Aug, 2025

EXECUTIVE SUMMARY

PURUNGA UNDERGROUND COAL MINE PROJECT OF 2.25 MTPA CAPACITY OVER AN AREA OF 869.025 Ha.

VILLAGE: KOKDAR, PURUNGA AND SAMARSINGHA
TEHSIL- CHHAL, DISTRICT- RAIGARH, CHHATTISGARH

STUDY PERIOD: MARCH TO MAY, 2024 COLLECTED BY: M/s SKS Test Labs Private Limited.

[The proposed project is listed under Schedule 1(a) Mining of Minerals under the Schedule of EIA Notification, 2006 and categorized as Category-A]

PROJECT PROPONENT

AMBUJA CEMENTS LIMITED (ACL)

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EXECUTIVE SUMMARY

1. INTRODUCTION

The Purunga Coal Mine Mand-Raigarh Coal Field, covering an area of 869.025 Ha, has been allotted to M/s CG Natural Resources Private Limited for Commercial Coal Mining purpose by GoI, Ministry of Coal vide order no. NA- 104/25/2023-NA, Dated 08.06.2023. Upon signing the deed of adherence & deed of assignment the Coal block got transferred to M/s Ambuja Cements Limited, as per CBDPA conditions. A letter from Ministry of Coal for transfer of ownership is issued vide file no. File No.: NA-104/25/2023-NA dated 10.03.2025.

The Purunga Coal Mine, located MAND-RAIGARH Coal Field and covering an area of 869.025 ha for a Rated Capacity of 2.25 MTPA at Village: Purunga, Kokdar, Samarsingha Tehsil - Chhal Dist - Raigarh State: Chhattisgarh**.** Purunga Coal mine located between latitudes 22°17'59"N – 22°19'48" N longitudes 83°09'06" E – 83°10'51" E. The block falls under Survey of India top sheet nos. 64N/3 R.F. 1-50000 and in new open series map F44L3 as per WGS84 Map Co-ordinate System.

The project envisages;

I. Production of coal with capacity of 2.25 MTPA.

II. Independent Coal Handling Plant (CHP) with train loading stations is proposed to handle the entire production of ROM coal from this mine.

The proposed project is listed under activities 1(a) under the Schedule of EIA Notification, 2006 and categorized as Category-A.

2. PROJECT DESCRIPTION

A total of 23 Seams (XIIIT, XIIIB, XIIT, XIIB, XI, X, L2, IXT, IXB, VIII, VIIT, VIIB, VI, V, IVT, IVM, IV(T+M), IVB, IIIT, IIIB, L1, II, I) are available (as per GR) in the Mine.

There are 8 workable seams by UG method in the block viz. Seam IXB, Seam VIII, Seam VIIT, Seam-VIIB, VI, Seam-IVT-IVTM comb., Seam-II and Seam-I. There are a total of 6 faults in the block.

The Purunga Coal Mine MAND-RAIGARH Coal Field over an area 869.025 Ha consists of 383.337 MT gross geological reserves and 345.003 MT Net Geological reserve as per approved mining plan and geological report. After detail working, 177.025 MT are estimated as mineable reserve in proposed mining plan and 94.05 MT are extractable as coal production. Therefore, life of mine at proposed rate of mining as per the approved

mining plan is projected to be 46 years including 2 years of pre-construction from Mine Opening.

Detail of the project is summarized in below attached table:

Table 1: Detail of the Project

S. No.	Description	Particulars
1.	**Name of the Organization**	M/s Ambuja Cements Limited
2.	**Coal Field**	MAND-RAIGARH Coalfield
3.	**Coal Block**	Purunga
4.	**No. of coal seams**	23 Seams Available (XIIIT, XIIIB, XIIT, XIIB, XI, X, L2, IXT, IXB, VIII, VIIT, VIIB, VI, V, IVT, IVM, IV(T+M), IVB, IIIT, IIIB, L1, II and I) There are 8 workable seams viz. Seam IXB, Seam VIII, Seam VIIT, Seam-VIIB, Seam-VI, Seam-IVT-IVTM comb., Seam-II and Seam-I
5.	**Gross Geological Reserve**	383.337 MT
6.	**Net Geological Reserve**	345.003 MT
7.	**Mineable Reserve**	177.025 MT
8.	**Extractable Reserve**	94.05 MT
9.	**Life of Mine**	46 Years including construction period
10.	**OB (Including Rehandling of OB)**	As the proposal is for underground mining, no significant OB will be generated. Waste generated – 0.27 MM^3
11.	**Average Stripping Ratio**	Not Applicable
12.	**Rated Production Capacity**	2.25 MTPA
13.	**Forest Land Requirement**	Out of 869.025 Ha of Mine Lease areas, 621.331 Ha is Forest Land. Application for forest land diversion for 621.331 Ha has been submitted vide application no. **FP/CG/MIN/QRY/545974/2025** dated 25.07.2025.
	Non-forest Land within ML Area	Govt. Land – 26.898 ha and Private Land 220.796 ha
	Total Land requirement	869.025 ha
14.	**R & R Involved**	It is an underground mine, no R&R involved.
15.	**Technology**	Underground mining with Bord and Pillar method by deploying Continuous Miner technology (along with Longwall Mining method in later stage)
16.	**Details of External OB Dumps**	Not Applicable

