

EXECUTIVE SUMMARY

(In English & Hindi)

Of

Draft EIA/EMP Report

For

**Adiwasi Harijan Shramic Stone Crusher Co-Operative
Society Chhaperbhanpuri Lime stone Deposit Mine,
(President- Budhram Kashyap)**

Khasra no. 1200(Part)

Near Village: Chhaperbhanpuri

Tehsil: Tokapal, & District: Bastar (Chhattisgarh).

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

Mining Lease Area: 0.813 Ha, Production Capacity: 10,000 TPA

Project Cost: Rs. 32.70 LAKH

Category-B1

In Favor of	Prepared By
<p>Adiwasi Harijan Shramic Stone Crusher Co-Operative Society Chhaperbhanpuri (President- Budhram Kashyap)</p> <p>Village – Chhaperbhanpuri Tahsil – Tokapal , Dist. Bastar Chhattisgarh</p> <p>Mobile No-9479163850, 9406265535 e-mail: chhaparbhanpuri0.813hac@gmail.com</p>	<p>M/S. Aseries Envirotek India Pvt. Ltd (QCI/NABET Accredited Consultant),</p> <p>B-107, B Block, Sector 6, Noida, Uttar Pradesh 201301</p> <p>E -mail: aseries.envirotek@gmail.com Contact- 0120- 4213298 +91-9990366186</p>

Table of Contents

1	Executive Summary	3
1.1	Introduction and Background	3
1.2	Location and Communication.....	4
1.3	Project Chronology till Date	5
1.4	Project Description.....	6
1.4.1	Study Area at a Glance	6
1.4.2	Utilities.....	6
1.4.3	Topography and Drainage	6
1.4.4	Regional Geology	7
1.4.5	Mineable Reserve & Life of Mine	7
1.4.6	Mining Method	8
1.5	Meteorology Long Term Meteorology (Secondary Data)	8
1.5.1	Temperature	8
1.5.2	Wind.....	9
1.5.3	Rainfall.....	9
1.5.4	Relative Humidity.....	9
1.5.5	Site Specific Meteorology	9
1.6	Existing Environment Scenario	9
1.6.1	Land Use	9
1.6.2	Soil Quality	9
1.6.3	Ambient Air Quality	10
1.6.4	Noise	10
1.6.5	Water Environment.....	10
1.6.6	Cropping Pattern.....	11
1.6.7	Socio Economic Status	11
1.6.8	Impact on Air Environment.....	11
1.6.9	Impact of Traffic Density:	11
1.6.10	Impact on Noise Environment	12
1.6.11	Impact on Water Environment.....	12
1.6.12	Impact on Flora and Fauna.....	13
1.6.13	Impact on Top Soil.....	13
1.6.14	Impact on Socio Economic Status	13
1.7	Environment Monitoring Program.....	13

1.8	Additional Studies	14
1.8.1	Risk Assessment and Disaster Management Plan.....	14
1.9	Environment Management Plan.....	14
1.10	Project Benefits	14

1 EXECUTIVE SUMMARY

1.1 Introduction and Background

The Adiwasi Harijan Shramik Stone Crusher Co-Operative Society Chhaperbhanpuri Lime stone mine is located at a distance 22.0 km. from District Headquarter Jagdalpur and falling in Jurisdiction of Village – Chhaperbhanpuri . The Chhattisgarh State Capital and District headquarter Raipur is connect by good tar road

The mining plan of the Chhaperbbhanpuri Lime stone mine was approved by IBM vide letter no BST/LST/MPLN- 721/ NGP on dated 22/11/2000 (*Annexure -1*)

Mining Lease was granted in favour of applicant Adiwasi Harijan Stone Crusher Co-operative Society Chhaperbhanpuri , Distt. - Bastar for the period of 20 years i.e. 04/09/2002 to 03/09/2022 (*Lease deed enclosed in Annexure –2*)

Original Lease Period was of 20 years i.e. 04/09/2002 to 03/09/2022. Now the lease period extended for 50 year upto 03/09/2052 Years.

