

EXECUTIVE SUMMARY**ENVIRONMENT IMPACT ASSESSMENT REPORT**

FOR
DANDKESRA BAUXITE MINE

Proposed Production Capacity: 1,25,000TPA (ROM),
Mineral: 57692.3 TPA, Mineral Reject: 67307.7 TPA,

Mining lease Area 44.718 ha.

At

Near Village-Dandkesra, Tehsil - Lakhanpur,
District- Surguja, Chhattisgarh

By

M/s. Chhattisgarh Mineral Development Corporation Limited

Project Cost: Rs. 4.8 CRORE

Category-B1

PROJECT PROPONENT

M/S CHHATTISGARH MINERAL DEVELOPMENT
CORPORATION LIMITED
Sector 24, Block no. 7A, Third Floor,
Nava Raipur, Atal Nagar,
(Chhattisgarh) pin- 492015
EMAIL ID: cmdcraipur@gmail.com
Phone Number: 0771-4283557

EIA CONSULTANT

OVERSEAS MIN-TECH CONSULTANTS
ISO 9001:2015 Certified & NABET Accredited
501, Apex Tower, Tonk Road, Jaipur – 302015
Telefax: +91-141-2744509,
Mobile: +91-9460221084
E-mail-arun.omtc@gmail.com,
Website: www.overseasmintech.com



Project File ID: OMTC/EIA/2022/36



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EXECUTIVE SUMMARY

1.1 INTRODUCTION

Chhattisgarh Mineral Development Corporation (CMDC) limited was incorporated under Section-21 of the Company Act 1986 by register of the Company 7-6-2001. The State's Chhattisgarh Mineral Development Corporation, singly or in joint venture, undertakes scientific exploration, commercial exploitation and viable trading of minerals in the State.

The main object of the company is to search for major and minor minerals and precious stones in the state of Chhattisgarh and to acquire mining rights for exploration and exploitation of minerals and for development of mines.

The project proponent's mission is to enhance the production of minerals, exploration and exploitation of mineral resources, establishment and promotion of mineral-based industries and explore new areas of mining in Chhattisgarh and lead the mining sector of Chhattisgarh and turn it into a safe and good position.

1.2 PROJECT DESCRIPTION

The proposed mining is located in village- Dandkesra, Tehsil- Lakhanpur, District- Surguja, of Chhattisgarh. The total mining lease area is 44.718 Ha and consists of private land with mineral deposit of Bauxite, occurring in the ML area. The project envisages mining with ROM quantity of 1,92,307.7 TPA & 20811.2 TPA OB with total excavation of 2,13,118.9 TPA. The saleable bauxite from the ROM is envisaged to be 1,25,000 TPA and Waste Quantity 67,307.7 TPA.

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The daily water demand during the operation phase will be 6 KLD. Water demand will be met from tube wells for domestic and drinking purposes. Other requirements will be fulfilled from local suppliers. However, rainwater stored in the pit during the rainy season will be used for plantation and dust suppression.

1.3 NEED OF THE PROJECT

Bauxite is basically an aluminous rock containing hydrated aluminium oxide as the main constituent and iron oxide, silica and titania in varying proportions. Hydrated aluminium oxides present in the bauxite ore are diaspore and boehmite, $Al_2O_3 \cdot H_2O$ (Al_2O_3 - 85%; Al- 45%); gibbsite or hydrargillite, $Al_2O_3 \cdot 3H_2O$ (Al_2O_3 -65.4%; Al-34.6%), and bauxite (containing colloidal alumina hydrogel), $Al_2O_3 \cdot 2H_2O$ (Al_2O_3 - 73.9%; Al-39.1%). Bauxite is an essential ore of aluminum and is one of the most important nonferrous metals used in the modern industry. The country has abundant resources of bauxite which can meet both domestic and export demands.

The production of mineral and its subsequent use in the Alumina Refinery will benefit by way of royalty and taxes to the State Government and will also bring in large employment opportunities to the local populace thereby providing socio-economic benefit to the backward region.

