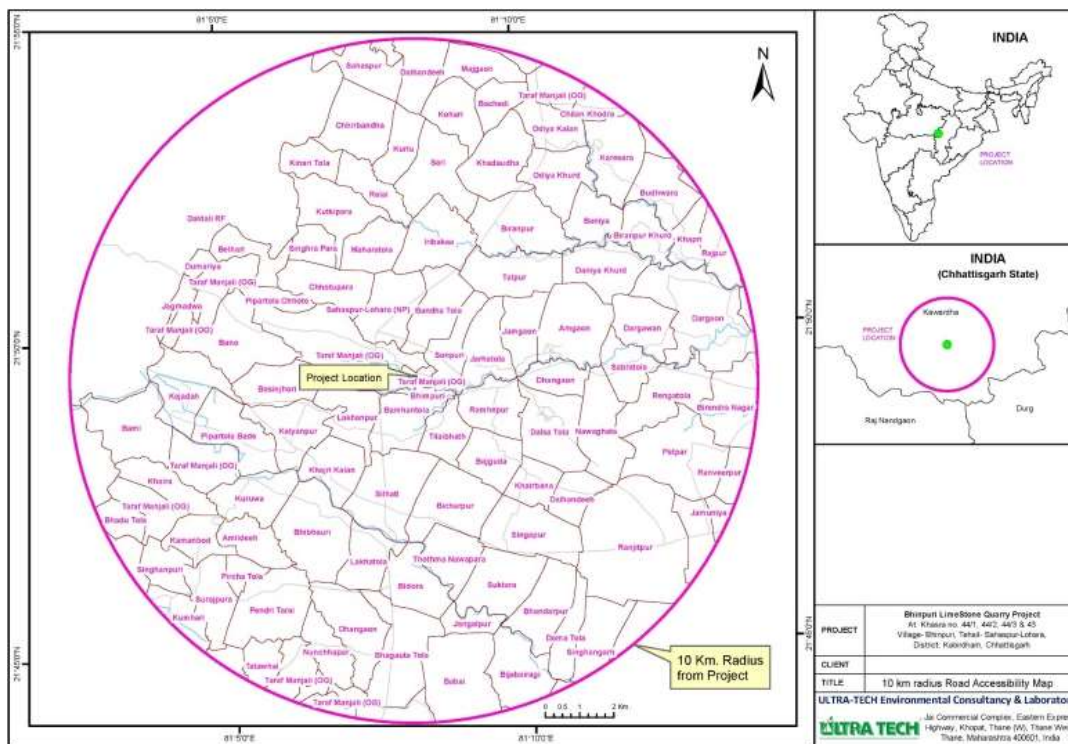


Figure E-3: Population Concentration Map of the study area

4.0 Anticipated Environment Impacts and Environment Management Plan

Land/Soil Environment Impact Mitigation

- Before the mining activity the top soil will be scrapped and stored in the lease area and will be utilized for plantation purpose. Balance top soil if any preserved separately will be used to spread over partially reclaimed land.
- The Limestone excavated from the lease area will be completely sellable resulting no dump within the lease area.
- At the end of conceptual period the excavated quarry will converted into water reservoir to supply water for local use like irrigation and pisciculture besides improving the ground water potential.
- Due to manual mining operation emission from the Limestone stone mines is very less. There will be least impact on the surrounding soil quality and cropping pattern of the area.
- The propose project falls under the seismic zone –II (Low Hazard Risk Zone). Since this project will not have physical infrastructure to be constructed, no impact of seismicity is envisaged in this project. Further, this project will not change/alter the seismic behavior of the area.

Air Impact Mitigation

The mitigation measures undertaken in the mine for control of air pollution are:

- Checking of vehicles and machinery to ensure compliance to Indian Emission Standards Transportation vehicles and machinery to be properly and timely maintained and serviced regularly to control the emission of air pollutants in order to maintain the emissions of NO_x and SO_x within the limits established by CPCB.
- 4 KLD water required towards dust suppression purpose for which 2 no. of water tanker with 2000 liter capacity will be hired and used for water sprinkling twice in a day in haul roads, dumping site, loading and unloading site of each lease within the cluster and this will be regularly monitored by the cluster management. Water sprinkling on transport road side, stock yard (if any) etc. will be done by tractor mounted water sprinkler.
- Regular compaction and grading of haul roads will be done to clear the accumulation of loose material
- All the mines workers will be provided with the dust masks.
- Trees can act as efficient biological filters. As this is a small lease, the area available for plantation is very less. However a well-planned plantation programme has been proposed for the mining area to arrest the dust pollution within the lease boundary. There is the

proposal for continuous plantation along the cluster boundary and both side of the road connecting the cluster.