As per the gazette notification Section 8A(3) all the mining leases granted before the commencement of the Mines and Minerals (Development & Regulation)Amendments Act 2015 shall be deemed to have been granted for a period of 50 years. Hence the lease period of mining lease increased 20 years to 50 years. The modification in mining plan required as per the rule 17(3) of MCR 2016.Therefore the lessee submitting the modified mining plan for the onwards period of 2017-18 to 2020-21. Lease period of all the major minerals increased upto 50 years from the date of grant.

First technical presentation was made in 273rd SEAC, Chhattisgarh meeting dated 27th March 2019. ToR was granted vide Letter No. 399/SEAC.CG/Mine/Raipur/707 dated 25/06/2019

It is proposed to excavate approximately 10,000 TPA (ROM) Limestone by Opencast Semi-Mechanized method. The lease area is 0.813 Ha and total mineable reserve is 68,687 MT for limestone. The expected life of the mine will be 6.87 or says 7 years.

The studies were undertaken by The Consultant namely, Aseries Envirotek India Pvt. Ltd. (AEIPL) Noida. AEIPL is a National Accreditation Board for Education and Training (NABET) Accredited Consultant Organization (ACO) and is qualified to prepare EIA reports for Project / Activity 1(a) (Mining of Minerals), a mandatory requirement for agencies submitting such studies to regulators for the purpose of seeking EC.

The EIA study report has been based upon the following :-

- Field data collection on different aspects of environment including air, soil, water, land, meteorology, noise, flora, fauna, agriculture and socio-economy in the study area of 10 km radius with mine as its center.
- Study of opencast mining methodology, water requirement, source of pollutants and pollution control strategy.
- Ecological Prospective and Green Belt Development.

The EIA study evaluates the impact on the present environmental scenario and check out the environmental management plan incorporating further step to mitigate the adverse impacts of air, noise, water, land pollution on environment.

1.2 Location and Communication

Table 1-1: Location and Communication from ML area

S. No.	Area	Name	Aerial Distance in Km and Direction from M.L area	
			Core Zone	Buffer Zone
1.	National Parks/ Wildlife Sanctuaries	-	Nil	Nil
2	Biosphere Reserves/ Tiger Reserves/ Elephant Reserves and any other reserves	-	Nil	Nil
3.	Forest (PF/RF/Unclassified)	Open Jungle Open Jungle Fairy Dense Jungle Madhota PF Fairy Dense Jungle Fairy Dense Jungle Open Jungle Open Jungle	Nil	2.90km towards South. 3.08km towards NW 3.90km towards North 5.60km towards NNW 8.43km towards NW. 7.52km towards NW. 6.88km towards SW. 6.32km towards SE.
4	Habitat for migratory birds	-	Nil	Nil

S. No.	Area	Name	Aerial Distance in Km and Direction from M.L area	
			Core Zone	Buffer Zone
5	Corridor for animals of Schedule I and II of the wildlife (Protection Act 1972)	-	Nil	Nil
6	Archaeological Site (notified, Other)	-	Nil	Nil
7	Defense Installation	-	Nil	Nil
8	Industries / Thermal Power Plant	-	Nil	Nil
9	Other Mines	-	Nil	Nil
10	Airport	-	Nil	Nil
11	Railway Lines	-	Nil	Nil
12	National Highways/ State Highway	-	Nil	Nil
13	Human Habitations	-	Chhaperbh anpuri	1.5 kms in NE from the mine site

1.3 Project Chronology till Date

1. The Adiwasi Harijan Shramik Stone Crusher Co-Operative Society Chhaperbhanpuri Lime stone mine (President- Budhram Kashyap) submitted relevant documents, namely Form-1 (as per the EIA Notification 2006, as amended till date) along with a Pre-feasibility Report, Approved Mining plan and proposed Terms of References (ToR) for carrying out environmental studies to the State Environment Impact Assessment Authority Chhattisgarh, on 14.04.2018
2. SEIAA committee has raised the quarry for shortcoming the documents on dated 16.07.2018 and Compliance reply of EDS has been done dated 27/02/2019.
3. A presentation to the SEAC, Chhattisgarh, to finalize the ToR for the EIA study was held on 27.03.2019.
4. ToR letter has been issued by SEAC, Chhattisgarh in favor of, Adiwasi Harijan Shramik Stone Crusher Co-Operative Society Chhaperbhanpuri Lime stone mine (President- Budhram Kashyap), Near Village Chhaperbhanpuri, Tehsil Tokapal,

District Bastar (Chhattisgarh) vide letter no.399/ SEAC, C.G/ Mine/ Raipur/ 707 on
 Dated 25.06.2019.

