

EXECUTIVE SUMMARY OF DRAFT ENVIRONMENTAL IMPACT ASSESSMENT AND EMP REPORT

For

Proposed Cement Plant of 600 TPD (400 TPD Clinker & 600 TPD Grinding)

At

P.P NO. 190, Dag No. 50 & P.P. No. 192, Dag No. 52, Village Kokdanglanso, Langri Kissam, PO &
PS Diyungbra, Dist. Dima Hasao, Assam, Pin-782448

Project Proponent:

Gold Strong Industries LLP

Project Category: B

3(B), Cement Plant

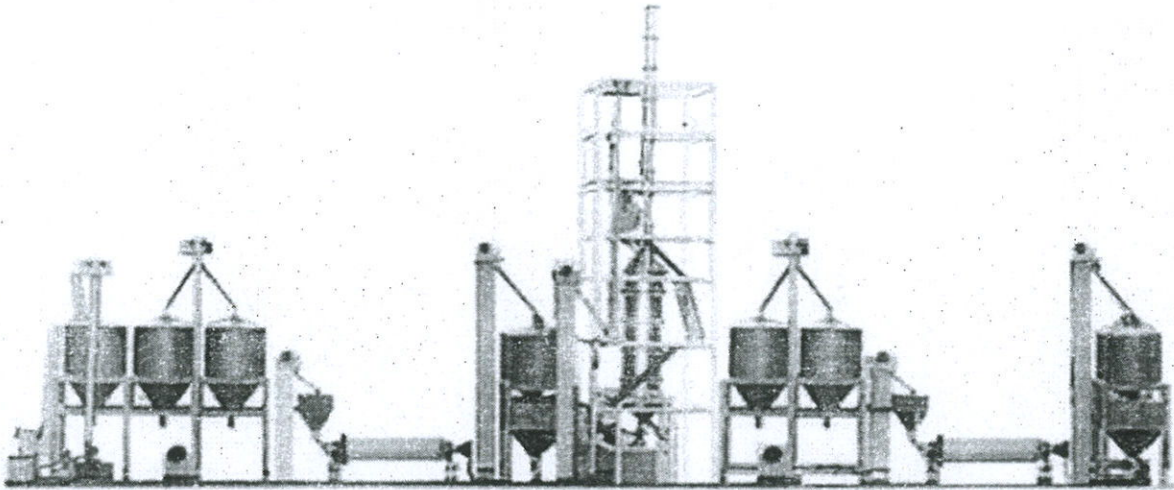
Baseline Monitoring:

Conducted By: 1) Envision Enviro Technologies NorthEast, Guwahati and 2) Unistar Environment
& Research Labs Pvt. Ltd., Vapi

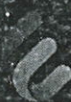
Period: December 2023 to February 2024

Accreditation: NABL Certificate No.: 1) TC-7669 and 2) TC-7753;

MoEF&CC Certificate No.: LB/99/7/2021-INST-LAB-HO-CPCB-HO/Pvt./10318



Prepared By:



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Accreditation by QC/NABET Certificate No. NABET/EIA/23-26/RS 0318, Valid till 07/12/2026

RPT124011_0

1 About Project Location, Nature & Project Proponent

Name of Unit	Gold Strong Industries LLP
Location	P.P NO. 190, Dag No. 50 & P.P. No. 192, Dag No. 52, Village Kokdanglanso, Langri Kissam, PO & PS Diyungbra, Dist. Dima Hasao, Assam, Pin-782448
Type	Proposed Cement Plant of 600 TPD (400 TPD Clinker & 600 TPD Grinding)
Proponent	1. Sri Rajesh Kumar Gupta (Partner) 2. Smt. Bina Devi (Partner) 3. Sri Rameshwar Prasad Gupta (Partner) 4. Smt.Saraswati Devi (Partner)

Proposed project falls under category 3(b) "B" as stated in Environment Impact Assessment Notification published on 14th September, 2006 and its subsequent amendments hence proponent has to obtain the EC from the SEIAA, Assam. Public hearing is applicable to the unit as site is located outside of notified industrial area.

2 Need of Project

The infrastructure development-based industries like Cement, Steel, etc. has witnessed a tremendous change in last few years in respect of volume of output, scale of operation and technology used. Cement industry is one of the main beneficiaries of the infrastructure boom.

For deciding to set up an industry there are two most important essential factors such as availability of raw material and market for finished products. Limestone deposits of good grade suitable for cement manufacture is spread over a large area stretching from North Cachar District in Assam upto Jaintia Hills Districts and beyond in Meghalaya.