- Vehicles with valid PUC shall be used for transporting the minerals to avoid the exhaust emission.
- A greenbelt development plan is prepared with local species. The greenbelt on the periphery will reduce the dust level sites.
- Sharp drill bits will be used for drilling and regrinding will be done periodically to reduce generation of dust.
- Regular monitoring of the air quality as per the monitoring plan detailed in Chapter 6 of the EIA report shall be adopted during the operation phase, to ensure that, the air quality is within the desired limits prescribed by CPCB

Noise Impact Mitigation

- No noise polluting work shall be carried out in the night hours
- Provision of PPE's for the workers
- Vehicles to be serviced regularly and maintained properly to avoid any unwanted generation of noise or vibration from them
- Green belt plantation and garden trees will help in reducing the noise, traffic related pollution and heat island effects.
- Proper lubrication, muffling and modernization of equipment shall be used to reduce the noise during operation phase.
- Vibration and noise due to blasting will be reduced by adopting controlled blasting technique.
- Blasting will be avoided under unfavorable conditions.
- Rock breakers is will be used instead of secondary blasting.
- Regular monitoring of the noise levels as per the monitoring plan detailed in Chapter 6 of this EIA report, shall be adopted during the operation phase, to ensure that, the noise levels are within the limits prescribed by CPCB.

Water Impact Mitigation

- Provision of temporary toilets for laborers
- Domestic waste water will be treated into septic tank followed by soak pit outside of the proposed cluster project with a safe distance and no wastewater will be allowed to be get discharged into the water body
- All stacking and loading areas should be provided with proper garland drains

- Check dams should be provided to prevent solids from wash off.
- Construction of garland drains around freshly excavated and dumped areas so that flow of water with loose material is prevented.
- The mine water should be passed through specially constructed catch pits to arrest any loose material being carried away with water.
- Any areas with loose debris within the leasehold should be planted.
- Garland drains should be constructed surrounding the waste dumps and should be connected to the surface water reservoir to avoid the run-off mixing directly to natural water channels before settling.
- Ground water table will not be intersected during the mining activity

Biological Impact Mitigation

- Green belt will be developed along the core zone boundary which will act as a pollution barrier for the biological environment.
- The drilling and transportation will be carried out during the day time only minimizing the impact on the wild fauna movement.
- Fencing around the entire mine lease area is recommended in order to restrict the entry of stray animals into the mining area.

Socio-Economic Environment Impact Mitigation

- For the mining work, an average of 59 workers will be required in the project sites, which will be met from skilled and unskilled labourers from the local population as far as possible. Thus, the project can provide employment to local workers during the operation of mines.
- The area is considered as industrially backward. The population in general does not have opportunities of earning from employment. The only employment to depend on is agriculture, which is seasonal
- There is no human settlement in or around the mining block areas, hence no clearance of human settlement is required for the mining operation
- The proposed mining project activity does not involve any resettlement and rehabilitation process as the project is freshly designed at representative site where none of the settlement is present
- The mining activity could lead to increased nuisance level from air emissions and noise due to transportation of material and equipment as well as laborers.

5.0 Environmental Monitoring Program

The environmental monitoring is important in terms of evaluating the performance of pollution control equipments installed in the project. The sampling and analysis of the environmental attributes will be as per the guidelines of Central Pollution Control Board/Chattisgarh Environment Conservation Board (CECB). The frequency of sampling and location of sampling will be as per the directives of CPCB/CECB.

Environmental monitoring will be conducted on regular basis by the lessees included on the cluster to assess the pollution level in the surrounding area. Usually, as in the case of the study, an impact assessment study is carried over short period of time and the data cannot bring out all variations induced by the natural or human activities. Therefore, regular monitoring programme of the environmental parameters is essential to take into account the changes in the environment.

Detailed EMP plan during the operation phase is given chapter 6 of EIA report.