S. No.	Description	Particulars
17.	**Details of afforestation**	Green belt will be developed in 6.945 Ha during the operational mine life, and total afforestation (post mining) will be carried out on 27.562 Ha till conceptual stage with 68,905 sapling/Ha.
18.	**Density of Plantation**	2500 No./ha
19.	**Coal Linkage**	Direct sale to long term buyers
20.	**Coal Evacuation**	
	Transportation	Mode of Coal transportation Dispatch is proposed by Conveyor Belt/ Railway line in line with the First Mile Connectivity. Purunga being a commercial coal block, many consumers will be procuring coal on ex-mine basis and moving the coal to their end use Plants by their own means of transportation as per their MoEF&CC permissions and norms. The coal is proposed to be transported through Road, as per means of consumers.
21.	**Employment potentiality**	Project will generate employment for about 1000 persons directly.
22.	**Total cost of the project**	Rs. 1075.90 Crore
23.	**Fund Provision for EMP**	Capital- Rs. 18.57 crore Recurring-Rs. 3.53 crore per year
24.	**Name of the EIA Consultant Organization**	M/s Vardan EnviroNet LLP
25.	**QCI / NABET Accreditation**	Certificate No. NABET/EIA/2326/RA 0284_Rev.01; Validity: May 04, 2026.

3. DESCRIPTION OF THE ENVIRONMENT

Environmental data have been collected in relation to proposed mining for Air, Noise, Water, Soil, Ecology and Biodiversity. The generation of primary data, as well as collection of secondary data and information from the site and surroundings was carried out during pre-monsoon Season, i.e. March to May, 2024 by M/s SKS Test Labs Private Limited, NABL Accredited Lab, in accordance with the guidelines of EIA issued by the Ministry of Environment Forest and Climate Change, Govt. of India and CPCB, New Delhi. Secondary data was collected from different Government sources. The scope of the study has been done as per Standard ToR. The study is being done for the Mine Lease (Core Zone) and in an area of 10 Km distance from the mine lease boundary (Buffer Zone), both of which together comprise the study area.

Table 2: Baseline Environment Status

Parameters	Baseline Status (March to May, 2024)
Ambient Air Quality	PM_{10} – 48.5 to 76.8 µg/m³ $PM_{2.5}$ – 23.5 to 44.6 µg/m³ SO_2 – 5.2 to 15.9 µg/m³ NOx – 7.5 to 28.6 µg/m³ CO – 0.5 to 0.89 mg/m³ O_3 – 5.78 to 14.86 µg/m³ Pb – BLQ to 0.49 µg/m³ NH_3, Benzene, Ba(P), Arsenic, Nickel, Lead, Mercury and Cr were found BLQ- Below Limit of Quantification
Noise Level	During Day Time (6:00 AM to 10:00 PM) – 42.33 to 51.25 dB(A) During Night Time (10:00 PM to 6:00 AM) – 30.36 to 41.2 dB(A)
Water Quality	Ground Water: All the Parameters Like pH varies from 7.34 to 7.75, Total Hardness varies from 75 to 142 mg/l, Total Dissolved Solids varies from 180 to 253 mg/l, Chlorides varies from 26.04 to 65.45 mg/l etc. are found within the permissible limits.
	Surface Water: All the Parameters Like pH varies from 7.08 to 7.86, Total Hardness varies from 39.08 to 98.43 mg/l, Total Dissolved Solids varies from 81 to 194 mg/l, Dissolved Oxygen varies from 5.7 to 7.3 mg/l etc. are found within the permissible limits.
Soil Quality	pH – 7.2 to 7.6 Organic Matter - 0.24% to 0.46 % Available Nitrogen – 182.5 Kg/ha to 260.2 Kg/ha Available Phosphorus – 24.25 kg/ha to 46.5Kg/ha Potassium – 141.22 to 185.22 mg/Kg
Ecology and Biodiversity	Flora and Fauna study in and around the lease area has been conducted. Schedule-I species has been observed during the study period. Wildlife Conservation Plan will be prepared and approved for Schedule-I species.
Socio Economic	The proposed project will provide positive impact to the nearby area. The project will provide direct and indirect employment to nearby villagers.

4. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The proposed mining operations are not anticipated to raise the concentration of the pollutants beyond prescribed limits. However, the measures are suggested to mitigate any harmful impacts of pollutants, like the plantation of trees especially near settlements, to help to reduce the impact of dust on the nearby villages; planning, transportation routes of mined material so as to reach the nearest paved roads by shortest route; regular water sprinkling on unpaved roads to avoid dust generation during transportation etc. The mining activities is likely to increase the per capita income of local people by which the socio-economic status of the people will be improved. The local people will be provided with either direct employments or indirect

employment such as transport & other business, contract works and development work like roads, etc. and other welfare amenities such as medical facilities, conveyance, free education, drinking water supply etc. Except dust generation, there is no source which can show a probability for health related diseases. Regular water sprinkling will be done with water sprinklers and dust masks will be provided to the workers. All workers will be subjected to a medical examination as per Mines Rule 1955 both at the time of appointment and at least once in a year. Medical camps will be organized for this activity. Insurance for all employees as per the rules will also be carried out.

Table 3: Anticipated Environmental impacts and mitigation

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
Air Pollution	Mining	PM_{10}, $PM_{2.5}$, SO_2 and NO_2		• The most effective method of dust suppression in underground mine is to suppress the dust at the source of generation before the dust becomes airborne. Dust suppression spray is an integral part of Continuous Miner. Most Continuous Miner use water for the cooling of electric motors. This water is discharged at the cutting head to suppress dust from cutting. • As per regulation no 214 (4) of CMR 2017 Continuous Miner shall be equipped with air-scrubber system to remove as much dust as • To ensure that the cutting face is properly ventilated. Workings away from the active areas should be stone dusted as per statute. • All loading and coal discharge /transfer point on conveyor belts shall be installed with dust suppression systems. For monitoring the level of dustiness and quality of dust, regular sampling and analysis of mine dust shall be done as per statute and all suitable precautions shall be taken accordingly.
	Transportation	Increase in SPM levels in ambient air due to dust generation and NO_2, HC, SO_2 and CO concentration levels in ambient air due to vehicular emissions.	Adverse	• It is an underground mine with limited surface activities. • All transfer points will be provided with Water sprinklers. • Use of tarpaulin covered trucks for transportation of coal outside the ML area. • Regular water sprinkling on access roads and all transfer points. • Roads no longer required will be re-vegetated as soon as possible.

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
	General equipment operations	Increase in SPM, NO_2 and CO concentrations in ambient air.	Adverse	• Regular maintenance of all equipment to minimize particulate matter and gaseous emissions from diesel driven vehicles & equipment.
	All activities	Excessive exposures to airborne particulate matter.	Adverse	Personal protective equipment (PPE) will be provided to all workers working in dusty environment.
Noise Levels and Ground Vibrations	Vehicular movement and mine operation	High impulsive noise levels, overpressure and ground vibrations impacts and noise related community annoyance	Adverse Adverse	**Noise Control Measures** • Provision of sound insulated chambers for the workers deployed on machines. • Advanced and next-generation HEMMs will be deployed, utilizing cutting-edge technology. • Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the operators and persons working near machines. • Reducing the exposure time of workers to the higher noise levels. • A thick green belt will be provided in phased manner around the periphery of the mine infrastructure area and internal roads to attenuate noise; • Regular monitoring of Noise level will be carried out.
Water Resources and Quality	Water required for mine, (dust suppression systems, workshop,	Except water demand for drinking & domestic purpose or quarry discharge.	Adverse	Coal Mining is proposed through Bord and Pillar with Caving by deploying Continuous Miner technology. Therefore, due care will be taken in monsoon period during mining operation so that the additional make of water arising out of fractured rock strata in upper horizons is safely pumped out of the

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
	domestic facilities and greenbelt development)			underground mine. When the underground mining activities are about to close, a plan is needed for underground storage of water in voids that remain in the underground workings. The underground water bodies thus formed have their advantages which outweigh the disadvantages in most situations as they become a permanent source of water and may tend to reactivate the aquifers and the water table. The compliance of the conditions of EC, CPCB/SPCB or other relevant guidelines issued by Concerned Agencies will be followed in PP.
Flora and Fauna	Mine development and operations Mineral Transportation	Displacement of existing fauna. Loss of vegetation	Adverse	• Management of flora and fauna both at core and buffer zone shall be done as per the approved site-specific wildlife conservation plan. Suitable reclamation, rehabilitation and restoration of the land shall be made to protect the biodiversity. • However, progressive afforestation and green belt development will be carried out and shall continue till the life of the mine.
Occupational Health & Safety	Overall Mining & allied activities	Occupational health problems due to dust & noise. Accident probability due to slope failure, movement of machinary, handling of explosives.	Adverse	**Worker Health Monitoring:** • An Occupational Health Centre (OHC) will be established at the mine. • Regular medical check-ups will be conducted for all workers, including contractors. • Health assessments will be done at the time of joining and at scheduled intervals. **Safety Equipment Inspection:** • All safety appliances will be regularly inspected and tested.

