1.0 EXECUTIVE SUMMARY

1.1 Introduction

Shree Cement Limited (SCL) is a public limited company incorporated under the provisions of the Companies Act, 1956 on 25th October 1979. The company operates cement and clinker manufacturing units located at Beawar, Ras, and Nawalgarh in Rajasthan; Balodabazar–Bhatapara in Chhattisgarh; Sedam in Karnataka; Guntur in Andhra Pradesh; and Ras Al Khaimah (RAK) in the United Arab Emirates (UAE).

SCL also operates twelve split grinding units located at Khushkhera, Suratgarh, and Jobner in Rajasthan; Roorkee in Uttarakhand; Aurangabad in Bihar; Bulandshahar and Etah in Uttar Pradesh; Panipat in Haryana; Hansda in Jharkhand; Cuttack in Odisha; Patas in Maharashtra; and Purulia in West Bengal.

At present, the installed cement production capacity of the SCL Group is 62.8 million tonnes per annum (MTPA). The company has a total power generation capacity of 1084.94 MW, comprising 503.0 MW thermal power, 242.50 MW waste heat recovery system (WHRS), 283.14 MW solar power, and 56.3 MW wind power.

1.1.1 Identification of the Project

The Proposed Integrated Cement Plant with production capacity of clinker: 0.95 million TPA, Cement: 0.99 million TPA (OPC, PPC, PSC, SRC, LC3, RHPC & Composite Cement) CPP: 15 MW, WHRS: 7 MW) and DG Sets 2500 KVA (1x2500 KVA or 2x1000 KVA & 1x500 KVA or 1x1000 KVA, 2x500 KVA & 2x250 KVA) in Khara Siang Lum Pyrshin in Daistong village, District of East Jaintia Hills (Meghalaya) by Shree Cement Ltd.

1.2 Site Selection for the project.

The proposed project site is located in East Jaintia Hills district, Meghalaya. The Nurpuh Wildlife Sanctuary lies at an approximate distance of 28.13 km in the south-southwest (SSW) direction from the site, indicating no direct impact on any notified eco-sensitive area.

There are no Archaeological Sites or Wetland Reserves within a 10 km radius of the project location. The international border with Bangladesh is situated at approximately 37 km from the site.

The nearest human settlement is Village Daistong, located about 0.82 km in the east-southeast (ESE) direction.

Overall, the selected site does not fall within any environmentally or archaeologically sensitive zone and is suitable for the proposed development from a locational sensitivity perspective.

1.3 Brief Description of the Project.

Fir the brief description of the project the below mentioned table may be referred.

Table – 1.1: Brief Description of Nature, Size and Location of the Project

S. No.	Particulars	Details	
1.	**Type of Project**	**Greenfield Project**	
2.	**Name of Unit**	Integrated Cement Plant (A Unit of Shree Cement Limited)	
3.	**Size & Configuration of Project**	✓ Clinker: 0.95 million TPA ✓ Cement: 0.99 million TPA (OPC, PPC, PSC, SRC, LC3, RHPC & Composite Cement) ✓ CPP: 15 MW ✓ WHRS: 7 MW ✓ DG Sets: 2500 KVA (1 x 2500 KVA or 2 x 1000 KVA & 1 x 500 KVA or 1 x 1000 KVA, 2 x 500 KVA & 2 x 250 KVA) ✓ Project Site Area: 25.08 ha (61.95 Acres)	
4.	**Location**		
	Villages	Daistong	
	Elaka	Elaka – Nongkhlieh Dolloiship	
	District	East Jaintia Hills	
	State	Meghalaya	
5.	**Geographical extents of project site**	**Latitude**	**Longitude**
		25°21'01.823" N to 25°20'59.918" N	92°33' 27.501" E to 92°33'27.104" E
	Toposheet No.	Core & Buffer Zone: 83C/11 & 83C/7	
6.	**Project Details**		
	Capital Cost of the project	Rs. 1264 Crores	