1.4 Project Description

1.4.1 Study Area at a Glance

The study area is taken in accordance with the provisions of sector specific EIA guidance manual for Mining of Minerals manual, published by Ministry of Environment and Forests, during 2010. The study area for the Soapstone Mining Project was as follows:

- The proposed project area (M. L. area) is considered as ‘Core Zone’.
- 10 km radius from the boundary limits of the M.L. area is considered as ‘Buffer Zone’.

1.4.2 Utilities

Table 1-2: Requirement for the mining

S.No.	Requirements		Quantity and Nos.		
1.	Water Requirement	Domestic Propose	Drinking	0.150 KLD	1.500 KLD
			Sanitation	1.350KLD	
		Dust Suppression		920 m ² area per 1.0 L	0.92 KLD
		Greenbelt Development		168 plants per 5.0LPD	0.84 KLD
Total				3.26 KLD	
2.	Man-Power Requirement		30		

1.4.3 Topography and Drainage

Topographically the height of the area is around 550 meters from the above MSL and the height elevation of this lease area is 568 meters above MSL. The lowest MSL is 555 meters above MSL. The mining area is a non forest Govt. revenue land having no soil cover due to earlier mining operation almost soil cover removed. The mining lease area is gently sloping towards north and north-east of the lease area.

The Indrawati river is the main river of the area and forms the main drainage system. It flows in north direction at a distance of 1.50 km in east. Other Seasonal nalas and streamlets are amencing from higher parts of the area join the Indrawati river. The drainage pattern is dendritic to sub –dendritic.

1.4.4 Regional Geology

Group	Formation	Litho Units
Recent to Sub-Recent	Soil and Laterite	
INDRAWATI GROUP (Late Proterozoic)	Jagdapur formation (200Meters thick)	Purple Shale with purple grey stromatolitics dolomite Limestone and Shale
	Kanger Formation (150-200Meters)	Grey and black limestone
	Cherakur Formation (200 Meters thick) Tirathgarh Formation (100 Meters Thick)	Purple shale with Arkose sandstone, Chert and pebble Conglomerate, grit. Quartz arenite (Chitrakot Sanstone) Sub arkose and conglomerates.
Achaean	Granite and Super crustal	

1.4.5 Mineable Reserve & Life of Mine

Table 1-3: Geological Reserve

A. Total Mineral Reserve	UNFC Code	Quantity in TPA	Grade
Proved Mineral Reserve 111	111	68,687	CaO 42.52% SiO ₂ 17.83% MgO 01.01%
Probable mineral Reserve 121 and 122	122		
B. Total Remaining Resources			
Feasibility mineral Resource	211		
Prefeasibility mineral Resource	221 & 222	36,045	CaO 42.37% SiO ₂ 17.83% MgO 01.01%
Measured mineral resource	331		
Indicated mineral resource	332		
Inferred minerals resources	333		
Reconnaissance mineral resource	334		
Total Reserve +Resources		1,04,732	Cao 42.37 % SiO ₂ 17.83% MgO 01.01%

Total Mineral Reserve: 1, 04,732 TPA

Total Mineral Resource: 68,687 TPA

Life of mine	Mineable reserve/ Average annual production
	68,687/10,000 =6.86 years or say 7 years

1.4.6 Mining Method

- The mining operation was carried out by fully manual open cast mining method in very small scale.
- No blasting carried out for production due to very sensitive area of naxalite problems. The limestone is soft, so local labour with the help of heavy hammer chisel and digging rod produce sufficient of limestone manually.
- The present bench height is 2 meters and faces slope 45 ° angles.
- The ultimate pit depth is 534.5 to 550 m.RL.shown in all plans.
- The Pit road is 2 times of tractors width and maintained in 1:16 gradient.
- Single benches developed in systematic manner. Limestone will be transported from mine to stack yard by 2 tractors .Loading of limestone will be done by manual labours only. The present pit is covering 2330 sq. meters area and having 10 meters depth in southern part up-to 555 m.RL
- During the period of modified mining plan the same opencast mining will continue in systematic manner as earlier .4 benches of 2 meters height proposed between 568 to 558 m.RL. Mining operation will be carried out in single day shift from 8am to 5pm with 1 hour lunch break and weekly off on Monday due to local market day.
- The year-wise production is being projected by considering the present requirement. The recovery % limestone from of ROM is 98% (2% deduction due to mining losses during the various mining Operations such as sizing loading) Year-wise proposed production for the ensuring five years of modified mining plans are as follows:

Table 1-4: Extent of Opencast Mechanized

Activities	Opencast Mechanized
Excavation	Manual
Loading	Manual
Transportation	Hired Tractors with 3 Tones Capacity trolley
Crushing/Screening	Very Small Crushing Screening unit installed inside the lease area near Boundary pillar no.11

1.5 Meteorology Long Term Meteorology (Secondary Data)

Information presented in subsequent paragraphs is from the Indian Meteorological Department (IMD), Long Term Climatological Tables, 1971-2000, Jagdalpur. These tables give useful information about a region's weather, since it was collected over a period of 30 years.

1.5.1 Temperature

The month from March to May are considered as hottest with increase in temperatures. May is generally the hottest month with a mean daily maximum temperature of about 38.0°C and mean

daily minimum of about 24.1°C. The highest temperature recorded at Jagdalpur is 46.1°C on 22th May 1912. From November, both day and night temperatures start decreasing rapidly. December is generally the coldest month with the mean daily maximum temperature at about 27.8°C and mean daily minimum at about 11.1°C. Minimum temperature sometimes drops down to subzero temperatures and the lowest temperature recorded 2.8°C on 8th January 1946.

1.5.2 Wind

Long- term wind direction data is presented, and indicates that the predominant wind during the study period (March, April, May)-2019 is South-West at daytime and wind direction is observed to be from West to North-West directions at evening.

1.5.3 Rainfall

As per IMD station at Jagdalpur the rainfall in region was observed to be 1445.5 mm in a year, bulk of rainfall was received in monsoon months from June to September. Maximum cloud cover was observed in the months of June to September.

1.5.4 Relative Humidity

Most humid conditions were found in the monsoons, followed by post-monsoons, winter and summer in that order. Mornings were more humid than evenings and humidity ranged from a high of 88-82% in monsoon mornings to a low of 53-34% in summer evening.

1.5.5 Site Specific Meteorology

Environmental monitoring was carried out for summer Season covering the months of (March, April, May) 2019. Meteorological data is collected for wind speed, wind direction, temperature, rainfall and cloud cover.

Mean average temperature recorded during study period was 31.32°C with mean maximum temperature of 46.6°C and mean minimum of 19.2°C. The data obtained during the study period was compiled to obtain average data

1.6 Existing Environment Scenario

1.6.1 Land Use

Land Use of Mine Lease Area

At present, there is a pit in the area. It is proposed to work the deposit of Limestone in next five years by developing the mine by formation of proper benches, each of 2m height. At the conceptual stage, the mined out pits will be converted into water reservoir.

Land Use of the Study Area

The land use land cover map of the study area has been prepared using recent Landsat satellite image, area and distance calculations have been carried out using GIS software after geo-referencing and interpretation. Total Land covers an area of 29676.72 ha. Out of which 2573.65(8.67%) is buildup land 5932.30 (19.99 %) is crop land 2632.61(8.87%) fallow land

3503.49 (11.81%) is forest land 2175.85(7.33%) waste land 1857.14(6.26) Water bodies /River.

1.6.2 Soil Quality

The soils of study area are predominantly Sandy loam in texture. The pH of the soil is ranges from 7.42 to 7.82. The soil being of friable consistency, the bulk density of the soil is in the range of 1.66 to 1.72 g/cm³ whereas the porosity and water holding capacity are in the range of 33.84 to 36.09 % and 30.28 to 33.24 % respectively.

1.6.3 Ambient Air Quality

The ambient air quality of study is PM10 (Maximum-65.4, Minimum-59.65), PM 2.5(Maximum-32.44, Minimum-26.54), NO₂ (Maximum-16.82, Minimum-11.45), SO₂ (Maximum-14.91,Minimum-8.14) & Free Silica(Maximum-1.8,Minimum-1.11).

1.6.4 Noise

Ambient noise samples were collected from 7 locations in the study area; samples were collected from residential as well as industrial area (Mine site).