1.4 BRIEF DESCRIPTION OF NATURE, SIZE & LOCATION OF PROJECT

Table 1 Salient Features of the project site

S. No.	Particulars	Details			
		S. No.	Pillar No.	Pillar Latitude	Pillar Longitude
1	Coordinates	1	BP-01	22° 47' 12.580" N	83° 09' 18.794" E
		2	BP-02	22° 47' 12.416" N	83° 09' 21.588" E
		3	BP-03	22° 47' 10.638" N	83° 09' 21.495" E
		4	BP-04	22° 47' 10.311" N	83° 09' 22.665" E
		5	BP-05	22° 47' 07.665" N	83° 09' 20.193" E
		6	BP-06	22° 47' 07.597" N	83° 09' 18.796" E
		7	BP-07	22° 47' 05.171" N	83° 09' 17.211" E
		8	BP-08	22° 47' 06.834" N	83° 09' 12.404" E
		9	BP-09	22° 47' 07.178" N	83° 09' 10.232" E
		10	BP-10	22° 47' 08.983" N	83° 09' 10.149" E
		11	BP-11	22° 47' 09.123" N	83° 09' 07.465" E
		12	BP-12	22° 47' 07.118" N	83° 09' 07.609" E
		13	BP-13	22° 47' 07.089" N	83° 09' 06.183" E
		14	BP-14	22° 47' 10.732" N	83° 09' 05.799" E
		15	BP-15	22° 47' 11.604" N	83° 09' 05.845" E
		16	BP-16	22° 47' 12.267" N	83° 09' 06.557" E
		17	BP-17	22° 47' 11.578" N	83° 09' 08.045" E
		18	BP-18	22° 47' 15.099" N	83° 09' 09.708" E
		19	BP-19	22° 47' 15.873" N	83° 09' 05.441" E
		20	BP-20	22° 47' 18.553" N	83° 09' 08.301" E
		21	BP-21	22° 47' 20.786" N	83° 09' 05.227" E
		22	BP-22	22° 47' 19.190" N	83° 09' 04.382" E
		23	BP-23	22° 47' 17.068" N	83° 09' 04.241" E
		24	BP-24	22° 47' 20.117" N	83° 09' 00.710" E
		25	BP-25	22° 47' 22.738" N	83° 09' 03.048" E
		26	BP-26	22° 47' 21.148" N	83° 09' 05.178" E
		27	BP-27	22° 47' 25.119" N	83° 09' 05.183" E
		28	BP-28	22° 47' 25.655" N	83° 09' 02.401" E
		29	BP-29	22° 47' 29.017" N	83° 09' 03.214" E
		30	BP-30	22° 47' 30.328" N	83° 09' 04.885" E
		31	BP-31	22° 47' 31.357" N	83° 09' 04.468" E
		32	BP-32	22° 47' 32.319" N	83° 09' 02.945" E
		33	BP-33	22° 47' 34.557" N	83° 09' 02.944" E
		34	BP-34	22° 47' 36.132" N	83° 09' 05.406" E
		35	BP-35	22° 47' 38.785" N	83° 09' 05.575" E
		36	BP-36	22° 47' 40.673" N	83° 09' 05.818" E
		37	BP-37	22° 47' 43.654" N	83° 09' 06.949" E
		38	BP-38	22° 47' 43.641" N	83° 09' 08.840" E
		39	BP-39	22° 47' 43.181" N	83° 09' 08.843" E
		40	BP-40	22° 47' 43.244" N	83° 09' 11.107" E