Objective of environmental monitoring:

- To verify the result of the impact assessment study in particular with regard to new developments;
- To follow the trend of parameters which have been identified as critical;
- To check or assess the efficacy of the controlling measures
- To ensure that new parameters, other than those identified in the impact assessment study, do not become critical through the commissioning of new installations or through the modification in the operation of existing facilities;
- To check assumptions made with regard to the development and to detect deviations in order to initiate necessary measures; and
- To establish a database for future Impact Assessment Studies for new projects.

6.0 Risk Assessment

The hazards and its risk assessed during the operation phase of the proposed Limestone mining project are low, medium & high. The project proponents are proposed to implement all the mitigation measures to prevent the impact or consequences of the risk expected to be happened in both the project sites. The level of impact after implementing the mitigation measures will be low/medium in all the hazards identified.

7.0 Emergency Response and Disaster Management Plan

Impact of disaster can be significantly reduced through attempts at preparedness, mitigation, and post-event rehabilitation work. Based on hazard identification in the proposed project, an

emergency plan has been prepared and the same plan will be implemented by the project implementing agency with the coordination of District Authorities to minimize the damage. The risk assessment and disaster management plan is detailed in Chapter 7 of the EIA report.

8.0 Capital Investment and Project Schedule

The proposed Limestone mining project is estimated to cost Rs 148.52 Lacs.

Once the statutory clearance being obtained, the mine will start operating.

9.0 Project Benefits

Mining is back bone of infra-structure development of country. Proposed project has following benefits as given below:

- Employment for local people
- Revenue for the State Government in form of excise duties, GST, taxes, levies etc.
- Generate business opportunity for the people
- Need based funds will be used for welfare of people in villages
- EMP funds will improve environmental quality.

The operation of the Limestone mining would help to improve socio-economic condition of people in villages through separate fund allocated for Need Based Activity.

10.0 Need Based Activity

The proposed mining project is aware of the obligations towards the society and to fulfill the social obligations unit will employ semi-skilled and unskilled labor from the nearby villages for the proposed project as far as possible. Unit will also try to generate maximum indirect employment in the nearby villages by appointing local contractors during construction phase as well as during operation phase. The Project Proponents will contribute reasonably as part of social development as a part of EMP and will carry out various activities in nearby villages.

The total estimated cost of the project is 148.52 lacs. The Proposed Cluster EMP/CER Budget Will be allocated for Need based activity for causes of poor people of nearby villages for drinking water, sanitation, education, health.

11.0 Environment Management Plan (EMP)

The detailed Environment Management Plan has been prepared based on the mining activities and the impacts imparting on land/soil, air, noise, water by the activities. The EMP and the cost for the environment protection measures are detailed in Chapter 10 of EIA report.

Table E .6 Expenditure Proposed for Environmental Protection Activities:

| S.No. | Particulars | Shri Kaushal Chandrawanshi - 1.83 Ha. | | Shri Rajesh Singhaniya Area - 2.452 Ha. | |
|-----------------------------------|-----------------------------|---------------------------------------|----------------------|---|----------------------|
| | | Capital Cost in Rs | Recurring Cost in Rs | Capital Cost | Recurring Cost in Rs |
| 1 | Air Pollution Control | - | 84,000 | - | 84,000 |
| 2 | Green Belt Development | 58,000 | 1,51,000 | 77,000 | 1,55,000 |
| 3 | Maintenance of Road | - | 40,000 | | 40,000 |
| 4 | Facilities for Mine workers | 1,00,000 | 1,21,500 | 1,00,000 | 1,44,000 |
| | Total :: | 1,58,000 | 3,96,500 | 1,77,000 | 4,23,000 |
| Total Capital Cost in Rs | | 3,35,000 | | | |
| Total Recurring Cost in Rs | | 8,19,500 | | | |
| Total Cost of EMP in Rs | | 11,54,500 | | | |

12.0 Conclusions

As discussed, it is safe to say that the collection of minor minerals from the proposed lease area is not likely to cause any significant impact on the ecology of the area as the mineral is and waste generated is non-toxic and does not harm the surrounding environment.

Adequate measures will be taken to control the fugitive emissions to be generating during mining operation. Socio-economic condition of the surrounding villages will improve in long run due to involvement of local population and improvement of infrastructure facilities. Green belt development in the statutory boundary, approach roads, schools are proposed with the participation of local people. This proposed plantation in the area will improve the aesthetic look along with betterment of ecology and environment of the locality.