Considering the huge deposits of lime stone in the state of Assam and Meghalaya, good numbers of clinkers manufacturing plants have come up in the region. One such large clinker plant is Dalmiya (Formerly Calcom) having only clinkerization facility with capacity of 2.1 million ton is located at Umrangso at a distance of around 170 km from project site. This plant has grown there due to huge quality lime stone deposits in Umrangso itself. Under the proposed project, the unit will set up only a grinding plant for grinding of clinkers which will be made available from rotary cement plants operating in Assam & Meghalaya.

On the other hand, there is sufficient demand supply gap; as till now, a portion of total cement requirement is met from import from other parts of India, the market is abundant. Moreover, there is scope for export too to neighboring countries like Bangladesh, Barma, Nepal, and Bhutan etc. but due to scarcity in indigenous market itself no much head way has been done in these aspects.

3 About Project

Particular	Details
Capacity (TPD)	Clinker : 400 & Cement : 600
Land (m ²)	31,482.52
Greenbelt (m ²)	10,390.2
Fresh Water from Bore well (KL/d)	147
Power from Assam State Electricity Board (MW)	4
DG Set- Standby (kVA)	350 x 1 Nos.
Manpower (Nos.)	135
HSD for DG Set (L/h)	150
Cost of Project (Rs. in Lacs)	3,550
Capital Cost of Pollution Control Measures (Rs. in Lacs)	391.4

4 Manufacturing Process:

Stages / sections for manufacturing of proposed products involved are given here below:

1. Crushing section
2. Storage & proportioning
3. Raw Milling
4. Blending & homogenization
5. Palletizing & burning
6. Clinker/ gypsum Chushing, storage and proportioning
7. Cement Mill
8. Storage & packing

Note:-

- 1 to 5 is crushing section
- 6 to 8 is cement grinding section

5 Key Infrastructure and Settlements

Nearest Infrastructure Feature	Infrastructure	wrt Project Site	
		Distance (km)	Direction
Habitat	Kokdanglangso village	0.7	S
	Diyungbra CD Block	7.2	E
Transportation	National Highway -627	0.29	WSW
	State Highway – 16	7.1	E
	State Highway -20	0.29	WSW
	Lamsakhang Railway Station and Railway Line	21.2	ENE
	Shilong Airport	86	W
Water body	Kopili River	0.7	N
	Amring River	1.1	N
Reserve Forest	Amring Reserve Forest	1.3	N
Recreation Area	Panimur water falls	2.3	WSW
Ecological Sensitive Area	Marat Longri Wildlife Sanctuary	40	E
	Kaziranga National Park	98	N
Dam	Lower Kopili Hydro Project	10.3	SW

6 Capacity of Treatment Facility

S. No.	Name of Products	Production Capacity (TPD)
1.	Clinker	400
2.	Cement (OPC/PPC)	600

7 Probable Pollution Sources, Baseline Environment, Impacts and Mitigation Measures

Baseline Period: December 2023 to February 2024

7.1 Air Environment

Flue Gas Emission

Main source of flue gas emission will be DG set. The details of flue gas stack are given in table below:

Stack Attached with	Stack Height (m)	APCM	Probable Pollutant
DG of 350 kVA	11	Adequate stack height	PM < 150 mg/Nm ³ SO ₂ < 100 ppm NO _x < 50 ppm

Process Emission:

The major pollutant are particulate matter, Sulphur Dioxide and Nitrogen Oxide from the proposed cement manufacturing unit:

S. No.	Stack Attached to	Stack Height (m)	Diameter (m)	Air Pollution Control Measure	Parameter & Permissible Limit
1	Cement Mill and discharge tube	30	0.8	Twin Cyclone Separator Followed by Reverse Pulse Jet Type Bag Filter	PM < 50 mg/Nm ³
2	Raw Mill	30	0.8	Twin Cyclone Separator Followed by Reverse Pulse Jet Type Bag Filter	PM < 50 mg/Nm ³
3	VSK Kiln – 1	32	1.5	Water scrubber	PM < 50 mg/Nm ³ SO ₂ < 200 mg/Nm ³ NO _x < 500 mg/Nm ³
4	VSK Kiln – 2	32	1.2	Water scrubber	PM < 50 mg/Nm ³ SO ₂ < 200 mg/Nm ³ NO _x < 500 mg/Nm ³
5	VSK Kiln – 3	32	1.2	Water scrubber	PM < 50 mg/Nm ³ SO ₂ < 200 mg/Nm ³ NO _x < 500 mg/Nm ³
6	VSK Kiln – 4	32	1.2	Water scrubber	PM < 50 mg/Nm ³ SO ₂ < 200 mg/Nm ³ NO _x < 500 mg/Nm ³
7	Cement Mill and discharge tube	30	0.8	Twin Cyclone Separator Followed by Reverse Pulse Jet Type Bag Filter	PM < 50 mg/Nm ³