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		<table border="1"> <tr><td>41</td><td>BP-41</td><td>22° 47' 43.015" N</td><td>83° 09' 11.072" E</td></tr> <tr><td>42</td><td>BP-42</td><td>22° 47' 43.325" N</td><td>83° 09' 14.749" E</td></tr> <tr><td>43</td><td>BP-43</td><td>22° 47' 41.578" N</td><td>83° 09' 14.433" E</td></tr> <tr><td>44</td><td>BP-44</td><td>22° 47' 40.037" N</td><td>83° 09' 14.758" E</td></tr> <tr><td>45</td><td>BP-45</td><td>22° 47' 37.087" N</td><td>83° 09' 15.040" E</td></tr> <tr><td>46</td><td>BP-46</td><td>22° 47' 34.071" N</td><td>83° 09' 16.274" E</td></tr> <tr><td>47</td><td>BP-47</td><td>22° 47' 33.481" N</td><td>83° 09' 18.569" E</td></tr> <tr><td>48</td><td>BP-48</td><td>22° 47' 31.463" N</td><td>83° 09' 20.056" E</td></tr> <tr><td>49</td><td>BP-49</td><td>22° 47' 27.972" N</td><td>83° 09' 20.021" E</td></tr> <tr><td>50</td><td>BP-50</td><td>22° 47' 27.562" N</td><td>83° 09' 21.572" E</td></tr> <tr><td>51</td><td>BP-51</td><td>22° 47' 26.000" N</td><td>83° 09' 21.257" E</td></tr> <tr><td>52</td><td>BP-52</td><td>22° 47' 24.529" N</td><td>83° 09' 21.151" E</td></tr> <tr><td>53</td><td>BP-53</td><td>22° 47' 22.024" N</td><td>83° 09' 20.537" E</td></tr> <tr><td>54</td><td>BP-54</td><td>22° 47' 21.980" N</td><td>83° 09' 20.680" E</td></tr> <tr><td>55</td><td>BP-55</td><td>22° 47' 20.678" N</td><td>83° 09' 20.592" E</td></tr> <tr><td>56</td><td>BP-56</td><td>22° 47' 20.644" N</td><td>83° 09' 20.031" E</td></tr> <tr><td>57</td><td>BP-57</td><td>22° 47' 15.742" N</td><td>83° 09' 19.751" E</td></tr> <tr><td>58</td><td>BP-58</td><td>22° 47' 15.690" N</td><td>83° 09' 19.165" E</td></tr> </table>	41	BP-41	22° 47' 43.015" N	83° 09' 11.072" E	42	BP-42	22° 47' 43.325" N	83° 09' 14.749" E	43	BP-43	22° 47' 41.578" N	83° 09' 14.433" E	44	BP-44	22° 47' 40.037" N	83° 09' 14.758" E	45	BP-45	22° 47' 37.087" N	83° 09' 15.040" E	46	BP-46	22° 47' 34.071" N	83° 09' 16.274" E	47	BP-47	22° 47' 33.481" N	83° 09' 18.569" E	48	BP-48	22° 47' 31.463" N	83° 09' 20.056" E	49	BP-49	22° 47' 27.972" N	83° 09' 20.021" E	50	BP-50	22° 47' 27.562" N	83° 09' 21.572" E	51	BP-51	22° 47' 26.000" N	83° 09' 21.257" E	52	BP-52	22° 47' 24.529" N	83° 09' 21.151" E	53	BP-53	22° 47' 22.024" N	83° 09' 20.537" E	54	BP-54	22° 47' 21.980" N	83° 09' 20.680" E	55	BP-55	22° 47' 20.678" N	83° 09' 20.592" E	56	BP-56	22° 47' 20.644" N	83° 09' 20.031" E	57	BP-57	22° 47' 15.742" N	83° 09' 19.751" E	58	BP-58	22° 47' 15.690" N	83° 09' 19.165" E
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2	Total Mine Lease Area	44.718 Ha																																																																								
3	Khasra no	42/3, 43, 44,45,46,47,48, 49/1, 49/2, 49/3,50, 51, 52, 53, 54/1, 54/2,55, 56/1, 56/2,57,59/1,56/2,57,59/1,59/2,57,59/1,59/2,60,61/1,61/2,61/3,62,63,64,65,66,67,68/1,68/2,69/1,69/2,177,178/2,180,181,182/1,182/2,182/3,182/4,182/5,182/6, 182/7,182/8,182/9,183/1,183/2,183/3,183/4,183/5,183/4,183/6,183/7,183/8,183/9,184/1,184/2,186/1,186/2,186/3,186/4,186/5,187/1,187/2,188/1,188/,188/3,202/1,202/2,203,204,205,206,207/1,207/2,207/3,189/2.																																																																								
4	Lease period validity	2022-2023 to 2072-2073																																																																								
5	SOI Topo Sheet	64N/1																																																																								
6	Elevation above MSL	Highest MSL 1124 m Lowest MSL 1106 m																																																																								
7	Present Land Use	Agriculture																																																																								
8	Nearest Highway	SH-2-22km, NH130-22km.																																																																								
9	Nearest Railway Station	Ambikapur Railway station approximately 37.50 km from site. North direction																																																																								
10	Nearest Airport	Maa Mahamaya Airport Ambikapur approximately 22 km from site. NNE direction. And Swami Vivekananda International Airport, Raipur Airport about 223km from site SW direction																																																																								
11	Nearest Port	Dhamra Port Approx. 450Km.																																																																								
12	Nearest	Lakhanpur Tehsil at 23.50 km (approximately)																																																																								

S. No.	Particulars	Details
	Town/City	
13	Nearest Villages	Dandkesra Village within 0.70 km from project boundary, Other certain villages are located within 15 kms of the project area
14	Villages with ML area	Nil
15	Archaeologically important places	Nil
16	National parks/ wildlife sanctuaries	Nil
17	Reserved/protected forest	Forest, (RF, PF) area is located within 15 km from mine site, Argoti PF 5.287 KM West Side direction, Kedma PF 10.232 KM SW Side direction, Viniya PF 4.657 PF SW Side direction, Matringa PF 11.582 SW Side direction, Patkura PF 1.277 KM SW Side direction, Jagedar RF 12.736 KM South Side direction, and Kumarta RF 1.359 KM South Side direction.
18	State and national boundaries	Jharkhand State Boundary-99.0km NE direction from mine site, Madhya pradeh-113 km NW direction from mine site ,Uttar Pradesh -123km N direction from mine site and Odisha – 83 km SE direction from mine site National Boundary 453 km SE
19	Streams / Rivers	Nil within ML The main drainage of the area is through different seasonal water courses originating from the plateau. River and Nala area is located within 15 km from mine site, Khhurkhuri Nandi 5.452 KM west side direction, Jauki Nala 12.012 KM west side direction, Bali Nala 10.305 KM WSW Side direction, Rehar River 9.672 KM WSW side direction, Koerga River 10.527 KM South Side direction, Sangul Nadi 12.729 KM SE Side direction, Manchari Nala 9.304 KM ENE Side direction and Bamaii Nadi 11.0424 KM North Side direction
20	Defense Installations	Nil
21	Seismicity	Seismically, this area is categorized under zone-II as per IS-1893 (Part-I)-2002.
22	List of major industries and mines	Nil
23	Cost of the Project	4.8 Cr.
24	Water Requirement	5.7 KLD
25	Source of Water	Tube well for domestic and drinking purpose Other will be fulfilled from local supplier.

