

ENVIRONMENTAL IMPACT ASSESSMENT REPORT & ENVIRONMENT MANAGEMENT PLAN of

Executive Summary English

M/s Kumhari Clay Mine & Fix Chimney Plant,

at

Village: Kumhari, Tehsil: Raipur, Dist: Raipur C.G., State: Chhattisgarh

Area 3.993 ha at

**Khasra No: - 105(part), 108(part), 109(part), 110(part), 111(part), 118(part),
119(part), 120/1(part), 120/2(part), 121/1(part), 122(part), 123/1(part), 123/2(part),
124/1(part), 124/2(part) and 125/1(part)1**

Capacity: 2,000 cum /yr (15,00,000 Bricks/yr)

Proposal No. SIA/CG/MIN/66708/2021

Applicant

**M/s Kumhari Clay Mine & Fix Chimney Plant
Prop. Shri Ashok Kumar Ahuja**

P & M Solution

NABET/EIA/1922/IA0053

**ACCREDITED BY NABET UNDER "A" CATEGORY FOR OPEN CAST MINES
Corp. Office: First Floor C-88 Sector - 65, Noida, UP, Pin code 201301**

EXECUTIVE SUMMARY

INTRODUCTION

Environmental Impact Assessment (EIA) is a process, used to identify the environmental, social and economic impacts of a project prior to decision-making. It is a decision making tool, which guides the decision makers in taking appropriate decisions for proposed projects. EIA systematically examines both beneficial and adverse consequences of the proposed project and ensure that these impacts are taken into account during the project designing.

The mining lease is located in village of Kumhari; Tehsil- Raipur & District- Raipur (C.G.) Geo-graphically the ML area extends from Longitude E 81°35'52.84" to E 81°36'05.99" and Latitude N 21° 21' 25.43" to 21° 21' 33.99".

The study area of the proposed project comprises of 10 km radius around the mining lease boundary, the map showing the core zone (ML area) and buffer zone (10 km radius from the lease boundary)

The life of the mine is anticipated at 32 years based on the level of exploration and reserve established as per UNFC classification and expecting the market demand will remain at

Mining of Mineral – Earthclay-2,000 cum

Production of Red Brick- 15,00,000 nos of Brick/yr.

Location

The mining lease is located in village of Kumhari; Tehsil- Raipur & District- Raipur (C.G.) Geo-graphically the ML area extends from Longitude E 81°35'52.84" to E 81°36'05.99" and Latitude N 21° 21' 25.43" to 21° 21' 33.99".

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Connectivity

The lease area is about National Highway 130 at 6 km (Raipur-Bilaspur road) towards NorthState highway 7 at 25 km (Raipur-Simga road) towards East.

Details of Project

Project Name	M/s Kumhari Clay Mine & Fix Chimney
Location of the	Village: Kumhari, Tehsil: Raipur, Dist: Raipur C.G.

PROJECT: M/s KUMHARI CLAY MINE & FIX CHIMNEY AN AREA OF 3.993 ha, VILLAGE: KUMHARI, TEHSIL & DISTRICT: RAIPUR, APPLICANT: ASHOK KUMAR AHUJA

Project		
Mine Lease Area	3.993 ha	Khasra No: 105(part), 108(part), 109(part), 110(part), 111(part), 118(part), 119(part), 120/1(part), 120/2(part), 121/1(part), 122(part), 123/1(part), 123/2(part), 124/1(part), 124/2(part) and 125/1(part).
Latitude & Longitude	Latitude	Longitude
	N 21° 21' 25.43" to 21° 21' 33.99"	E 81°35'52.84" to E 81°36'05.99"
Toposheet Number	64 G/11,	
Type of Land	Private Land	
Elevation	Highest Elevation: 271 mRL. Lowest Elevation: 270 mRL.	
Project Cost	87 lacs.	
Man Power & No. of Working days	30 person /240 Working Days.	
Total Geological Reserve	70,860 Cum.	
Total Mineable Reserve	63,480 Cum.	
Targeted Production	Production from mine largely depends on market demand presently it is fixed at 2,000 CUM/yr or 15,00,000 nos of Bricks/yr. as per present market scenario. By fixed chimney kiln installed in within the applied area of height 33 m.	
Validity of Lease	30 years.	
Seismic Zone	Seismic Zone II as per IS-1893 (Part-1)-2002.	
End use of Product	The earth clay will be used as contents of bricks and bricks are used as building a wall, constructions for the wall, etc.	
Nearest Town	Raipur at 12 km in S Direction.	
Nearest Airport	Swami Vivekanand Airport 24 km.	
Nearest Railway Station	Urkura, Raipur Railway Station 9 km.	
Nearest Highway	National Highway 130 at 6 km (Raipur-Bilaspur road) towards North State highway 7 at 25 km (Raipur-Simga road) towards East.	
Nearest Water Bodies	Kharun River at 164 m.	
Historical Monuments (in 10 Km Buffer)	None within the study Area.	
Status of Protected/ Other Areas (in 10 Km Buffer)	None within the study Area.	