Fugitive Emission:

To control fugitive emissions following measures are proposed:

- Raw materials loading and unloading will be done in the covered area.
- Raw materials will be stored in the covered structure.
- All the conveyors will be provided with conveyor cover.
- The automatic bagging machine will be provided. The suction of bag filter will be provided at the packing section.
- The sprinkling of water will be done along the internal roads in the plant in order to control the dust.
- All the workers and officers working inside the plant will be provided with disposable dust masks.
- Bag filter will be cleaned regularly.
- Maintenance of air pollution control equipments will be done regularly.
- Green belt will be developed around the plant to arrest the fugitive emissions.

Air Quality of the Study Area:

Monitoring Location & Code	Distance	Direction	98 th Percentile				
			PM ₁₀	PM _{2.5}	SO ₂	NO ₂	CO
			µg/m ³	µg/m ³	µg/m ³	µg/m ³	mg/m ³
Detection Limit			5	5	4	5	0.1
Kokdanglangso (A1)	1.0	SSE	29.0	18.0	8.4	14.0	BDL
Lower Kapilo HE Project Office (A2)	7.9	SSW	46.0	28.0	11.6	19.3	2.2
Chotolangpher Government ME School (A3)	5.6	SSW	29.0	18.0	8.4	13.9	BDL
Langri (A4)	3.8	E	30.0	18.0	8.5	14.1	1.8
Washobil (A5)	7.2	E	31.0	19.0	8.6	14.3	2.1
Amreng Tourist Guest House (A6)	2.8	W	28.0	17.0	8.4	13.9	BDL
Loringcheter LP school (A7)	4.0	NW	27.0	17.0	8.3	13.7	BDL
Thenglong LP School (A8)	8.4	NNW	26.0	16.0	8.1	13.4	BDL
Permissible Limits as per NAAQS, 2009			100	60	80	80	2

Results of ambient air quality results shows that at all the locations parameters analyzed are within NAAQS limits.

Micrometeorological data of Study Area:

Micrometeorological data was collected from proposed site during baseline period, summary of same is as under:

- Temperature: 29.50°C (Max.) and 10.80°C (Min.)
- Average wind speed: 3.82 m/s (max) and 5.03 m/s
- Predominant Wind Direction: W

Impact & Mitigation Measures (Air Environment):

1. Production will lead to air pollution.

Pollutant	Average 24 hourly Maximum Ground Level Concentration (µg/m ³)	Receptor, Distance & Direction
PM	1.59	On Forest land area at 1 km in ENE
SO ₂	0.713	
NO _x	1.42	

From maximum ground level concentration it is seen that after implementation of proposed project there will be increase in pollution potential but same will be well below the permissible NAAQS norms for rural/residential zone and Industrial zone.

Thus there will not be any significant impact on air environment of study area.

7.2 Water Environment

Water will be required for domestic, gardening & industrial purpose. Source of fresh water is bore well. Application to CGWA for ground water extraction shall be made after Public Hearing or receipt of EC.

Water Requirement:

S. No.	Particular	Water Requirement (KL/d)	Source
A	Domestic	20	Borewell
B	Gardening	2	Borewell
		18	Treated Sewage from STP
C	Industrial		
1	Nodulization	100	Borewell
2	Cooling	5	Borewell
3	Dust Suppresion	20	Borewell
Total [C]		--	125
Total [A+B+C]		--	165 (147 KL/d fresh + 18 KL/d Recycled)

Wastewater Generation:

S. No.	Particular	Wastewater Generation (KL/d)	Remark
A	Domestic	18	Sent to inhouse STP for further treatment
B	Industrial	--	-
Total		18	-

Treatment Scheme:

No industrial waste water will be generated from the process.

Sewage

- Quantity: 18 KL/d
- Mode of disposal: To Gardening after treatment in STP

Water Conservation:

To reduce water consumption

- Treated sewage shall be reused in gardening

To reduce impact on ground water availability unit shall adopt rain water collection system within premises.

Ground & Surface Water Quality of Study Area:

Ground water samples were collected from Kodalangsho, Langri, Washobil, Longjin, Charchim, Amreng Tourist Guest House Langtha, & Langmepi

Surface water samples were collected from Kala Nala, U/s of Kopili River, Bara Lanpher Nala, D/s of Kopili River, Langri Nala, Landkiding Nala, Amrino River upstream and Lanmipi Nala

Water samples were tested for parameters like pH, Temperature, Color, Odor, Taste, Total Dissolved Solids, Total Hardness, Chemical Oxygen Demand, Biological Oxygen Demand, Electrical Conductivity, Chloride, Sulphates, Heavy Metals, etc.

