

EXECUTIVE SUMMARY OF EIA/EMP STUDY

**FOR
Proposed 2.4 MTPA
Green Field Cement Grinding Unit**

OF
BIRLA CORPORATION LIMITED

**Proposed at
Village- Kolhana,
Wazirganj,
District Gaya, (Bihar)**

SUMMARY

ENVIRONMENTAL IMPACT ASSESSMENT

1.0 Introduction

M/s Birla Corporation Limited (B.C.L) is the flagship company of M.P Birla Group incorporated as Birla Jute Manufacturing Co. Ltd. In 1919, later transformed from a manufacture of Jute goods to a leading multi-product corporation with widespread activities. The company was changed to Birla Corporation Ltd in 1998. The company is having its registered office at Air conditioned Market, Second Floor, 1 Shakespeare Sarani, Kolkata- 700071.

M/s Birla Corporation Limited (BCL) is establishing a Green Field Cement Grinding Unit of 2.4 Million Ton / Annum cement at Village:- Kolhana, Wazirganj, District:- Gaya, Bihar for establishment of Cement Grinding unit.. In the cement grinding process Clinker, Flyash, Slag, Gypsum etc. will be used as raw materials.

Manufacturing Facilities	Production Capacity	
Cement Mill	Portland Pozzolona Cement (PPC- Clinker+Gypsum+Flyash)	2.4 MTPA
	Portland slag Cement (PSC- Clinker+Gypsum+Slag)	
	Ordinary Portland Cement (OPC- Clinker+Gypsum)	

Geo Co-ordinates of Project Site are Latitude 24⁰48'41.41"N & Longitude 85⁰12'55.46"E. Project site is about 21 kms East from dist. Headquarter at Gaya & which is well connected by road and rail with rest of the country. Project site of Birla Corporation Limited is located about 1.5 Km. away from NH-82 in Village:- Kolhana, Wazirganj, District:- Gaya, Bihar.

Consumption of cement will increase further because of increasing demand of rural housing sector in Bihar. Total installed capacity of cement in Bihar is 4.8 Million Ton (MT) comprising of 2 large units under operation. Consumption of cement in Bihar is more than the amount produced. Therefore, setting up of new cement plants in Bihar is viable option for entrepreneurs.

2.0 PROJECT LOCATION AND ENVIRONMENTAL SENSITIVITY

<i>PARTICULARS</i>	<i>DETAILS</i>
• Location	Village:- Kolhana, Wazirganj, District:- Gaya, Bihar
• Latitude	24⁰48'41.41" N
• Longitude	85⁰12'55.46" E
• Elevation above mean sea level	117 m.
• Total Land	26.04 Ha. (64.35 Acres)
• Nearest Railway Station	Wazirganj Railway Stn. (1.5 Km.)
• Nearest Highway	NH-82 (1.5 Km.) S, SH-4 (18.2 Km.)
• Nearest Airport	Gaya – 25 Km.
• Nearest Major City	Gaya (21 km.)
• Nearest River	Dhadhar River (9.0 Km.) Paimar River (11 Km.) Falgu River (19.0 Km.)
• National Park, Reserve Forest	<i>Not exist within 10 km. radius</i>
• Wildlife Sanctuary	
• Biosphere Reserve, Hill & Valleys	

3.0 Salient Features of the Project

a) Land requirement	:	Total 26.04 Ha. (64.35 Acres) at Village:- Kolhana, Wazirganj, District:- Gaya, Bihar for establishment of Cement Grinding unit		
b) Production Details	:	Pozzolona Slag Cement Portland Slag Cement Ordinary Portland Cement	2.4 MTPA	
c) Solid Waste Generation	:	No solid waste generated from the plant. Cement Dust collected in Dust Collection System will be sent back to process and utilised		
d) Raw Materials	:	ITEM	Requirement in MTPA	Source
		Clinker	4.704	Maihar IU's of RCCPL
		Flyash	0.84	Contract available with BCL
		Gypsum	0.288	NTPC, Nabinagar

		Slag	1.368	Tata Steel, Jamshedpur
e) Power	:	20 MW from BSEB Grids		
f) Source of Water	:	Own Borewell		
g) Water Requirement	:	312 KLD		
h) Total Cost of Project	:	Rs. 718 Crore.		