PROJECT: M/s KUMHARI CLAY MINE & FIX CHIMNEY AN AREA OF 3.993 ha, VILLAGE: KUMHARI, TEHSIL & DISTRICT: RAIPUR, APPLICANT: ASHOK KUMAR AHUJA

Nearest Dispensary & Govt. Hospital	Govt Hospital Urla 5 km.
Any Kind of Bridge	Bridge- Over Kharun river at 2 km towards south.

Mailing/ Correspondence Address of Project Proponent:

Shri, Ashok Kumar Ahuja.
S/o Shri, Kishan Chand Ahuja.
Krishn Kunj, ward no.18, Raipur, Pin Code 492001
Tehsil & District Raipur, Chhattisgarh.

Size of the Project

The total Mine Lease areas considered is 3.993 ha. At khasra no. 105(part), 108(part), 109(part), 110(part), 111(part), 118(part), 119(part), 120/1(part), 120/2(part), 121/1(part), 122(part), 123/1(part), 123/2(part), 124/1(part), 124/2(part) and 125/1(part). The proposed production is 2,000 CUM/yr or 15,00,000 nos of Brick/yr.

Anticipated Life of Project and Cost of the Project

The life of the mine is anticipated at 32 years based on the level of exploration and reserve established as per UNFC classification and expecting the market demand will remain at 2,000 nos/yr..

MINING

Opencast Manual method of mining will be adopted in the lease area. The excavation will be carried out usually by manual labour with the use of fawda and gaiti etc. and loaded into tractor/truck/tipper.

Production Plans for First Five Years

Year	Area in (sq mt.)	Maxi. depth in meter	ROM
2020	1000	2.0 m	2000
2021	1000	2.0 m	2000
2022	1000	2.0 m	2000
2023	1000	2.0m	2000
2024	1000	2.0m	2000
Total	5000		10,000

A tentative scheme of quarrying, annual program and proposed plan for excavation after five year

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Year	Area in (sq mt.)	Maxi. depth in meter	ROM
2025	1000	2.0 m	2000
2026	1000	2.0 m	2000
2027	1000	2.0 m	2000
2028	1000	2.0m	2000
5/11/2029	1000	2.0m	2000
Total	5000		10,000

Systematic working will be done by formation of benches as per M.M.R. 1961. All applicable rules of MMR 1961, Mines Act-1952, MCR-1960 and MCDR-1988 will be followed for safe, scientific & systematic working to follow the principles of safety & conservation of human health & mineral.

Machinery to be deployed

S. No.	Type of machines	No. of machine	Motive power
1.	Tractor with trolley and wheel wedge	02	Diesal.
2.	spade, kudali, crowbar, bucket etc.	20	Diesal.