As per Drinking water standard of IS 10500:2012 ground water is suitable for drinking purpose. But removal of TDS, TSS, hardness and bacteria is required using filtration, RO and UV techniques before using for drinking purpose at all locations.

As per Surface Water Quality Standard of IS 2296:1992, Water at all locations fall in Class "A" i.e. Drinking Water Source without conventional treatment but after disinfection.

Management to avoid water contamination:

- Pucca flooring shall be ensured within STP area.
- Two observatory well will be provided, one in up gradient and one in down gradient of ground water

flow for ground water monitoring to avoid any contamination. Monitoring shall be conducted by NABL accredited laboratory on monthly basis.

Thus there will not be any significant impact on water environment of study area.

7.3 Noise Environment

Results of Ambient Noise Monitoring:

Monitoring Location & Code	Category	Day Time (6 a.m. to 10 p.m.)		Night Time (10 p.m. to 6 a.m.)	
		Recorded level dB(A) L _{eq}	Limits in dB(A) L _{eq}	Recorded level dB(A) L _{eq}	Limits in dB(A) L _{eq}
Lower Kapilo HE Project Office (N1)	Industrial	60.3	75.0	45.2	70.0
Nr. Hydro Power Project Construction Site (N2)	Industrial	80.9	75.0	75.1	70.0
Chotolangpher Government ME School (N3)	Residential	45.6	55.0	32.9	45.0
D V A Public School (N4)	Residential	30.2	55.0	22.8	45.0
Langri I L. P. School (N5)	Residential	28.9	55.0	20.5	45.0
Charchim LP School (N6)	Residential	35.1	55.0	30.2	45.0
Langthat L.P School (N7)	Residential	26.2	55.0	18.6	45.0
Langmepi LP School (N8)	Residential	26.9	55.0	18.1	45.0

At all locations measured noise levels are within permissible limit. Noise sources identified in are Industrial, vehicular traffic and commercial activities.

Impact & Mitigation Measures (Noise Environment):

Noise may generate from air blower, crusher, noduliser, raw mill and cement mil, bucket elevator and conveyer belts etc. Following precautions are proposed:

- A thick greenbelt will be developed all around the plant boundary to act as noise attenuator.
- In addition personnel working near high noise level generating sources will be provided with ear muffs.
- Proper and suitable acoustic barrier will also be provided around areas generating high noise.
- Effective preventive maintenance and vibration measurement of all rotating equipment will help in the improvement of plant life and also noise reduction.

Thus there will not be any significant impact on noise environment of study area.

Traffic Status of the Study Area:

- Traffic survey was conducted on a junction of NH-627 and the internal approach road to be used by proposed unit, survey point is located around 0.7 km in SSW direction from project site. This road shall be utilized for transportation of raw materials, finished goods & hazardous waste to & fro the site.
- The above traffic reveals the LOS (Levels of Service) as "A" (Excellent) for the NH-627, which is 2-Lane (Two Way) without Divider.

Impact & Mitigation Measure (Transportation):

There will be increase in vehicular load due to the proposed project. For management of traffic, provision for adequate parking space is provided at project site. Transportation activity will be carried out during non-peak hours only and trained driver will be appointed for transportation. After assessment of the proposed traffic load due to this project, it can be concluded that the Level of Service will remain the same as "A – Excellent" as the existing volume per capacity ratio of 0.04 for both ways (Umrangso to Lanka and Lanka to Umrangso as well) goes to 0.05 (Umrangso to Lanka) and 0.04 (Lanka to Umrangso). Hence, due to the proposed project there will be insignificant impact on level of traffic.

7.4 Solid & Hazardous Waste

The solid waste received from industries shall be stored in designated area and disposed as per the guideline. The type of solid wastes, generation and its management are as given in the table below:

Quantity, Storage, Treatment and Mode of Disposal of Solid & Hazardous Waste

A. Hazardous and Plastic Waste

S. No.	Name of Waste	Schedule & Category	Source	Quantity (TPA)	Mode of Disposal
Hazardous Waste					
1.	Used/ spent oil	Sch-I Cat.-5.1	Prime Movers	40	Collection stored in HDPE drums then used for lubrication within plant or sold to authorized recyclers.
Plastic Waste					
1.	Discarded plastic bags and containers	Sch-I Cat.-33.1	Raw material storage area	3,600	Return to raw material suppliers or authorized recyclers.