S. No.	Particulars	Details	
	Cost for Environmental Protection measures	• Capital Cost: Rs. 23.5 Crores • Recurring Cost: Rs. 0.30 Crores/annum	
7.	**Project Basic Requirement**		
	Area	Total Plant Area	25.08 ha (61.95 Acres)
		Greenbelt Development & Plantation	Approx. 8.27 ha (20.44 Acre) (~33% of total plant area)
	Water Requirement (KLD)	600 KLD (Including Fresh Water Requirement: 515 KLD & Recycled Water from STP & RO Rejects: 85 KLD). ***Source:*** *Water requirement will be fulfilled by the ground water and nearby surface water bodies with prior statutory permission from the concerned State government.*	
	Power Requirement (MW)	Total Power Requirement: 18 MW ❖ Energy consumption per ton of Clinker: 48.2 Kwh ❖ Energy consumption per ton for Cement Grinding: • OPC, PPC, RHPC, LC3 & SRC Cement: 25 to 30 Kwh, • PSC Cement: 28 to 51 Kwh, • Composite Cement: 28 to 36 Kwh Thermal Energy consumption of Clinker: 670 Kcal/Kg • Source: Proposed Captive Power Plant, WHRS and State Grid Power Supply & DG sets (for back up)	
8.	Manpower Requirement		
	Implementation (Construction) Phase	Permanent: 100 Nos.	
		Contractual: 500 Nos.	
	Operation Phase	Permanent: 150 Nos.	
		Contractual: 300 Nos.	
9.	**Project Site Vicinity Details**		

S. No.	Particulars	Details
	Nearest Village	Village Daistong (~1.43 km in ESE direction)
	Nearest Major Town City	Mutong (~5.51 km in ESE direction)
	Nearest National /State Highway	NH- 6 (~18.93 km in SW direction)
	Nearest Railway Station	Ditokcherra Railway station (~36.90 km in SE direction)
	Nearest Airport	Silchar Airport (~63.35 km in SE direction) Guwahati Airport (~128.21 km in NW direction)
	Nearby Water Bodies	River (Wah Chyrmit) about 4.48 NW Direction. Pal Lam Kankalang River about 8.50 NE Direction
	National Park, Wildlife Sanctuary, Tiger/ Elephant Reserve, Eco-Sensitive Zone etc.	No National Park, Wildlife Sanctuary, Tiger/ Elephant Reserve, exist within 10 km radius study area.
	Reserved/ Protected Forest within 10 km radius	No Reserved/ Protected Forest within 10 km Study area. Except, Saipung Reserved Forest (~6.35 in SE direction)
	CPA/SPA/OPA within study area	There is no CPA/SPA within 10 km radius study area.
	Archaeological site	None within 10 km radius
	Seismic Zone	Zone - V as per IS: 1893 (Part-I): 2002

1.4 Major Requirements for the Proposed Project

1.4.1Raw Material Requirement:

Major raw material required for Clinker & Cement production is Limestone, Iron Ore, Bauxite, Gypsum (Mineral, Synthetic, Chemical & Imported), Fly ash and Slag. Details regarding quantity of raw materials required their source along with distance and mode of transportation are given in Table 11.2 (a & b):

Table No. 1.2

S. No.	Name of Raw Material	Basis	Quantity (Million TPA)	Source	Mode of Transport.
1.	Limestone	1.5 T/T of Clinker	1.43	Captive Mine	~ 0.1 km; Combination of Two or three modes.
2.	Iron Ore (Laterite)	0.015 T/ T of Clinker	0.014	Nearby Area	~60 km; Combination of Two or three modes.
3.	Bauxite	0.044 T/ T of Clinker	0.042	Nearby Area	Combination of Two or three modes.
4.	Gypsum	0.07 T / T of Cement	0.06	Bhutan Imported	~60 km; Combination of Two or three modes.
5.	Fly ash	0.35 T/T of Cement	0.34	Nearby Area	Combination of Two or three modes.
6.	Slag	0.55 T/T of Cement	0.54	Nearby Area	Combination of Two or three modes.
7.	Dolochar	-	0.095	Nearby Spong Iron Plant	~60 km; Combination of Two or three modes.
8.	Petcock as feed Stock	-	0.095	--	~60 km; Combination of Two or three modes.
9.	Biomass	-	0.56	Nearby Agriculture Field	~60 km; Combination of Two or three modes.