Summary of Land use at different stage will be as follows (inHa):

Land use pattern of the QL area (ha)

Articles	Present land use in hect.	Forest land	Agriculture land	Stony Waste land	Land use at the end of 5 years in hect.	Land use at the end of 10 years in hect.
A) Lease area	3.993	Nil	3.993	Nil	---	3.993
B) Mining and allied	-	Nil	Nil	Nil	0.4500+0.5000	0.9500+0.5000
1. Area under pit	0.4500				=	=
2. Area for	Nil	Nil	Nil	Nil	0.9500	1.4500
	Nil	Nil	Nil	Nil	Nil	--

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dumping						
3. Area for Road	Nil	Nil	Nil	Nil	Nil	--
4. Area for infrastructure	0.1110	Nil	Nil	Nil	0.1110	0.1110
5. Plantation	Nil	Nil	Nil	Nil	0.0645	0.0645+0.645= 0.1290
6. Storage of mineral	Nil	Nil	Nil	Nil	Nil	--
7. Storage of fines	Nil	Nil	Nil	Nil	Nil	--
8. Crushing unit	Nil	Nil	Nil	Nil	Nil	--
9. Unused	3.5820	Nil	Nil	Nil	2.8675	2.3030
Total	3.9930	--	--	--	3.9930	3.9930

Disposal of Waste

Nature of waste, its rate of yearly generation and proposals for disposal of waste: The mine waste is in the form of following:-

- (1) **Top soil:** -The top soil is used as clay which is used for manufacturing of bricks.
- (2) **OB and Mine waste:** -

Selection of Dumping Site: Not applicable.

There is no soil dumping site. The generated top soil will be used for manufacturing of bricks. After backing of bricks some fly ash will be generated and it will be also used in mixing of soil to making bricks.

Method and manner of disposal of waste: Top soil/ damaged unripe bricks will reused and backfilled in the mined out area on which plantation will be raised.

Use of Mineral

Bricks are basic material for civil construction works like buildings etc. for construction of walls. Chhattisgarh is a new state in the map of India. Considering the growth, State Government has divided the state in 32 districts. In addition to these various civil

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constructions, Building projects in all district. In addition to these various civil constructions, Buildings & colonies development projects are coming up in Private sectors and are under implementations, all above civil works require bricks which is in huge demand

General Features

I) Surface Drainage Pattern

The lease area is drained by southerly flowing on-perennial rivers. The surface water courses within 10 Km are as under – Kharun River at 110 m.

ii). Vehicular Traffic Density

The lease area is about 12.14 Km North from Raipur road. The QL area can be approached from Raipur-Simga Road which is at a distance of 9.80 km from West Direction. The Nearest Railway Station is Urkura, Raipur Railway Station at 8.56 km. The Nearest Airport is Swami Vivekanand Airport at a distance of 23.61 km.

The mode of transport of unripe bricks and waste will be Stacking yard or tractors within the QL area. The Bricks transportation to the destination building constructions outside the mining lease area will be by road.

Existing Traffic Scenario & LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	Existing V/C Ratio	LOS
Kumharito Raipur Rd	46	1100	0.04	A

Note: V= Volume in PCU's/hr & C= Capacity in PCU's/ hr.

The existing Level of Service near Village is "A" i.e. excellent and at PWD road and NH is "A" i.e. excellent.

During Mine Operation

Total Capacity of mine	: 2,000 cum per annum
No. of working days	: 240
Extraction & Transportation of mineral	: 8 cum/day
Working hours per day	: 8 hour
Tractor Capacity	: 2 cum
Frequency of trucks/tractor deployed/day	: 1
No. of trucks/tractor deployed/day to and fro	: 1 * 2 trucks/Tractor = 2 tractor/truck, (2*3 = 6 PCU)

Modified Traffic Scenario & LOS

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Road	Increased PCU'S- Kumharito Raipur Rd	V	C	Modified V/C Ratio	LOS
Kumharito Raipur Rd	46+6	52	1100	0.047	A

Conclusion

The LOS value from the proposed mine may be “Excellent”. So the additional load on the carrying capacity of the concern roads is not likely to have any significant adverse effect.

iii) Water demand

The water required is mainly for clay molding, dust suppression, green belt development, drinking and other domestic purpose during mining operations. The total requirement will be 6 KLD. Water required during operation phase will be procured from bore well in the lease area and sump.

Daily water requirement

Activity	Water requirement, KLD	Source
Clay molding	2	Mine sump and bore well
Dust suppression /allied mining activity	2	
Green Belt/Plantation	1	
Domestic	1	
Total	06 KLD	

Manpower Requirement

About 30 persons will be getting direct and indirect employment in this mine. The man power will be mostly skilled.