B. Non-Hazardous

Sr. No.	Name and Type of Waste	Quantity (TPA)	Mode of Disposal
Non-Hazardous Waste			
1.	STP Sludge from STP	0.6	To be used as manure within premises.
2.	Organic Waste from Canteen	2.0	Biocomposted using Organic Waste converter
3.	In organic recyclable Waste from Office building	5.0	Sell to authorized recyclers
4.	E-waste from Office building	0.1	Sell to authorized recyclers
5.	Battery Waste from Office building	0.15	Sell to authorized recyclers
6.	Bio medical Waste from Occupation Health Center	0.1	Handed over to authorized facility for disposal

Soil Quality of Study Area:

- pH levels indicating moderate acidity in some areas and slight acidity in others.
- Soil electrical conductivity (EC) and exchangeable sodium percentage (ESP) varied across the samples.
- Organic carbon content was medium to high, suggesting good organic matter, while nitrogen availability was found to be low.
- Soil textures ranged from sandy loam to clayey loam, with moderate water holding capacity.
- Dominant exchangeable basic cations included calcium (Ca), magnesium (Mg), sodium (Na), and potassium (K). Available nitrogen levels were consistently low, available potassium was high, and available phosphorus was uniformly low across all locations.

Impact & Mitigation Measure (Soil Environment):

Leakages & spillages of sewage will lead to contamination of soil to avoid same following steps shall be taken:

- Pucca flooring shall be ensured within STP area.

Thus, there will not be any significant impact on soil environment of study area

7.5 Land Environment

Landuse of the study area & is agricultural land (38.1%); Forest (54.7%), Residential (2.8%), River (1.9%), Scrubland (2.3%), and Waterbody (0.2%)

The natural drainage network surrounding Village Kokdanglanso in Langri Kissam, PO & PS Diyungbra, Dist. Dima Hasao, Assam, is prominently shaped by several key rivers and streams: Langmipi Nala, Amring River, Kopili River, Chhota Langpher Nala, Bara Langpher Nala, Langkri Nala, and Ardha Nala.

Impact & Mitigation Measure (Land Environemnt):

Proposed activities will lead to change in land use from agricultrual land to industrial land. There are around 08 nos. of tree exist, these trees will be transplanted or removed and 10 time more trees will be planted.

Thus, there will not be any significant impact on land environment of study area.

7.6 Ecological Environment

No **National Park or wildlife sanctuary** was observed in the study area. Amring Reserve Forest is at around 1.3 km N Direction.

Floral species recorded in study area includes 84 type of trees, 22 type of shrubs & 44 type of herbs and 49 types of grasses, 28 types of climbers. No rare and endangered flora was observed.

- Faunal species recorded in the study area includes 138 type of birds, 16 types of Reptiles, 9 types of Amphibians and 17 types of Mammals.
- Among the sighted/ documented fauna, 4 species grouped under near threatened while 1 under vulnerable and no under Endangered category of IUCN.
- Total 16 Birds, 7 reptiles and 7 Mammals were documented which are given protection by the Indian Wild Life (Protection) Act under schedule I.
- Total plot area of the project is 31,482 m² from which 10,39,052 m² (33 % of total land area) shall be developed as greenbelt. Further, unit will plant additional trees in nearby villages.

Thus there will not be any significant impact on ecological environment of study area.

7.7 Socio Economic Status of the Study Area

- Findings of study area based on Census 2011 and field survey:
- Total population : 25,099
 - Males: 12,963
 - Females: 12,136
- Population density: 80 persons per km².
- Sex ratio : 936
- Average literacy rate: 60.25%
- Economical profile of the area majorly depends on agriculture animal husbandary, labour work, etc.
- Infrastructure facility like roads, Educational facilities, Health care facilities, electricity connection, water supply, sanitation available in village.

Impact & Mitigation Measures:

- Generation of employment
 - Operation Phase:

- ✓ Direct: 135
- ✓ Indirect: 200
- Rs. 35 Lacs will be spent on CER activities.
- Due to proposed project there will be a possibility of increasing in literacy rate; generation of direct & indirect employment and Infrastructure development which in turn result in improvement of quality of life of people of study area.

Hence, there will be positive impact on socio economic environment.

8 Safety Measures

Following preventive measures shall be followed to ensure good health and safety of workers:

- Manitaning good housekeeping
- No smoking in area
- Use of proper PPE's
- Use of flame proof electrical fittings and fire fighting equipments
- Provision of earthing/bonding for static charges.
- Provision of good ventilation.