Residential area: The day time (Leq day) noise levels observed in the range of 49.8 to 47.8 dB (A) in residential area. The night time (Leq night) Noise levels observed in the range of 46.6 to 44.4 dB (A) which is within the prescribed limit of 45 dB (A) in residential area.

Industrial Area: The noise levels at the mine site were found to be 63.4dB (A) during day time and 56.6dB (A) during night time

1.6.5 Water Environment

Groundwater Quality

The analysis results shows that the pH for the ground water samples GW1, GW2,GW3, GW4, GW5, GW6 and GW7 ranged from 7.52 to 7.22 indicating slightly alkaline in nature. The TDS (Total Dissolved Solids) were found to be in the range 364.0 mg/l to 254.0 mg/ l which is within the permissible limit of 2000 mg/l. Total Hardness of Ground water samples in the study area was found to be 226-184 mg/l which is within permissible limit. Alkalinity indicates better buffering capacity of water and ranges between 136.0-104.0 mg/l.

Fluoride content varies from 0.82 mg/l – 0.28 mg/l which is within permissible limit. The overall ground water quality in the study area was found to be mineralized with respect to total dissolved solid, chloride (68.0 mg/l to 52.0 mg/l), sulphate (64.0 mg/l to 36.0mg/l) and hardness.

Surface Water Resources

The surface water sample was taken from “River Indrawati” during the summer season

Surface Water Quality

Surface water samples were collected, analyzed and compared with Indian standard for drinking water 10500:2012, pH value was found to be 7.12 and 7.36 mg/l in Upstream and downstream respectively of Indrawati river which indicate that surface water is alkaline in nature; TDS was found to be 224 to 220 mg/l. Dissolve oxygen were found about 7.2 and 6.6 mg/l. It is seen that the physicochemical analysis of other parameters like chloride, calcium, magnesium, nitrate and fluoride were found within the desirable limit. The overall surface water quality of the available sources within the study area was found to be good physico-chemically with respect to all the parameters. There is no organic load-observed in the sources monitored indicating no pollution load in the source.

Biological Environment

Ecological study is essential to understand the impact of industrialization and urbanization on existing flora and fauna of the study area.

There is no wildlife sanctuary, National park, Biosphere reserve, Wildlife corridors, Tiger/ Elephant reserve within 10 km radius of the mining lease.

1.6.6 Cropping Pattern

The main base of the economy of Bastar district, agriculture and forest produce is collection. Agriculture is mainly produced in paddy, maize crops and wheat, jowar, kodo kutki, gram, tur, urad, sesame, Ram sesame, mustard. Besides agriculture, animal husbandry, poultry farming, fisheries also play a supporting role.

1.6.7 Socio Economic Status

The study area includes 59 villages within the 10 km. radius with a total population 67391. as per census 2011. In the study area about 26197 of the total population is literates. As per census 2011, about 18107 of the total are main workers, 14794 are marginal workers.

1.6.8 Impact on Air Environment

- Water sprinkling will be done twice during the day in summer season and once during the day in winter season for settling of dust particles.
- Sharp drill bits will be used for drilling and they will be maintained periodically to reduce the generation of dust.
- Transportation of mineral will be done on Kaccha road which will generate dust and rest of the distance will be on National Highway will not cause air pollution.
- Drilling machines will have bag filters attached to them also to prevent the dust to get air borne.

1.6.9 Impact of Traffic Density:

Traffic analysis is carried out by understanding the existing carrying capacity of the roads near to the project site and the connecting main roads in the area. Existing traffic on these

roads was compared with the carrying capacity of these roads as per IRC guidelines and it was found that the roads are capable of handling the additional traffic/load.

Project site to NH	Vol. of vehicle in PCU/day	Capacity of Roads in PCU/day	LOS
PWD (Chitrakote Road)	243	4500	0.054 Excellent

1.6.10 Impact on Noise Environment

The expected noise levels in the working environment are compared with standards prescribed by occupational safety and health administration (OSHA-USA) & CPCB-NEW DELHI, the noise levels are expected to be in the acceptable range.

1.6.11 Impact on Water Environment

Impact on Surface Water Quantity

Surface water will not be utilized and impact on surface water quantity is not anticipated due to the proposed activity.