The map showing environmental settings within 10 km from the project site is given on the next page:

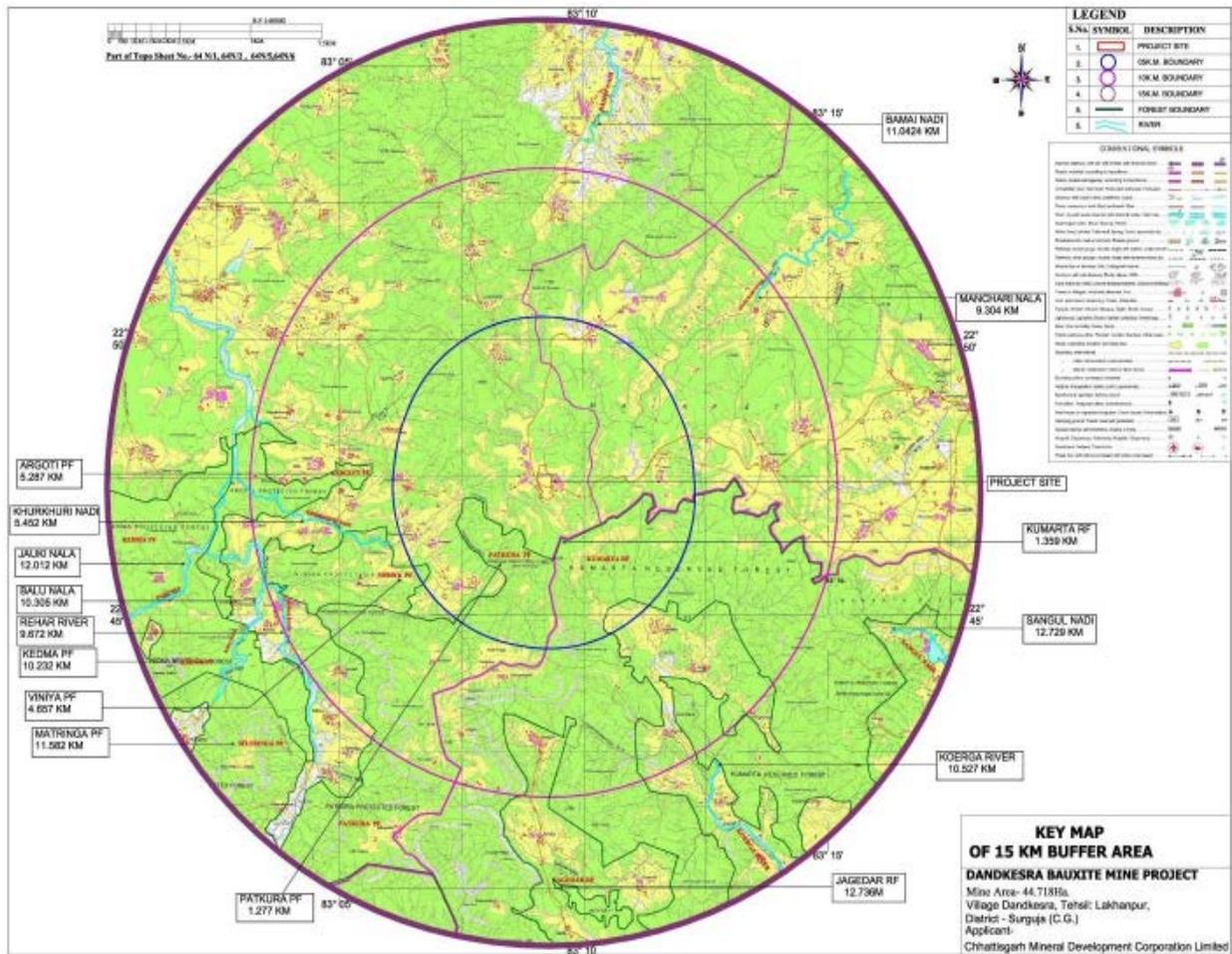


Figure 1 : Map Showing Environmental Setting of the Study Area of the Mining Lease Boundary

1.5 LOCATION OF THE PROJECT:

The proposed Bauxite Mining lease at Village Dandkesra with an Area 44.718 Ha in Villages – Dandkesra, Tehsil Lakhanpur, District Surguja of Chhattisgarh. Bounding Co-ordinates is Latitude - 22° 47' 12.850" N to 22° 47' 15.690" N and Longitude - 83° 09' 18.794" E to 83°09'19.165"E.