9 Environmental Monitoring Programme

Environmental monitoring program has been prepared & shall be implemented to check efficiency of mitigation measures and changes in environment over period of time at various stages of project development. It is proposed to adopt practice for

- Monitoring of quality of stack emission, ambient air, STP inlet & outlet, Hazardous waste etc. at regular interval as per prevailing guidelines.
- Maintaining records for water consumption & wastewater generation; solid & hazardous waste generation; medical reports etc.

Particular	Monitoring Frequency
Process stack monitoring	Once in a month or as per EC and CCA
Ambient Air Quality Monitoring within premises at 2 locations	
Ambient noise monitoring within premises at Production area and utility	Twice in a year or as per EC and CCA
Ground water quality monitoring	Twice in a year or as per EC and CCA
Sewage quality monitoring	Twice in a year or as per EC and CCA
Work zone monitoring at 3-5 locations	Twice in a year or as per EC and CCA
Soil quality monitoring at One location outside premises and one inside premises	Once in a year or as per EC & CCA
Water consumption, wastewater generation and hazardous waste generation	Daily
Medical checkups of workers	Twice in a year as per Assam Factories Rules

10 Environment Management Plan

An Environmental Management Plan has been prepared & shall be implemented. It describes objective, responsibility, resources, monitoring related to mitigations measures for identified impact. It also includes details of greenbelt development, energy conservation, green building measures etc. Major aspects of the management plan are as under:

Environmental Component wise Management Plan:

For Pre-Construction and Construction phase:

Impact	Affected Environmental Attributes	Mitigation Measures
Activity: Site cleaning & site preparation		
<ul style="list-style-type: none"> At proposed land currently there is no farming activity; presence of shrubs has been observed during field survey hence removal of shrubs will be required before construction activity; this may lead to disturbance to local faunal species. Noise due to use of machineries 	<p>EB OHS</p>	<ul style="list-style-type: none"> Removal of open scrub will not have significant impact; also, it is proposed to develop greenbelt in 31,482 m² from 10,39,052 m² (33 % of total land area) 33% of proposed acquired land which will help restoration of local faunal species. Use of well-maintained machinery Use of PPE like earplugs & earmuffs. Site preparation will done in daytime only
<ul style="list-style-type: none"> Change in soil quality due to removal of top layer of soil. Natural drainage of the land is towards Kopili River (on N of the site); leveling of the site will lead to disturbance of drainage pattern. Temporary employment will be generated. 	<p>S LU SE</p>	<ul style="list-style-type: none"> Excess soil shall be utilized for back filling, levelling & construction of internal roads; which helps to retain existing soil quality. The topography of the site is almost flat, general elevation is 123 m to 132 m, slope of site is towards N direction; hence there will be minor change in topography. Preference to be given to locals.
Activity: Transportation, Storage and handling of Construction material & waste		
<ul style="list-style-type: none"> Fugitive emissions during transportation of construction material & waste will affect: <ul style="list-style-type: none"> ✓ Air quality ✓ Road side flora ✓ Local community of the route of transportation. 	<p>SE AP EB</p>	<ul style="list-style-type: none"> Trucks carrying construction material shall be covered with tarpaulin. Paved road shall be provided within premises Speed limits shall be maintained within premises.
<ul style="list-style-type: none"> Fugitive emissions during storage & handling of material & waste can affect: <ul style="list-style-type: none"> ✓ Air quality of air ✓ Local fauna ✓ Construction workers ✓ People working in nearby farms 	<p>EB AP OHS SE</p>	<ul style="list-style-type: none"> Construction site shall be covered & sprinkling of water so that fugitive emission does not go outside the premises. Use of PPEs like Dust Mask by workers. Protection shall be provided wherever required.
Activity: Excavation, construction, fabrication		
<ul style="list-style-type: none"> Source of the water is bore well. During construction phase quantity water will be less as around 30-35 people will be working which will be local hence water required for workers will be around 1.95 KL/d. It is estimated that construction activities will take around 6 to 7 months. For construction purpose around 20-25 KL/d water will be required for around 6 to 7 months. 	<p>SE W HG</p>	<ul style="list-style-type: none"> Care will be taken that water wastage is minimum. Quantity of sewage is very less. Sewage to be disposed off in a soak pit, same soak pit shall be used in a operation phase.