Table No 1.2 (b)

Requirement (in Million TPA) for Cement (OPC/PPC/Composite Cement/PSC/RHPC/LC3/SRC) Production						
S. No.	**Raw Material**	**OPC / RHPC/ SRC**	**PPC**	**PSC**	**LC3**	**Composite Cement**

1.	Clinker	0.92	0.57	0.38	0.50	0.38
2.	Gypsum	0.07	0.07	0.07	0.07	0.07
3.	Fly ash	0.00	0.35	0.00	-	0.35
4.	Slag	0.00	0.00	0.00	-	-
5.	Calcined Clay	-	-	-	0.33	-
6.	Limestone	-	-	-	0.10	-
	Total Capacity (MTPA)**	**0.99**	**0.99**	**0.99**	**0.99**	**0.99**

Note:

**Clinker will also be sent to the sister grinding units, market sale and will also be received from outside (Other SCL Plants), if Clinkerization plant is not in operation or in case of shortfall of Clinker.*

*** Cement production will be 0.99 million TPA only either from various options as OPC/RHPC/SRC/LC3/PPC /PSC/Composite Cement.*

1.4.2 Fuel Requirement

Fuel / Feed stock Requirement

Details regarding quantity of Fuel/Feed Stock required, their source along with distance and mode of transportation for proposed Integrated Cement Plant is given in Table – 1.3

Table – 1.3 Fuel Requirement for Proposed Integrated Cement plant

S. No.	Name of Feed Stock	Quantity (Million TPA)	Source	Calorific Value (Kcal/kg)	Ash (in %)	Sulphur (in %)	Distance & Mode of Transportation
For Cement Plant							
1.	Indian & Imported Coal	0.36	*Indigenous Coal:* Nearby Coal Mines	4200-4800	30-35	0.4-0.5	Local Area ~20 to 200 km by Road
			Imported Coal: USA, South Africa, Australia and	5000-5800	6-10	0.5-0.6	Calcutta Port / Calcutta or Paradeep

S. No.	Name of Feed Stock	Quantity (Million TPA)	Source	Calorific Value (Kcal/kg)	Ash (in %)	Sulphur (in %)	Distance & Mode of Transportation
			Indonesia through Calcutta Port / Calcutta or Paradeep or Vizag etc.				or Vizag – ~650 km by Road.
2.	Petcoke as feed stock	0.24	Petcoke USA / Saudi Arabia / Turkey / Canada through Calcutta Port / Calcutta or Paradeep or Vizag etc.	7800 - 8300	0.5-2	6-9	Calcutta Port / Calcutta or Paradeep or Vizag – ~650 km by Road.
3.	Dolochar	0.24	Nearby Sponge Iron Plant	2500-2700	68.18	0.32	~100 to 300 km by Road
4.	Biomass	0.30	Nearby Agriculture Fields	2300-2500	5- 29	0.15 - 0.22	~100 km by Road
For Captive Power Plant							
1	100% Indian Coal	0.225	Indigenous Coal: Nearby Coal Mines	4200-4800	30-35	0.4-0.5	Local Area ~20 to 200 km by Road
2	100% Imported Coal	0.12	USA, South Africa, Australia and Indonesia through Calcutta Port / Calcutta or Paradeep or Vizag Port etc.	5000-5800	6-10	0.5-0.6	Calcutta Port / Calcutta or Paradeep or Vizag ~650 km by Road

S. No.	Name of Feed Stock	Quantity (Million TPA)	Source	Calorific Value (Kcal/kg)	Ash (in %)	Sulphur (in %)	Distance & Mode of Transportation
3	Biomass	0.26	Nearby Agriculture fields	2300-2500	5- 29	0.15 - 0.22	~100 km by Road

1.4.3 Other Basic Requirements:

Total water requirement for proposed project will be 600 KLD; which will be sourced from Water from Dihang River/ Ground water/ Mine Pit water based on the availability.