LOCATION MAP DANDKESRA BAUXITE MINE

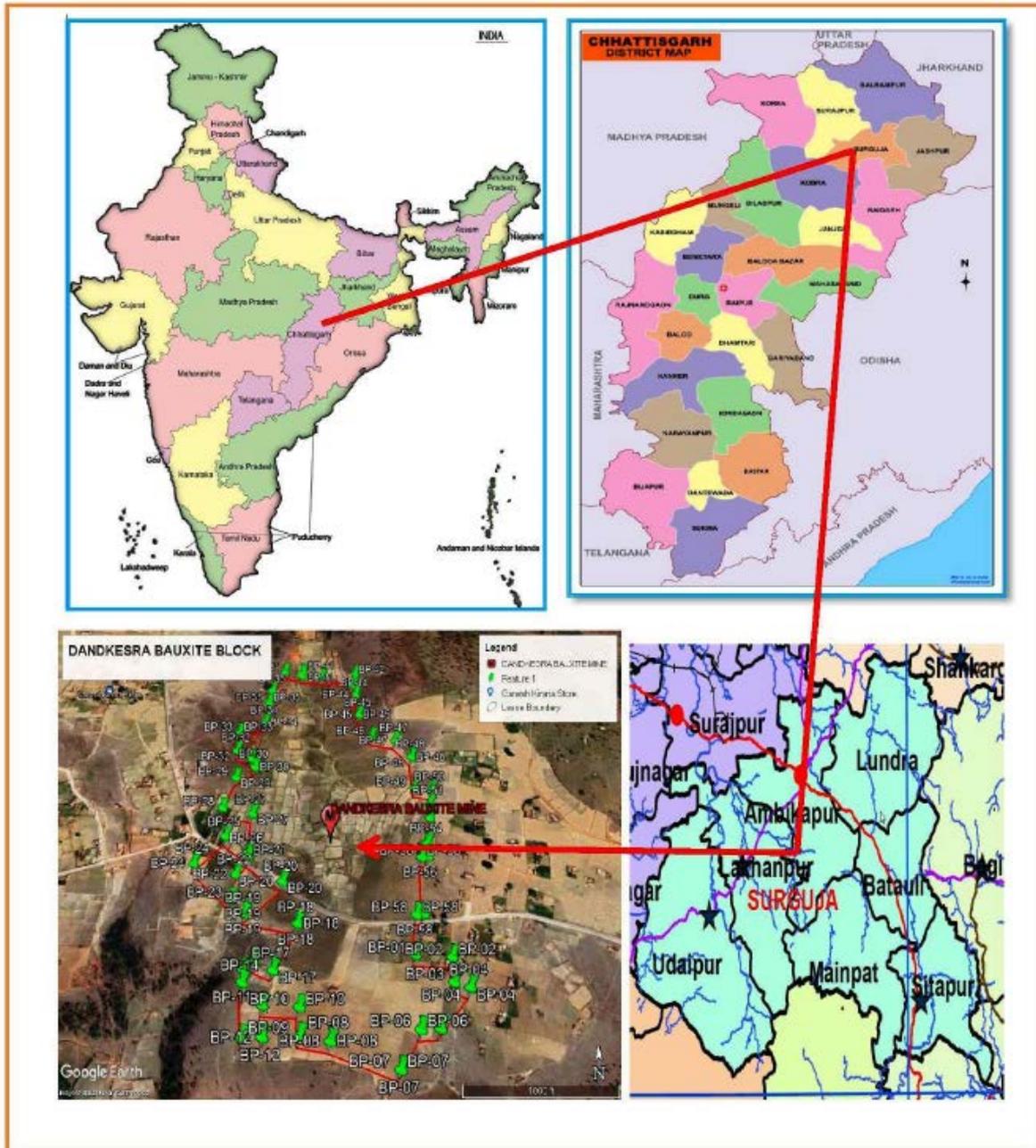


Figure 2 Map showing location of the proposed project Site

2.0 MINE DESCRIPTION

2.1 MINING LEASE STATUS

Government of Chhattisgarh has given Letter of Intent for the grant of mining lease for mineral bauxite over an area of 44.718 Ha (Pvt. Land) in village - Dandkesra district- Surguja vide letter no. no.F 3- 20/2021/12, Nava Raipur dated 25.02.2022. The present land use is rain-fed agriculture Land.

2.2 PROPOSED METHOD OF MINING

The method of mining will be open cast by Semi Mechanized Method. Bench height and width will be 3 m and ultimate pit limit will be 12 m. Process flow chart is given below:

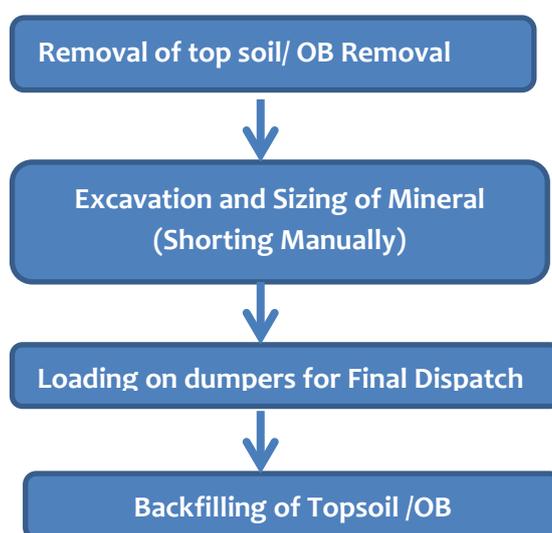


Figure 3 Process flow chart

Table 2 Year wise production details

S. No.	Year	Total Handling (t)	Waste Quantity (t)	ROM Quantity (t)	ROM Quantity Saleable Mineral (t)	ROM Quantity Mineral Reject (t)	OB to Ore Ratio (Waste Quantity / ROM Quantity)	Grade Range (%)
1	Year 1	63383.7	1845.2	61538.5	40000	21538.5	1:0.03	Cut-off grade Al ₂ O ₃ - 40% or above
2	Year 2	84027.9	7104.8	76923.1	50000	26923.1	1:0.09	-do-
3	Year 3	118634.3	3249.6	115384.7	75000	40384.6	1:0.03	-do-
4	Year 4	157165.4	3319.2	153846.2	100000	53846.2	1:0.02	-do-
5	Year 5	213118.9	20811.2	192307.7	125000	67307.7	1:0.10	-do-
Total		636330	36330	600000	390000	210000		

(Source: Mining Plan)

2.3 MINING DETAILS

Table 3 Details of Mine

S. N.	Particular	Details
1	Mining Method	Semi Mechanized open cast method
2	ROM quantity	1,92,307.7 TPA
3	OB	20811.2 TPA
4	Total Excavation	2,13,118.9 TPA
5	Saleable Bauxite	1,25,000 TPA
6	Total Waste Quantity	67,307.7 TPA
7	Geological Reserves	36,04,080.82 Tonnes
8	Mineable Reserves	24,14,655.83 Tonnes
9	Life of mine	13 years
10	Mineral Reject	There is no proposal for blending of mineral reject with bauxite ore.
11	Waste	The recovery of bauxite ore is expected as about 65% from the total excavation from bauxite zone and remaining 35% will be considered as mineral waste and will be left in the mined-out pit.

Source: Approved Mining Plan with Progressive Mine Closure Plan

B. Calculation for requirement of mining machineries

Description	Capacity	Quantity
Drilling Machine (DTH)	42 (m)	1 Standby 1
Excavator & loading equipment	1.2 m ³	3
Dumpers	1800 TPH (Yearly)	2/ standby 1
Tipper	15m	2
Water Tankers	5.7 KLD	2

Machine Requirement Summary	Details
Number of Average Working Days in One Year (A)	300
Number of Shifts per Day (B)	1
Material Handling Required per Day (t) ((D)=Largest of (Q1, Q5))/(A))	Say 711
Material to be Handled per Shift (t) ((E)=(D)/(B))	711
Handling Required per Hour (t) ((F)=(E)/8 hours)	89
Effective Shift Time	6.00 hrs.

2.4 UTILITY & REQUIREMENT FOR THE MINING PROJECT

2.4.1 Extent of Mechanization

Table 4 List of Machineries

S. No.	Machine	No's	Capacity
1	Air Compressor	5	256 CFM
2	Wagon Drill	5	100 mm dia
3	Jack Hammer	5	32 mm dia
4	Derrick Crane	5	30 tonne
5	Dumper	20	30 tonne
6	Excavator	5	1.2 m3
7	Wire Saw Cutter	25	30 HP
8	Tractor	5	35 HP
9	D. G. Set	2	220 kva

2.4.2 Water Requirement

The total requirement of water will be 5.7 KLD. The water required is mainly for dust suppression and drinking and other domestic purpose during mining operations. Drinking & domestic water will be fulfilled from tube well while other will be met from water supplier.

2.4.3 Man Power Requirement

Man power requirement for mining is estimated to be 29 Nos. Most of the employees will be recruited from neighboring village depending upon the availability of skilled & unskilled people. Migration of highly educated and skilled person will take place but it will be on temporary basis. Proposed workers and staffs details given in Table 4.

Table 5 Details of Man Power

S. No.	Management and Supervisory Personnel	Nos. employed
1	Semi-skilled workers	10
2	Skilled workers	5
3	Unskilled Workers	10
4	Supervisor	1
5	1st Class	1
6	Mining Engineer	1
7	Geologist	1

2.4.4 Power Requirement

The Electric lines are mainly for power transmission to agriculture land and will be shifted before commencement of mining operations.

3.0 DESCRIPTION OF ENVIRONMENT

Baseline study was conducted in pre-monsoon period during March 2022 to June 2022. To assess the baseline environmental quality land environment, water environment, ambient air environment, noise quality, ecological status and sociological survey was conducted. NABL accredited laboratory was used for baseline data generation. The study area was divided in two zones, core zone was considered area within mine lease and buffer zone considered area outside 10 km radius from project site. Different environmental attributes were considered for baseline environmental data.