Impact	Affected Environmental Attributes	Mitigation Measures
<ul style="list-style-type: none"> This activity temporary may lead to depletion of ground water level of the villages located in down stream of ground water flow. Source of drinking water in majority villages is ground water. Quantity of sewage will be around 1.65 KL/d. Sewage will be disposed to soak pit, which may pollute soil & ground water. 		
<ul style="list-style-type: none"> Disposal of excess soil outside the premises can change soil pattern of that area. Disposal of construction waste will change the LU pattern of that area. 	S LU	<ul style="list-style-type: none"> Excess soil shall be utilized for back filling, levelling & construction of internal roads. Proper disposal of construction waste shall be ensured. Wherever possible construction waste shall be reused.
<ul style="list-style-type: none"> Fugitive Emission will affect air quality of the area Noise from the machinery & fugitive emissions will affect <ul style="list-style-type: none"> ✓ Local fauna ✓ People working in nearby farms ✓ Construction workers Injury to workers due to accidents during construction works 	AP EB RH OHS SE	<ul style="list-style-type: none"> Barrier sheet will be provided to avoid dispersion of dust in surrounding area. Construction work shall be carried out in day time only. Protection shall be provided wherever required Required PPEs shall be provided to workers.
<ul style="list-style-type: none"> Temporary employment generation. 	SE	<ul style="list-style-type: none"> Opportunity shall be given to local people and/or contractors for the work

For Operation Phase:

Impact	Affected Environmental Attributes	Mitigation Measures
Activity: Transportation of fuel, raw materials & products		
<ul style="list-style-type: none"> Fugitive & flue gas emissions from vehicular movement; hazardous waste, raw materials; spillage during transportation can affect <ul style="list-style-type: none"> ✓ Air quality, ✓ Crops on sides of roads and ✓ Local community of the route of transportation. 	AP EB SE	<ul style="list-style-type: none"> Only vehicles with PUC shall be allowed for transportation. Vehicles shall be covered while transportation of raw material, product & fuel.
<ul style="list-style-type: none"> Generation of temporary employment 	SE	<ul style="list-style-type: none"> Opportunity shall be given to local transporters & suppliers

Impact	Affected Environmental Attributes	Mitigation Measures
Activity: Storage & handling of fuel, products, raw material & hazardous waste		
<ul style="list-style-type: none"> Fugitive emission from fuel, raw material and product storage area affect: <ul style="list-style-type: none"> ✓ Air quality. ✓ Health of workers ✓ Flora & fauna Deteriorated air quality due to fugitive emission will affect local flora. 	AP SE EB	<ul style="list-style-type: none"> Water spraying will be done for dust suppression. Fly ash storage area shall be closed premises. Cement will be stored and handled within closed area. Greenbelt will be developed at along the boundary of the project site with thick leaf to control dust emission spreading outside the project site. Healthcare activities will be carried out for local communities and workers.
Activity: Production Process		
<ul style="list-style-type: none"> Total water requirement in operation phase is 165 KL/d source of water is borewell water. Source of drinking water in majority villages is ground water. 	W HG SE	<ul style="list-style-type: none"> It is proposed to install STP & treated sewage to the tune of 18 KL/d shall be reused for gardening which will reduce fresh water requirement by 11.0% Storm water drainage system will be provided within premises to collect rain water. Collected rain water will be recharged through rain water recharge well and/or store within premise after filtration and reused. Access rain water/surface runoff will be diverted to settling pond and overflow will only be allow to flow outside premises.
<ul style="list-style-type: none"> Possibility of soil & ground water contamination if leakage of sewage occurs. 	HG S	<ul style="list-style-type: none"> Pucca flooring shall be ensured within STP area. Two piezometer wells will be proposed, one at up-gradient & other at down-gradient according to ground water flow for monitoring.
<ul style="list-style-type: none"> As per air quality modelling maximum GLC of emission from operation of cement plant for PM 1.59 µg/m³, SOx 0.972 µg/m³, NOx 1.42 µg/m³ will fall on forest land area & it will deteriorate air quality of the area. Deteriorated air quality may affect flora & fauna located at the receptors. 	AP LU EB	<ul style="list-style-type: none"> Adequate stack height is proposed. To control process gas emission adequate APCM as per guidelines followed by adequate stack height is proposed. Solar street lights will be utilized within plant premises & nearby villages at the maximum extent. To recover product to maximum extent reverse pulse jet type bag filter will be provided. Discarded bags and other recyclable material shall be sent back to raw material suppliers or authorized recyclers. Organic waste will be convert into manure and utilised within premises along with STP Sludge.
<ul style="list-style-type: none"> Generation of noise may affect <ul style="list-style-type: none"> ✓ Local fauna of the area. ✓ Workers of the unit 	EB OHS	<ul style="list-style-type: none"> Proper and timely oiling, lubrication and preventive maintenance will be carried out for the machineries and equipments to reduce noise generation. Adequate noise control measures such as Antivibration pad will be provided for equipment with high vibration. The equipment, which generates excessive noise, will be provided with enclosures. Thick green belt cover around the plant premises will reduce dispersion of noise outside the premises. Use of PPEs like ear plugs, ear muffs, etc by workers
<ul style="list-style-type: none"> Workers are susceptible to injury due to <ul style="list-style-type: none"> ✓ Noise from machinery ✓ Failure of equipments. Workers are susceptible to burns due to <ul style="list-style-type: none"> ✓ Fire due to static charge & auto ignition 	RH & OHS	<ul style="list-style-type: none"> Installation of PLC System. Control of raw materials quantity either gravimetrically. Use of control devices like Pressure gauge and Safety Control valve sensors, alarms, trips and other control systems Provision of <ul style="list-style-type: none"> ✓ Fire Extinguisher/Fire Hydrant system ✓ Fire/Smoke detector