Table – 1.4: Water Requirement

S. No.	Descriptions / Particulars	Total Water Requirement (KLD)		Remarks
		Fresh Water (KLD)	Recycled Water (RO Reject/ Domestic waste) (KLD)	
A.	Cement Plant Process Requirements			
	Cement Mill Spray	120		70 KLD Cooling water blow down & RO Reject Water will be used in Mill Spray, Stackers & Recamier.
	Cooling Water	60		
	Stackers & Reclaimer	10		
	Raw Mill Section	10		
	Coal Mill	5		
B.	WHRS	40	15	
C.	CPP	160	50	
D.	Drinking & Domestic requirement for Plant	25	05	Sewage water will be treated in STP & 15 KLD treated STP water

E.	**Plantation & Greenbelt Requirement**	**85**	**15**	**will be used for greenbelt & plantation development**
Grand Total (A + B + C + D + E)		**515**	**85**	**515 KLD Raw Water +–85 KLD Recycled water (from STP Treated, Blowdown & RO Reject)**
Note: Total Water Requirement 600 KLD {including Fresh requirement 515 KLD & Recycled water from STP & RO rejects 85 KLD}.				

Power Requirement for the plant will be 18 MW; which will be sourced from proposed Captive Thermal Power Plant 15 MW) & Waste Heat Recovery System (7 MW), State Grid and DG Sets (for emergency backup).

1.5 Process Description:

The manufacturing of cement will be based on dry process technology and essentially consist of the following unit operation steps:

- Crushing of limestone at the mine site.
- Pre-blending of crushed limestone by Stacker & Reclaimer.
- Grinding-cum-Drying of Raw Materials and Coal/ Petcoke/ Dolochar/ Biomass in VRM
- Homogenization of raw meal in a blending silo.
- Clinkerization of the raw meal in a rotary kiln with preheater, calciner and Cooler.
- Grinding, storage and packing of cement
- Transportation of Clinker & Cement through Road Networks