Manpower requirement

Worker	Manpower	No.
Skilled	Supervisor	05
Semi-skilled	Driver, Operators	05
Unskilled	Labours for other services	20
TOTAL		30

DESCRIPTION OF BASELINE-ENVIRONMENT

This section contains the description of baseline studies of the 10 km radius of the area. The data collected has been used to understand the existing environment scenario around

the proposed mining project against which the potential impacts of the project can be assessed.

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

- (a) Land
- (b) Water
- (c) Air
- (d) Noise
- (e) Biological
- (f) Socio-economic

(a) Land Use: The land-use is divided into agriculture land, settlement, and river and forest area as shown in the map. The area is fertile and dominated by the proportion of agriculture land.

Land Use Pattern of the Study Area (within 10 km Buffer)

Land use Type	Area (Ha)
Scrub Land	4161.78
Forest Land	571.54
River/Water Bodies	912.70
Settlement	7056.76
Vegetation	296.79
Sand	23.42
Agriculture Land	19364.77
TOTAL	32387.76

There is no National Park, Biosphere reserve, Migratory routes of fauna and National Monument within 10km periphery of the lease area as per secondary data available. There is no habitation within lease area.

Analysis Results of Baseline Environment

(a) Results of Analysis of the Soil.

The analysis results show that soil is basic in nature as pH value ranges from 6.95 to 7.55 showing the saline property of soil. High electrical conductivity (425 to 458 $\mu\text{S}/\text{cm}$) is observed in the analysis report showing soil electrical behavior and dissolved solids in soil. The presence of Nitrogen content varies from 0.073 to 0.088 %. The concentration of Nitrogen, Phosphorus & Potassium are found low value in the soil samples. pH and EC values vary greatly and are

affected by several environmental factors including, climate, local biota (plants and animals), bedrock and surficial geology, as well as human impacts are shown in the analysis report.

Low values of EC indicate relatively dilute waters, such as distilled water or glacial melt water and low deposition of TDS.

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(b) WATER ENVIRONMENT

The results of Ground water samples are collected at eight locations in the Post-monsoon season as discussed above for organoleptic & physical parameters, general parameters, toxic and biological parameters. The analysis results at the six ground water locations and two surface water locations are given below:

The analysis results indicate that pH of the groundwater is in range of 6.78 – 7.45. The TDS were found to be in the range of 409-495 mg/l. Total Hardness is in range of 156.73 – 188.42 mg/l. The analysis results indicate that pH of the surface water to be in range of 6.85– 6.95. The TDS is found to be in the range of 556-678 mg/l. Total Hardness is in range of 478-502 mg/l. Other parameters like chloride and sulphate are observed within the prescribed limits. The necessary treatment required to minimize the impact is mentioned in Environment Management Plan.

(c) AMBIENT AIR QUALITY

The Ambient Air Quality Monitoring reveals that of 10 monitoring stations the minimum concentrations of PM_{2.5} are 27.21µg/m³ at AQ4 (silent zone) and maximum 47.25µg/m³ at AQ8 (Max GLC & Transport Convergence). The results of PM₁₀ reveal that the minimum concentration of 41.06µg/m³ at AQ5(silent zone) while maximum concentration of 68.22µg/m³ is found at AQ7 (Industrial zone). These values for PM₁₀ and PM_{2.5} are within prescribed CPCB limit of 100 µg/m³ and 60 µg/m³, respectively for residential and rural areas at all stations.

The gaseous pollutants SO₂ and NO₂ are within the prescribed CPCB limit of 80 µg/m³ for residential and rural areas at all stations. The minimum & maximum concentrations of SO₂ were found to be 10.1µg/m³ at AQ5 (silent zone) & 25.25µg/m³ at AQ7(Industrial zone), respectively. The minimum & maximum concentrations of NO₂ are found to be 11.14µg/m³ at AQ5(silent zone) & 26.15µg/m³ at AQ7(Industrial zone), respectively.