CLIMATE

The climate of the district can be divided into four seasons. Winter season starts from December and goes up to the end of February. From March to June is summer season. Month of May is the hottest month of the year when sometimes mercury touches 46°C. In the middle of June, south-west monsoon enters in the district and it remains till September. October and November are months of north monsoon or retreating monsoon. Winds generally blow slowly, but during midsummer and beginning of monsoon they become faster.

3.1 LAND ENVIRONMENT

3.1.1 Land Use

The mining lease area is 44.718 ha which is a private land.

3.2 AIR ENVIRONMENT

Ambient air quality of the study area was assessed through a network of 7 ambient air quality monitoring stations to represent whole study area including the ML area with at least one monitoring location in downwind and one in up wind direction.

The parameters monitored were PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂), Nitrogen Oxides (NO_x) and free silica. These parameters were selected based on the guidelines given by the MoEF&CC and the ToR issued by SEAC, Chhattisgarh.

The study is based on analysis of air samples shows that since this mine is not operating and traffic on the National Highway is also less, population in the village is not more. The baseline ambient air quality was found to be within the permissible limits of NAAQS.

3.3 NOISE ENVIRONMENT

Ambient noise levels were measured at 7 locations around the proposed project site. Generally, noise levels in public places like temples and community hall have higher values in day time. In the study area, higher Noise level of 58.4 dB (A) was recorded during day time at Mine site & lower Noise level of 38.8 dB (A) was recorded during night time in at village Chhoteparoda. it concluded that noise levels in the study area are well within the prescribed limits as prescribed by the CPCB and State Pollution Control Board.

3.4 WATER ENVIRONMENT

3.4.1 Ground Water

Water quality was measured at 7 locations around the proposed project site. The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits

prescribed by drinking water standards promulgated by Indian Standards IS: 10500. Analysis results of study area of ground water reveal the following: -

The analysis results shows that the pH for the ground water samples GW1, GW2, GW3, GW4, and GW5 ranged from 7.22 to 7.82 indicating slightly alkaline in nature. The TDS (Total Dissolved Solids) were found to be in the range 166.0 mg/l to 260 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 164.0 to 222.0 mg/l which is within permissible limit.

Fluoride content varies from 0.34 mg/l – 0.86 mg/l which is within permissible limit. The overall ground water quality in the study area was found to be mineralized with respect to chloride (16.0 to 54.0 mg/l) and sulphate (24.0 mg/l to 44.0 mg/l). All parameter values in ground water sources are well and within the permissible limits laid by Ministry of Health, Govt. of India, for portable water.

3.4.2 Surface water

Surface water samples were collected, analyzed and compared with Indian standard for drinking water 10500:2012, pH value was found to be 7.12 which indicate that surface water is alkaline in nature; TDS was found to be 186 mg/l. Dissolve oxygen were found about 6.8 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.

3.5 SOIL ENVIRONMENT

Soil samples were collected at 7 locations around the proposed project site. . The analysis results of soil shows following:

The soils of study area are predominantly Sandy clay loam in texture. The pH of the soil is ranges from 7.9 to 7.6. The soil being of friable consistency, the bulk density of the soil is in the range of 1.64 to 1.72 g/cm³ whereas the porosity and water holding capacity are in the range of 32.81 to 37.40 % and 26.48 % to 31.26 % respectively. It was observed that the Values of bulk density, porosity and water holding capacity varied according to the soil texture. Density of soils was found to be in definite range as per the texture, porosity and water holding capacity was found in marginal range rather poor water holding capacity as per the texture.

3.6 BIOLOGICAL ENVIRONMENT

Flora and fauna study was done at core and buffer zone of the study area. This was observed that no scheduled one species was found in buffer zone. There will be negligible effect on surrounding area due to mining activities. Mitigation measure will be adopted as per rules and regulation of concern authority.

A total of 52 species (core zone 31 and buffer zone 50) were recorded under 47 genera that belong to 29 families of angiospermic plant group.

During the faunal survey, 16 species of mammals, 7 species of reptiles, 2 species of amphibians, and 32 species of bird have been observed from the study area.

3.7 SOCIO-ECONOMIC ENVIRONMENT

In rural area, district population living in rural areas is 2,116,965 of which males and females are 1,067,908 and 1,049,057 respectively. The sex ratio is 982 females per 1000 males. If child sex ratio data of Surguja district is considered, figure is 962 girls per 1000 boys. Child population in the age 0-6

is 350,022 in rural areas of which males were 177,966 and females were 172,056. The child population comprises 16.66% of total rural population of Surguja district. Literacy rate in rural areas of Surguja district is 57.07% as per census data 2011. Gender wise, male and female literacy stood at 67.00% and 46.99% respectively.

In the villages under study, the main source of water is handpump, followed by well. The water of the hand-pump is used for drinking, bathing and household purposes. There are fewer ponds in the area and are mostly dry except for monsoon months.