Impact	Affected Environmental Attributes	Mitigation Measures
<ul style="list-style-type: none"> ✓ Damage to equipments and facilities • Workers are susceptible to injuries, cuts due to: <ul style="list-style-type: none"> ✓ Moving part & machinery ✓ Fall slip & struck with object • Workers are susceptible to Asphyxiation due to: <ul style="list-style-type: none"> ✓ Fugitive emission. 		<ul style="list-style-type: none"> ✓ Adequate Ventilation & Illumination ✓ Training to workers • Ensure <ul style="list-style-type: none"> ✓ Use of proper MOC ✓ Use of proper PPEs. ✓ Recruitment of skilled workers ✓ Air to fuel ratio control ✓ Regular inspection /cleaning machinery etc. • Avoid manual handling of fuel, raw material & product.
<ul style="list-style-type: none"> • Generation of permanent employment. 	SE	<ul style="list-style-type: none"> • Opportunity will be given to local people and/or contractors for the work.

11 Project Benefits

11.1 Social Benefits

A total amount of Rs. 35 lacs would be utilized for Corporate Environment Responsibility for five years as per latest CER guidelines issued by MoEF&CC.

Due to development of the proposed project, total 135 numbers of manpower will be required. Due to the proposed project, indirect employments will be generated. Indirect employments like; Primary requirements, Grocery shops, Residential requirements, Garments requirements, Transportation facilities, Health care facilities, etc. During operation of the project many locals will get employment in the form of various type contracts.

11.2 Environmental Benefits

Total plot area of the project is 31,482 m² from which 10,39,052 m² (33 % of total land area) shall be developed as greenbelt. Additionally, as a part of CER activity around 480 nos. of tress will be planted within nearby area.

11.3 Financial Benefits

Looking to the industrial growth of the State, expansion of the facility is planned. Thus project is beneficial to new/expanding industries.

Employment & trade opportunities will eventually result in appreciable economic benefits to the local people & businesses/contractors.

12 Breakup of Capital and Recurring cost for Environment Protection Measures

S. No	Unit	Detail	Capital Cost (Rs. In Lacs)	Recurring Cost (Rs. In Lacs per Annum)
1	Wastewater	STP	20.00	1.25
2	Air	Process Stacks, APCM	275.00	110.00
3	Hazardous Management	Disposal cost	1.50	0.15
4	Fire & Safety	Fire Hydrant System, Extinguishers	30.0	6.0

S. No	Unit	Detail	Capital Cost (Rs. In Lacs)	Recurring Cost (Rs. In Lacs per Annum)
5	Ecological Development	Greenbelt Plan	9.90	0.99
		Conservation Plan	20.0	--
6	Occupational Health	OHC and Medical Checkup	18.00	15.30
7	Noise Control	Acoustic enclosure, anti - vibrating pad	12.00	2.40
8	Environment Monitoring Program	Monitoring	5.00	10.90
Total [A]			391.40	146.99
9	CER Activity	Social Activity	35.00	
Total [B]			35.00	-
Grand Total			426.40	146.99

13 Conclusion

- Significant impacts will occur on air quality. However, all the necessary air pollution control measures will be provided.
- No ecological damage will occur. There will be positive impact due to greenbelt in 33% of the area.
- No adverse impacts will occur on water environment.
- Local employment opportunities will increase.
- Various other environment parameters like Forest/ National Park/ Sanctuary and Religious / Historical Places will not be affected.
- Environment Management Plan has been formulated to control all the pollutant parameters and Environment Management Cell has been set-up to ensure that these parameters do not exceed the norms set out by the concerned authorities.
- After commissioning of the proposed project the Environmental Management Cell will take care of all the pollution control measures.

It can be concluded that positive implementation of mitigation measures and environmental management plan during the operational phase, adverse impact on the environment can be minimized.