(d) NOISE ENVIRONMENT

The values of noise observed in some of the areas are primarily owing to vehicular traffic and other anthropogenic activities. Noise monitoring results reveal that the maximum & minimum noise levels at day time were recorded in the range of 62.5 dB(A) at NQ7 (Industrial Zone) and 41.2 dB(A) at NQ4 (Silent Zone) and maximum & minimum noise levels at night time were recorded in the range of 51.3 dB(A) at NQ7 (Industrial Zone) and 31.8 dB(A) at NQ5 (Silent Zone), respectively.

(e) BIOLOGICAL ENVIRONMENT

The lease area as well as buffer zone area reveals no endangered and endemic species of flora and fauna in the area.

(f) Socio- economic

Population Composition

According to 2011 Population Census the study area has a total population of 75072. Of this 50.65 percent are male and the remaining 49.34 percent are female. Further 12.41 percent of the total population belongs to 0-6 age group. About 52.72 percent of them are male and the remaining 42.27 percent are female.

Sex Ratio

The overall sex ratio in the study area has been worked out to 990 females per 1000 males, which is less than the national average of 940 females per 1000 males. The highest sex ratio recorded in the study area is 1012 females per thousand of males. Sex ratio of Children belonging to 0-6 age group has been worked out to 991 females per 1000 males.

Density of Population

The overall density of population in the study area has been worked out to 328 persons per sq. Kilometre. This is more than the density of population for the state, which stands at 246 persons per sq. Kilometre, according to census 2011.

Households

There are 14948 households in the study area and the average household size is four.

Social Structure

In the study area the total number of persons belonging to Scheduled Caste community is 8927, which is 13.08 percent of the total population. The gender wise distribution of schedule caste population indicates male 50.17 percent and female 49.84 percent, registering a sex ratio of 1138 females per one thousand males.

Further analysis of data reveals that in the study area, the total number of persons belonging to .Scheduled Tribe community is 3817, which is 11.3 percent of the total population. This is nearly same as the total number of persons belonging to Scheduled caste community residing in the study area.

About 90.74 percent of the total population belongs to General category, which includes people belonging to 'Other Backward Castes'. In absolute number the population belongs to this category are 24940 with 51.48 percent male and 48.51 percent female. The sex ratio of General category population has been worked out to 995 females per 1000 males.

The socio-economic development of poor and downtrodden scheduled caste and scheduled tribe people is a continuous process and the governments, both at the centre and the states are constantly making efforts to improve the destiny of these people. Distribution of surplus land to the members of the above categories of people is an important step taken by the government for their economic empowerment. The State Governments have drawn up its own list of socially and educationally backward classes and implementing various developmental schemes for them. These schemes are mainly in the field of education and income generation. All the ongoing schemes are critically examined and modified periodically to cater to the needs of different groups amongst the above communities. The government has also started various schemes to improve the quality of life of the rural poor, especially for the scheduled castes and scheduled tribes by making special provisions for them. 'Sampornma Grameen Rozgar Yojana' (SGRY) is one such programme, which was launched to safeguard the interest of the weaker sections and women by providing them wage employment. The 'Swarnjayanti Gram Swarozgar Yojana' (SGSY), another rural development scheme aims at bringing poor families above the poverty line by providing them with income generating assets through a mixture of credit and subsidy. The SGSY has also made an explicit provision that 50 per cent of the Swarozgaris assisted should be from Scheduled caste and Scheduled Tribe communities.

Over the decades the Scheduled caste and scheduled tribe people are making rapid progress both in economic and social sphere. Today they are no more untouchables. The literate Schedule Caste and Scheduled tribe people are engaged in trade, commerce & industry, private & government services including police and armed forces.

Literates and Literacy Rate

All persons aged seven years and above, who can both read and write with understanding in any language including Braille are considered as literate. The total numbers of literate persons in the study area are 7108, which is 65.70 percent of the total population. Of the total number of literate persons 63.16 percent are male and the remaining 36.83 percent are female.

The overall literacy rate in the study area has been worked out to 84.05 percent. The gender wise distribution of literacy rate reveals that 70.30 percent of the literate persons are male and 60.71 percent are female. This creates a gender gap of 20.21 percent.

ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

Impact on Ambient Air Quality

The mining is proposed to be carried out by opencast other than fully mechanized method. The air borne particulate matter generated by ore and handling operations as well as transportation is the main air pollutant. The emissions of Sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) contributed by vehicles plying on haul roads are marginal. Prediction of impacts on air environment has been carried out taking into consideration proposed production and net increase in emissions.

Mitigation Measures

1. Water sprinkling will be done on the haul roads twice in a day.
2. The dust generated during the process will be minimized by water spray at the working faces before and after the activity.
3. Plantation will be carried out on approach roads and in Lease boundary.
4. Planning transportation routes of mined material so as to reach the nearest paved roads by shortest route. (minimize transportation over unpaved road);
5. Personal Protection Equipments (PPE) like dust masks, ear plugs etc. will be provided to mine workers.
6. Speed limit will be enforced to reduce airborne fugitive dust from vehicular traffic.
7. Deploying PUC certified vehicles to reduce their noise emission.
8. Haul road shall be covered with gravels
9. Spillage from the trucks will be prevented by covering tarpaulin over the trucks.
10. Ambient Air Quality Monitoring will be conducted on a regular basis to assess the quality of ambient air.
11. Proper maintenance of machines improves combustion process & makes reduction in the pollution.
12. Good maintenance and monitoring of fuel and oil will not allow significant addition in the gaseous emission.

Noise Environment

Noise generated at the mine is due to mechanized mining operations and truck transportation activities. The noise generated by the mining activity dissipates within the mine. There is no major impact of the mining activity on the nearby villages. However, pronounced effect of above noise levels is felt only near the active working area.

The impact of noise on the villages is negligible as the villages are far located from the mine workings. Since there is no involvement of major machinery, the impact of noise levels will be minimal.

S.No	Impact Prediction	Mitigation Measures
1	Noise Impact due to mining activities.	The noise levels from all the sources are periodical and restricted to particular operation.
2	Noise impact due to vehicular movement.	a) Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce the generation of noise. b) Plantation along the sides of approach roads, around office building and mine area will be done to minimize the propagation of noise. c) Personal Protective Equipments (PPE) like earmuffs/earplugs will be provided to all operators and employees working near mining machineries or at higher noise zone. d) Periodical noise level monitoring will be done

Biological Environment

S.No	Impact Predicted	Suggestive measure
1	Disturbance of free movement/living of wild fauna	<ul style="list-style-type: none"> • Care will be taken that noise produced during vehicles movement for carrying OB and ore materials are within the permissible noise level. • Care will be taken that no hunting of animals (birds) carried out by labours • If wild animals are noticed crossing the core zone, it will not be disturbed at all Labours will not be allowed to discard food, plastic etc., which can attract animals near the core site. • Only low polluting vehicle will be allowed for carrying ore materials. All vehicles allowed in the project site area will have to provide pollution under control certificate at the end of three months • Noise level will be within permissible limit (silent zone-50dB during day time) as per noise pollution (regulation and control), rules, 2000, CPCB norms
2	Harvesting of flora	<ul style="list-style-type: none"> • No tree cutting, chopping, lumbering, uprooting of shrubs and herbs should be allowed • Collections of economically important plants will be fully restricted

Land Environment

S.No	Impact Prediction	Mitigation Measures
1	Change in the Topography of the Land / Land Degradation	The proposed mining activity is carried out in stony waste land After removal of ore body, a undulating portion will be created. All the broken area will be reclaimed by systematic backfilling and rehabilitated by afforestation so that landscape of the area is improved.
2	Solid waste generation	About 10% mineral waste will be generated. Top Soil will backfilled in the mined out areas on which plantation will be raised.
3	Change in Drainage Pattern	Water flow / course will not be obstructed and natural drains or nallahs will not be disturbed. Run-off from mine and mineral stack will be prevented to avoid being discharged to surroundings, particularly to agricultural land. Garland drains and, catchpits has been constructed to prevent run off affecting the surrounding agricultural land. Green belt has been developed in boundary.
4	Impact on the Agricultural Practice at	mitigative measures such as regular water sprinkling on active areas for example haul roads, excavation sites will

	nearby area due to dust generation	be strictly followed so that impact is minimized.
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Water Environment