4.0 ANTICIPATED IMPACT AND MITIGATION MEASURE

4.1 Impact on Air Quality

The key air emissions from the mining activities (drilling, blasting, loading, haulage and transportation) are particulate matter, oxides of nitrogen (NO₂) and sulphur dioxide (SO₂). Gaseous emission will be generated from Mining activities and their transportation vehicles. Use of proper mitigation measures will be taken (like water sprinkling during transport activities) & green area will be developed along the road sides to control pollution.

4.2 Impact of Mining on Ground Water

There will be no outside discharge of liquid effluent from the mine site; therefore no significant impact on surface water bodies is anticipated due to mining operations.

The ultimate depth of the mine workings is estimated to reach up to 12 m from surface level. The highest elevation of the area is 1110 mRL to 1094 mRL. Hence, at any point of time quarry working will not intersect the groundwater table.

4.3 Impact of Noise Levels & Ground Vibration

Major noise generating sources of the mining activity will be drilling and trucks movement used for transportation of Bauxite. The instant noise level from drilling will be high for some instance but it will be within the prescribed limits due to application of improved technology and will be confined to working zones.

The proposed plantation will also check propagation of noise in the surrounding areas.

4.4 Impact on Soil and Land Use Pattern

Topsoil generated from the mine will be stacked separately & will be used for plantation purpose within the lease area. Opencast mining activities may alter the landscape of the lease area and will not have any effect on the surface features of the surrounding areas. At the end of life mine, Total excavated area will be 71.40 Ha area which will be used in backfilling and remains will be converted in to water reservoir and 42.609 Ha area will remains as virgin land within the statutory barriers and greenbelt plantation.

5.0 ENVIRONMENTAL MONITORING PROGRAMME

Table 6 Environmental Monitoring programme

S. No.	DESCRIPTION	FREQUENCY OF MONITORING
1	Ambient Air Quality at project site	Half yearly
2	Water Quality	Half yearly
3	Noise Level Monitoring	Half yearly
4	Soil Quality	Half yearly
5	Health Check-up	As per the guidelines

6.0 ADDITIONAL STUDIES

This is Draft EIA report; public hearing is yet to be conducted. Details of public hearing will be incorporated after conducting public hearing. Risk Assessment & Disaster Management Plan details have been incorporated in Chapter 7 of this Draft EIA/EMP Report.

7.0 PROJECT BENEFITS

The project activity and the management will provide assistance for the development of public amenities in the region.

The mine management will recruit semi-skilled & unskilled eligible workers from the nearby villages. The overall effect will improve the buying power of employees and thus a higher standard of living viz. better education, improved health and sanitation facilities, housing and acquisition of consumer durables. Housing, transport, medical, educational and other civic amenities will get betterment in the future. This is envisaged as a major positive benefit.

8.0 ENVIRONMENT MANAGEMENT PLAN

8.1 Air Quality Management

- Dust generated due to excavation and vehicular movements will be suppressed by water spraying on haul road.
- To avoid the dust generation from the drilling operations Wet drilling method will be practiced.
- Drill machines will be fitted with dust collectors.
- Dust mask will be provided to the workers.
- Proper maintenance of vehicles & machineries will be done.
- Water sprinkling on the haul road and other road at regular intervals will be done.
- Speed of the vehicles will be kept within the prescribed limits.
- Trucks will not be over loaded.

8.2 Water Quality Management

- No waste water or any effluence as solid or gas there will be generated from mining operation
- Garland drains will be made at the top of the quarry to channelize surface run off into natural drainage pit so that it can be utilized for dust suppression.
- Mining operations will be at higher levels; therefore there will be no effect on ground water condition due to mining.

8.3 Noise Quality Management

- Adequate silencers in all the diesel engines will be used.
- Personal protective equipment will be provided to the workers.
- Proper maintenance of machines at regular intervals will be done.
- Green belt development and plantation.

8.4 Solid Waste Management

- Solid waste will be generated during mining activities and it will be utilized for filling of the mine voids and construction of internal roads.
- This is the Sand Stone mine so the runoff water does not contain harmful effect.
- Precaution will be taken for landslide control. The slope also maintained.
- Re-vegetation program will be followed to the boundary, waste land and roads.

8.5 Greenbelt Development & Plantation Programme

It is proposed to have plantation on both sides of the roads & to provide cover against dust dissemination plantation will also be carried out as social forestry programmed in villages school and the areas allocated by the Panchayat\ State authorities. A suitable combination of trees that can

grow fast and also have good leaf cover shall be adopted to develop the greenbelt. It is proposed to native species along with trees, herbs, shrubs & grasses.

8.6 SOCIO-ECONOMIC ENVIRONMENT

Better education facilities, proper health care, road infrastructure and drinking water facilities are basic social amenities for better living standard of any human being. This Sandstone mining project will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities.

9.0 CONCLUSION

As discussed, it is safe to say that the project is not likely to cause any significant impact on the ecology of the area, as adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Green belt development around the area will also be taken up as an effective pollution Mitigative technique, as well as to control the pollutants released from the premises of Sandstone mining project.

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