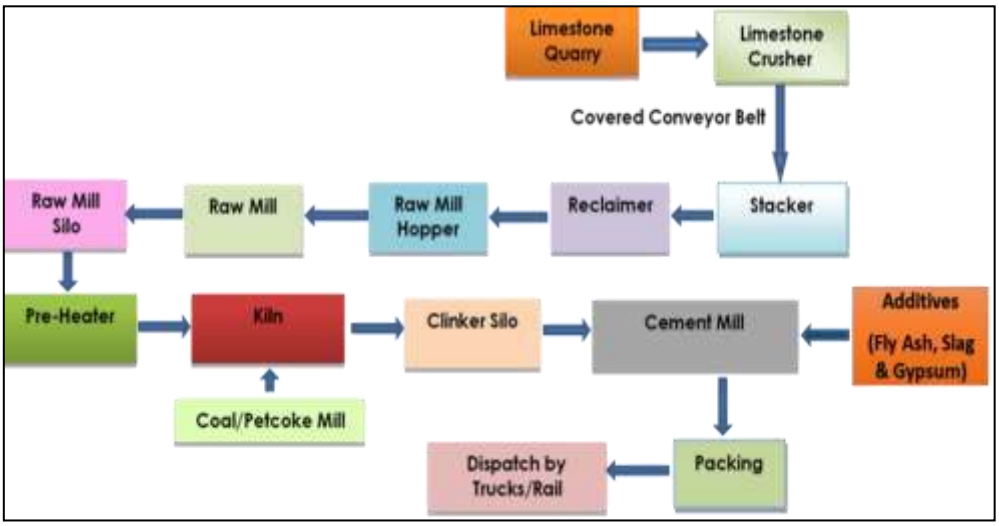

Figure 1.1

Technology Description of Cement Plant

- ✓ Limestone Crushing: ROM limestone is processed through a wobbler and crusher to achieve <90 mm size, then sent for stacking and pre-blending.
- ✓ Pre-Blending: Crushed limestone is homogenized using stacker and reclaimer systems.
- ✓ Raw Material & Fuel Grinding (VRM): Limestone with corrective materials is ground and dried in VRM using preheater hot air. Coal/petcoke is crushed in a roll crusher and ground in a ball mill/VRM. Alternative fuels such as hazardous waste, dolochar, and biomass may be used.
- ✓ Raw Meal Homogenization: Ground material is stored and blended in continuous blending silos.
- ✓ Clinkerization: Preheater and calciner ensure efficient heat transfer and partial calcination. Final clinker formation occurs in the kiln's burning zone.
- ✓ Clinker Cooling: Hot clinker (~1000°C) is cooled in a grate cooler and transported to storage silos.
- ✓ Cement Grinding & Packing: Clinker is ground in the cement mill using hot air from HAG (coal/dolochar/biomass). Final cement is stored in silos and packed via electronic rotary packers.
- ✓ Transport: Cement and clinker are dispatched mainly by road via NH-6.
- ✓ NOx Reduction (SCR): Low-NOx burners, calciner modifications, controlled reducing atmosphere, and combustion optimization minimize NOx generation through in-system reactions.
- ✓ Alternative Fuel Co-Processing: Hazardous/non-hazardous waste is co-processed at ~1400°C, reducing coal dependency and eliminating residues. AFR system includes ground and feed hoppers, hoists/elevators, conveyors, double-flap valves, and safety shut gates.

1.6 Description of Environment.

The Baseline was conducted during summer **season (March to May 2025).**

1.6.1 Air Environment

Baseline ambient air quality was monitored at eight locations within the 10 km study area during March 2025 to May 2025. PM_{10} concentrations ranged from 32.48–63.21 µg/m³ (98th percentile: 60.31–62.81 µg/m³), while $PM_{2.5}$ levels ranged from 14.65–34.56 µg/m³ (98th percentile: 30.38–34.42 µg/m³). Gaseous pollutants were low, with SO_2 between 2.29–4.92 µg/m³ and NO_2 between 3.11–5.98 µg/m³, all well below NAAQS limits. All other monitored air quality parameters (including CO, O_3, NH_3, Pb, Ni, As, and Benzene) were also well within National Ambient Air Quality Standards (NAAQS), confirming overall compliance.

Variations in particulate matter were influenced by rural traffic, domestic fuel burning, and scattered mining activity. Overall, the region maintained good air quality throughout the baseline period.

1.6.2 Water Environment

Groundwater Quality

Groundwater samples collected during March–May 2025 from Saipung PHC, St. Joseph's Church (Khahnar), Tangnub Presbyterian Church (Lumpdeng), and Shnongrim playground showed slightly acidic pH (5.32–5.90). Other parameters were within IS 10500:

- Chlorides: 34.2–38.2 mg/L
- Sulphate: 18.2–25.2 mg/L
- Nitrate: 8.1–9.8 mg/L
- Calcium: 42.5–48.2 mg/L
- Magnesium: 8.4–9.2 mg/L
- Iron: <0.05 mg/L

Groundwater is suitable for livestock use but often unsuitable for direct human consumption due to acidity. The proposed project is designed as a zero-discharge system, ensuring no impact on local water bodies. SCL will support the community by implementing desalination-based potable water supply measures under the EMP/SEDP.

1.6.3 Surface Water Quality

Surface water sampled during the baseline period showed:

- pH: 5.4–5.8
- DO: 6.8–7.6 mg/L
- BOD: 4.2–4.8 mg/L
- Chlorides: 18.12–20.30 mg/L
- Sulphates: 24.40–24.70 mg/L
- Total Coliform: 44–46 MPN/100 ml

Most parameters comply with CPCB Category A standards, indicating suitability as a drinking water source after treatment.

1.6.4 Noise Environment

Noise monitoring conducted in March–May 2025 across five stations recorded day-time levels between 48.50–52.90 dB(A) and night-time levels between 38.10–42.60 dB(A). All values comply with CPCB standards for residential and silence zones.

Background noise stems from local traffic, community activities, and natural surroundings, reflecting a calm acoustic environment.

1.6.5 Soil Environment

Soil sampling during the baseline period revealed consistent texture—sandy-loam to loamy-clay—with good nutrient content:

- pH: 7.11–7.40
- Organic Carbon: 0.86–1.20%
- Phosphorus: 54.32–66.01 kg/ha
- Potassium: 162.9–215.58 kg/ha
- Magnesium: 472.33–809.51 mg/kg
- Calcium: 3508.9–3952.7 mg/kg

Soils are nutrient-rich and suitable for vegetation. Slight alkalinity is natural to the region. SCL will implement soil conservation and greenbelt measures as part of the EMP.