Impact on Surface Water Quality

The proposed opencast mining operation may cause water pollution. The sources of pollution generally are:

- Wash off from dumps
- Soil Erosion

Mitigation Measures

In open cast mining pits as well as on dumps, it is necessary that the rainwater falling outside the edge limit of the working areas will not be allowed to enter into the pit and working areas. Therefore it is proposed to develop garlands drains around the mining pits and dumps to arrest the surface runoff water and divert it to lower synclines without any contact with the mining operations.

In the lease for proper drainage of water, a set of garland drainages will be made in the mining lease area and the water will be accumulated at the lower most gradient by constructing siltation tanks which will act as water storage in the area as well as collection of silts. Silts will be regularly cleared regularly.

Impact on Groundwater Quantity

The impact of mining on groundwater is not anticipated as the mining pit will be below the general ground level of the surrounding area. The present bench height is 2 meters and faces slope 45 ° angles. The ultimate pit depth is 555 m.RL.. The present pit is covering 2330 sq. meters area and having 10 meters depth in southern part up-to 555 m.RL. During the period of modified mining plan the same opencast mining will continue in systematic manner as

earlier 5 benches of 2 meters height proposed between 568 to 558 m.RL The water table is available within 25 meters from the surface level in rainy season and during summer the water table goes below 25 meters The ultimate working depth will be maintained up to 555 m RL hence will not touch the general water table

1.6.12 Impact on Flora and Fauna

As the mining activities will be confined to core zone only, no adverse impact is foreseen on the flora & fauna in the core zone. To prevent the entry of wildlife animals from entering the lease area proper fencing will be done all around the lease area.

1.6.13 Impact on Top Soil

During mining activity Limestone is Top Soil not going to generate during the ensuring 5 year of mining operation, if small quantity will generate from pocket .it will be used for afforestation purpose only.

1.6.14 Impact on Socio Economic Status

Socio-economic survey was conducted in five villages within the study area located in all directions with reference to the project site.

The respondents were asked for their awareness/opinion about the project and their opinion about the impacts of the project, which is an important aspect of socio-economic environment, viz. job opportunities, education, health care, transportation facility and economic status.

1.7 Environment Monitoring Program

The monitoring of pollutant in mine will be carried out for air, water, soil and noise. It takes care of all monitoring needs of the mine. Additionally ambient air and work zone monitoring in mine will be conducted in every season near mining operation, loading and transportation (haul road) areas by Government approved private agency. The analysis results of air monitoring will be properly recorded and submitted to the statutory authorities from time to time. Noise measurement of mine equipment will be done once in a year, ambient air monitoring will be done once in one season at three locations (1 in upwind, 1 in downwind, 1 in lease area. Ambient noise monitoring will be carried out at 3 locations, 1 within the lease area, and 2 locations of nearest habitation to the lease. Water quality monitoring will be done once in season at two locations& soil quality monitoring will be done once in a year at 2 locations within the study area. A total of Rs. 0.90 lakhs/- every year will be spent on monitoring of environmental parameters.

1.8 Additional Studies

1.8.1 Risk Assessment and Disaster Management Plan

The following natural /industrial problems may be encountered during the mining operation are:

- Inundation-filling of the mine pit due to excessive rains.
- Slope failures at the mine faces or stacks.

Water table will not be encountered during proposed working. No high risk accidents like landslides, subsidence flood etc. have been apprehended. But possibility of accidental disaster is also not ruled out. Therefore, all the statutory precautions will be taken for quick evacuation as per the Mines Act 1952, the Mines Rules 1955, Rule of MMR- 1961 and the Rules of MCDR-1988.

1.9 Environment Management Plan

The environment management plan is prepared with a view to facilitate effective environmental management of the project. Apart from having an Environmental Management Plan, environment management cell consisting of mines manager, safety officer and environmental officer is constituted. A total of Rs. 4.57 Lakhs/- would be spent on environment management activities every year.

1.10 Project Benefits

The surrounding inhabitants around the mine lease area are mainly agricultural oriented. Opportunities for jobs activities will be created and mining will serve as a source of permanent livelihood. The mine will create employment directly or indirectly. Additional, certain works like transportation will be outsourced on contract. So, overall effect of mining is expected to be positive.