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
				• PPE will be checked to ensure adequate protection and compliance with safety standards.
Socio-economic Aspects	Mining operations	Increase in economic status of local people & in the region due to Increase in employment opportunities both direct and indirect.	Beneficial	The project will provide opportunity to the local people for direct and in-direct employment. The proposed project will create opportunities for indirect employment in the field of transportation business, vehicle hiring, labours, trading of construction materials, carpenters etc.

5. ANALYSIS OF ALTERNATIVES

Since it is a mineral specific project therefore analysis of alternative site is not applicable.

6. ENVIRONMENTAL MONITORING PROGRAM

In order to maintain the environmental quality within the stipulated standards, regular monitoring of various environmental components is necessary which will comply as per conditions. For this the lessee has taken the decision to formulate an Environment Policy of the mine and constitute an Environmental Management Cell and committed to operate the mine with the objectives mentioned in Environment Policy. EMP may also require measurement of ambient environmental quality in the vicinity of a site using ecological/biological, physical, and chemical indicators. Monitoring may include socioeconomic interaction, through local liaison activities or even assessment of complaints. Regular Monitoring of all the environmental parameters *viz.*, Air, Water, Noise, SEEB and Soil, as per the formulated program based on CPCB and MoEF&CC guidelines will be carried out every year. The location of the monitoring stations will be selected on the basis of prevailing micro meteorological conditions of the area like; wind direction and wind speed, relative humidity, temperature.

7. ADDITIONAL STUDIES

Additional Studies as per ToR have been carried out, the report of which have been attached as Annexures to the EIA report.

As per Ministry's OM dated 30.09.2020, the Ministry has decided to deliberate on the and commitments made by the project proponent to address the issues raised in the Public Hearing. This executive summary is now being submitted for Public hearing. Details of Public Hearing will be incorporated after completion of Public Hearing.

8. PROJECT BENEFITS

Project will generate employment for about 1000 persons directly. In addition, more than 2000 people will be benefited indirectly. Management will engage Skilled, semi-skilled and unskilled workers from the nearby villages. The company management will contribute to the Educational Development, Infrastructure Development etc. for the welfare of the villagers. It has proposed to plant 68,905 no of trees till the Mine Closure. The respective regulatory authority will strictly monitor the compliance of the mine lease in this regard. Other than this social development of the village will be considered as per social requirement of locality.

9. ENVIRONMENTAL MANAGEMENT PLAN

As per above discussion there is no major impact on the environment due to mining except fugitive emission in the form of dust generated during mining and its allied activity. The adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Plantation program will be carried out which will be an effective pollution mitigate technique, and help avoid soil erosion during monsoon season. Employment opportunities will be provided to the locals. An EMP budget of **Rs. 18.57 Crore** as a capital cost and **Rs. 3.53 Crore/year** for recurring cost for plan period has been kept for Environment Management Plan.

10. CONCLUSION

NITI Aayog, India's central government think tank, has stated in its report that coal demand will be in the range of 1192-1325 Mt by 2030, led by usage from the electricity sector. It has been forecasted that coal consumption will increase at an average annual rate of 3.9 percent. Therefore, industrial and economic growth of India depends to a large extent on coal, which is the prime source of energy. Our requirement of coal is increasing every year and the demand of coal by the major volume will come from the power sector. The balance coal is required for other industries like Cement, Sponge iron etc.

The industrial development and consequent economic development should lead to improvement of environment through better living and greater social awareness. With the progress in technology and processes, mining activities has gained a better traction and a higher productivity stance, our best solution lies in progressive & innovative planning along with a better environmental management and protection as a part and parcel of the mining system.

The proposed project will have impacts on surrounding environment as detailed in the report however the impacts can be minimized by effective implementation of Environment Management Plan and continuous monitoring of EMP to overcome any other remedial measures required as suggested in the EIA study. On the other hand, this project is likely to have several benefits like improvement in direct and indirect employment generation and economic growth of the area, by way of improved infrastructure facilities and better socio-economic conditions.

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