1.6.6 Ecology & Biodiversity (EB)

Ecological surveys conducted during March–May 2025 show that the study area comprises agricultural land, scrub, grasslands, and forest patches. No protected areas or eco-sensitive zones exist within 10 km. Species recorded are common and non-threatened.

Ecological Impact & Mitigation

Potential biodiversity impacts from the integrated cement and thermal power project include habitat disturbance, dust deposition, and noise. Mitigation includes:

- Wildlife Conservation Plan (WLCP)
- 33% native-species greenbelt
- Advanced pollution control systems (ESP, Bag Filters, FGD, Low-NOx)
- Noise barriers and wildlife-safe infrastructure
- Fly ash management, soil protection, and ZLD
- Continuous ecological monitoring and annual reporting

1.6.7 Socio-Economic Environment

Socio-economic surveys undertaken during March–May 2025 indicate rural livelihoods supported by agriculture, small-scale trade, and labor work. The area has basic infrastructure such as schools, health centers, and road networks.

The project is expected to generate local employment, enhance skills, support community development, and improve infrastructure through CSR/SEDP initiatives.

1.7 Anticipated Environmental impacts and Mitigation Measured

1.7.1 CONSTRUCTION PHASE IMPACTS & MITIGATION

Table1.5 : Land Use & Physical Environment – Construction Phase

Aspect	Impact During Construction	Significance	Mitigation Measures
Topography	Minor disturbance due to site clearance and levelling	Low	Maintain natural contours; restrict excavation
Land Use	Temporary loss of agricultural activity within project site	Medium	Reuse topsoil; restore green areas post-construction
Soil	Soil disturbance, compaction, erosion	Low–Medium	Controlled excavation; soil reuse; temporary bunds

Aspect	Impact During Construction	Significance	Mitigation Measures
Hydrology	No direct impact (no water body within site boundary)	Insignificant	Protect southwest waterbody zone; maintain buffer
Dust (PM)	Significant temporary dust from earthwork, vehicle movement	Medium	Water sprinkling; covering stockpiles; speed control
Vehicle Emissions	Temporary rise in NOx, SO_2, CO, PM from machinery	Low	Use PUC-certified vehicles; equipment maintenance
Noise	Noise due to construction machinery & vehicles	Low–Medium	Use silencers; restrict nighttime work; PPE for workers

Table 1.6: Air Quality – Construction Phase

Source	Impact	Duration/Extent	Mitigation
Earthwork, Excavation	High fugitive dust (PM)	Short-term, Localized	Water sprinkling; phased excavation
Material Movement	Dust release from loading/unloading	Short-term	Covered trucks; avoid overloading
Vehicle Exhaust	Increase in NOx, SO_2, CO, HC	Short-term	PUC vehicles; regular servicing
Stockpiles	Wind-blown dust	Local	Cover stockpiles; stabilize heights
Construction Debris Handling	Dust and particulate release	Local	Covered disposal; designated waste areas

1.7.2 OPERATION PHASE IMPACTS & MITIGATION

Table 1.7: Land Use & Physical Environment – Operation Phase

Aspect	Impact During Operation	Significance	Mitigation Measures
Land Use	Permanent shift from agriculture to industrial use	Minor–Moderate	Job creation; CSR livelihood support
Topography	No further alteration expected	Insignificant	Maintain contour integrity

Aspect	Impact During Operation	Significance	Mitigation Measures
Hydrology	No discharge—Zero Liquid Discharge (ZLD) system	Insignificant	Continuous monitoring; stormwater management
Traffic	Increased raw material & product transportation	Moderate	Road safety plan; speed limits; paved roads
Noise	Increased noise from mills, fans, transport	Low–Medium	Acoustic enclosures; greenbelt; PPE
Air Pollution (Fugitive)	Dust from material handling, storage, transfer	Moderate	Bag filters; enclosed conveyors; paved roads
Air Pollution (Stack)	PM, SOx, NOx, CO emissions from kiln/CPP	Moderate	ESP, Bag House, Low-NOx burners, lime dosing