S.No	Impact Prediction	Mitigation Measures
1	Effect on the Ground Water Table	Max depth will be 2m from ground level so will not effect ground water table
2	Wash off from the dumps	No dumping has been proposed.
3	Soil Erosion	Reclamation of the mined out area will be done with plantation to avoid the soil erosion
4	Waste Water generation/ Discharge	Portable Bio-toilets will be used; hence no sewage / liquid effluent will be generated and contamination is also not expected due to percolation.
5	Siltation in nearby agriculture field	Garland drains have been constructed on the sloping side barrier of the ML area. The garland drain has been routed through settling tank to remove suspended solids from flowing into storm water.

10.5 ADDITIONAL STUDIES

DISASTER MANAGEMENT PLAN

In order to avoid any danger in the mine site at the end of life of mine a disaster management cell headed by local authority District Collector will be constituted. Police department health authorities, including doctor, ambulances and so on will have a vital part to play following a disaster along with the mine management, and they will be an integral part of the disaster management plan.

The disaster management plan is aimed to ensure safety of human life and property and protection of environment Following are the objective of the disaster management plan.

- (i) First Aid to injure.
- (ii) Rescue operation and provision of adequate medical facilities to the injured.
- (iii) Safety of the human life in the buffer zone if needed.
- (iv) Protecting and minimizing damage to property and the environment.
- (v) Initially restrict and ultimately bring the incident under control.
- (vi) Identify any dead.
- (vii) Inform to the administration, DGMS and statutory persons as per Rules.

10.6 PROJECT BENEFITS AND COSTS EVALUATION

The project will improve the physical infrastructure, social infrastructure like improvement of road conditions water supply during dry season, drainage, educational institutions and improved environmental conditions, etc. The project also provides direct employment and indirect employment to persons. It increases economic activities, better living standard, educational facility, health facility and infrastructural development. The project will contribute to district mineral fund which will directly provide aid to the local

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authority to fund the development projects. The management will provide free saplings of fruit bearing and other trees, etc. to local during monsoon season plantation. This will increase the consciousness in workers and near-by villagers for greenery. Fruit trees can contribute towards their financial gains.

The CSR activities are increasingly being taken up by the project proponent not only as fulfilling of mandatory provisions but also for the formation or enhancement of brand image. Besides the above, CSR is seen more as a responsibility towards society rather than a business promotion activity.

All the activities listed are for community development as a whole and not for individual person or a family. Each development initiative will be implemented in close collaboration with the village Panchayat. The Project proponent may avail the services of a NGO for the implementation of the above programme, if felt needed.

Budget for Environmental Management Plan

Particulars	Capital Cost	Recurring Cost/ year in Rs.
Environmental Protection		
Dust Suppression & Pollution Control	1,00,000	1,00,000
Tarpaulin and cover for stack of ore	50,000	50,000
Environmental Monitoring	60,000	75,000
Green Belt	65,000	80,000
Total	2,75,000	3,05,000

Budget for Occupational Health

Particulars	Capital Cost (Rs.)	Recurring Cost (Rs.)
Before hiring man power	1,00,000	-
For routine checkup	--	1,00,000
Infrastructure & PPE's	50,000	50,000
Total	1,50,000	1,50,000

Budget for Water, Shelter and Sanitation for Mine Worker

Scheme	Capital Cost (In Rs)	Recurring Cost (In Rs)/year
Drinking water facility	75,000	50,000
Rest shelter	25,000	15,000
Sanitation (Urinal and Toilet)	1,00,000	35,000

Total	2,00,000	1,00,000
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CONCLUSION

As discussed, it is safe to say that the proposed facilities are not likely to cause any significant impact to the ecology of the area, as adequate preventive measures will be adopted to keep the various pollutants within the permissible limits. Green belt development around the area will also be taken up as an effective pollution mitigative technique, as well as to serve as biological indicators for the pollutants released from the premises of "Kumhari brick mine Quarry."