Table 1.8: Air Quality – Operation Phase

Fugitive Emissions

Source	Impact	Extent/Duration	Mitigation
Raw Material Handling	PM dispersion	Local, Continuous	Bag filters; enclosed conveyors
Crushing (Limestone/Coal)	Dust and PM	Local, Continuous	Dust extraction system; APC equipment
Clinker & Cement Grinding	Process dust	Local	High-efficiency Bag House
Packing & Dispatch	Fugitive PM	Local	Dust collectors; spill recovery
Vehicular Movement	Dust + NOx, SO_2	Plant premises	Paved roads; speed control (10–20 km/h)

Table: 1.9: Stack Emissions

Source	Pollutants	Impact	Mitigation
Kiln/Calciner	PM, SOx, NOx, CO	Increase in regional air load	ESP/Bag House; Low-NOx burners; De-NOx system

Source	Pollutants	Impact	Mitigation
Cement Mill	PM	Local air deterioration	Bag House; enclosed systems
CPP Boiler	PM, SOx, NOx	Air quality deterioration	ESP; lime dosing; Low-NOx burners
Co-processing	Dioxins & Furans	Minor trace-level emissions	High-temp combustion; strict emission monitoring

1.7.3 SUMMARY OF IMPACT DIFFERENTIATION

Table 1.10: Construction Phase vs. Operation Phase – Comparison

Environmental Component	Construction Phase	Operation Phase
Land Use	Temporary disturbance	Permanent agricultural-to-industrial conversion
Topography	Minor contour modification	No further change
Air Quality	Short-term dust (PM) and vehicle exhaust	Continuous stack emissions + fugitive dust
Water Environment	No discharge; risk only from spills	ZLD; no outside impact
Noise	Machinery and vehicle noise	Industrial noise from mills, fans, transport
Soil Quality	Limited disturbance	Possible deposition of dust; controlled by greenbelt
Ecology	Temporary disturbance from construction	Long-term habitat alteration; greenbelt mitigation
Socio-economic	Temporary jobs	Long-term employment; CSR/SEDP benefits

The financial viability of the project is assessed by examining the following key areas:

- **Investment and Operational Costs**: This includes a detailed estimation of the total investment cost, which incorporates the Environment Management Plan, as well as the projected costs for operation and maintenance.

- **Cost-Benefit Analysis**: The assessment provides crucial financial statements, such as the Profit and Loss Statement, Projected Cash Flow Statement, and Balance Sheet, to analyze the project's profitability.
- **Key Financial Indicators**: The financial viability is measured through standard indicators, including the Internal Rates of Return on both investment and equity, the Break-Even Point, and the project's Payback Period.
- **Sensitivity Analysis**: The study concludes with an analysis of how the Break-Even Point would be affected by various changes or potential variables.

1.8 Environmental Monitoring Programme:

Details of the environmental monitoring schedule / frequency, which will be undertaken for various environmental components, as per conditions EC/CTE/CTO are given in the Table – 1.11

Table No. 1.11 Post Project Monitoring

S. No.	Description	Frequency of Monitoring	Location
1.	Meteorological Data	Continuous	Plant Site
2.	Ambient Air Quality	Twice a Week & Continuous Online Monitoring	Near to the entrance Gate of Plant Site and towards the Villages in upwind & downwind direction from the plant site, as per the max. GLC obtained and as per EC / CTO conditions.
3.	Fugitive Emission	Quarterly or as per EC/CTO	Cement Mill, Packing Plant, Raw Materials Handling Area & Coal Yard
4.	Stack Emission Monitoring	Continuous Online Monitoring	Raw Mill & Kiln, Coal/Petcoke Mill, Clinker Cooler, Cement Mill and CPP Boiler
5.	Water Quality	Twice in a year / As per NOC from CGWA	Nearby Ground water sources and as per CTO conditions.
6.	Waste Water Monitoring (STP	Monthly & as per CTO	Sewage Treatment Plant as per CTO.

	Outlet)		
7.	Water Level	Every Season/ As per NOC from CGWA	Nearby Ground water sources and as per CTO Conditions
8.	Noise Level Monitoring		
(i)	Ambient Noise Monitoring	Monthly & as per EC / CTO	Near to the entrance Gate of Plant Site, Health Centre
9.	Medical Checkup of Employee	Yearly or as per Factories Act	Health Centre /Dispensary
10.	Performance evaluation of APCE's / Adequacy Study	Six Monthly	Raw Mill / Kiln Bag house, Coal Mill Bag House, Cement Mill Bag House, Clinker Cooler ESP and CPP ESP.

1.9 Additional Studies:

Additional Studies conducted in relation to Risk Assessment and Disaster Management Plan as per ToR points issued by SEIAA, Meghalaya vide File No. ML/SEAC/SEIAA/PP/EJH/126/2025 and ToR identification No. TO25B1101ML5999209N, dated 15th Oct 2025.

1.10 Project Benefits

The proposed project will play a significant role in meeting the rising demand for cement and will contribute positively to the economic growth of the region as well as the country. Shree Cement Ltd. is committed to actively supporting

socio-economic development in the villages surrounding the plant site. Key focus areas will include improvement of physical infrastructure, promotion of education, enhancement of health and family welfare services, development of community facilities, and support for cultural and social initiatives.

A comprehensive Social and Economic Development Plan (SEDP) has been prepared to address local needs, including the issues, concerns, and suggestions raised during the Public Hearing and the requirements identified in the Social Impact Assessment (SIA). The implementation of these measures will contribute significantly to improving the quality of life and ensuring sustainable development of the surrounding communities.

1.11 Environmental Management Plan

1.11.1 Environmental Management Plan (Executive Summary – Concise Version)

The Environmental Management Plan (EMP) outlines the key measures to prevent, minimize, and manage environmental impacts during construction and operation of the proposed Integrated Cement Plant. The plan complies with all applicable environmental laws, CPCB guidelines, and industry best practices.

Key Focus Areas of EMP

- Air quality management
- Noise control
- Wastewater & stormwater management
- Solid & hazardous waste management
- Energy and resource conservation
- Rainwater harvesting & maximum reuse of treated water
- Greenbelt development
- Occupational health & safety
- Socio-economic development
- Budget allocation for all environmental safeguards

1.12.2 EMP Objectives

- Keep emissions and waste within statutory limits
- Ensure efficient use of water and energy
- Maintain safe working and environmental conditions
- Strengthen disaster preparedness and risk reduction
- Monitor environmental performance for continual improvement
- Enhance ecological buffer through plantation and greenbelt

1.12.3 EMP Budgetary Provisions

The EMP ensures that environmental impacts from construction and operation are effectively controlled through strong mitigation, monitoring, and institutional mechanisms. The project will also generate substantial direct and indirect employment, improve local infrastructure, and support socio-economic development—enhancing overall sustainability in the region.

Table No. 1.12 EMP Details.

Sr. No.	Particulars	Capital Cost (Rs. Lakhs)	Recurring Cost (Rs. Lakhs/Year)
1	Pollution Control during Construction Stage (Dust suppression, wastewater treatment & disposal, roads, monitoring, muck disposal)	50.00	5.00
2	Air Pollution Control	1840.00	218.00
3	Water Pollution Control	38.00	19.50
4	Noise Pollution Control	20.00	3.50
5	Environmental Monitoring	308.00	29.00
6	Hazardous Waste Storage & Handling	5.00	5.00
7	Occupational Health & Safety	50.00	5.00
8	Greenbelt Development & Plantation	41.35	15.00
Total	—	2352.00	300.00

1.13 Occupational Health Hazard:

Shree Cement Ltd. will implement a comprehensive Safety, Health and Environment (SHE) Policy to control and minimize workplace risks. The key objectives are to prevent hazards, ensure a safe working environment, and safeguard the health of all employees. A dedicated budget of Rs. 50 Lakhs (capital) and Rs. 5 Lakhs (annual recurring) has been allocated for the first three years to establish and maintain robust occupational health and safety systems.

1.14 Conclusions

The proposed project will generate significant socio-economic benefits for the surrounding communities through improved infrastructure, enhanced education and healthcare services, and increased employment opportunities. It will also contribute to government revenue through taxes and duties.

Environmental impacts are expected to remain within permissible limits due to the adoption of effective pollution control measures and continuous monitoring. Extensive greenbelt development around and within the plant will further mitigate emissions and enhance the local environment. Overall, the project is anticipated to support sustainable regional development while maintaining strong environmental safeguards.

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