4.0 Process Description

For manufacturing cement, clinker, fly ash & slag have to be ground with gypsum, which acts as a set-retarder. This will depend upon the available Fly ash fineness. There are various technologies available for cement grinding project. In the proposed Cement Grinding Unit Cement based on Vertical Roller Miller of capacity 180 TPH PPC/140 TPH PSC is proposed for grinding in Phase I and Phase II will be adopted for production of cement.

The Clinker will be received by trucks/wagons and unloaded at site by truck/wagon tippler. The clinker will be reclaimed through front end loader and fed into a dump hopper for further transportation to the Clinker silo. From silo clinker will be transported to clinker hopper by belt conveyors.

Gypsum will be unloaded through truck tippler and will be stored in the Gypsum storage yard. From the storage yard Gypsum will be reclaimed through pay loader/front end loader and will be feed to Gypsum hopper for onward transmission to mill hoppers by belt conveyors. If Mineral Gypsum is to be used Gypsum crusher will be used to crush the Gypsum before feeding it to Gypsum hopper.

Fly ash will be sourced from nearby Thermal Power plant in closed tankers. The fly ash from closed tankers will be unloaded pneumatically and transported through pipeline. It will be stored in the Fly ash storage silo. The fly ash silo will have aeration at the bottom for easy extraction of material. The fly ash from the silo will be extracted through motorized dosing valve and it will be transported to the mill inlet/outlet (as per requirement) through air slides.

Clinker, Gypsum & Fly Ash will be extracted through Weigh feeders and fed to the mill inlet. If required there shall also be a provision of feeding fly ash in mill outlet elevator for direct feeding into the separator. Cement mill is envisaged to produce

Pozzolana Portland Cement (PPC) & Portland Pozzolona Cement (PPC). Ground cement will be conveyed through air slide & bucket elevator to the cement silo.

From the silo, cement will be extracted and filled in surge hopper of the packing machine and subsequently cement will be packed in HDPE bags. The packed bags will be loaded in trucks spiral chute.

CEMENT GRINDING SYSTEM

Cement Mill Phase I

1 Nos VRM (Vertical Roller Miller), of capacity 180 TPH PPC / 140 TPH PSC @ 4,000/3800 respectively Blaine is proposed for grinding. Considering 21 hour per day and 345 Days per annum operation, the annual capacity of the cement mill works out to be 1.2 MTPA.

PHASE II

1 Nos VRM (Vertical Roller Miller), of capacity 180 TPH PPC / 140 TPH PSC @ 4,000/3800 respectively Blaine is proposed for grinding. Considering 21 hour per day and 345 Days per annum operation, the annual capacity of the cement mill works out to be 1.2 MTPA.

MILL FEED HOPPER/BINS

For mill feeding, RCC hoppers of mass flow design (1 no. of capacity 200 MT for clinker, 1 nos of capacity 250 MT for Slag and 1 no. of capacity 100 MT for Gypsum). In addition to this one bin for Fly ash of 100 MT capacity has been considered.

GRINDING

Clinker and gypsum from the respective materials hoppers shall be fed into the cement mills through the Apron feeders & weigh feeder resp. provided beneath each hopper. For production of PPC/PSC controlled/ measured quantities of fly ash/Slag will be drawn from respective bin / hopper through dozing valves and shall be fed to the mill through dedicated Roto weigh feeder.

MILL SYSTEM

Dust laden air from the cement mill outlet will be filtered in Bag house. From bag house exit the grounded cement shall be transported through air slide & bucket elevator to respective cement silo. The gas will be passed through cement mill bag house fan and vent gas shall be used for recirculation.

HOT AIR GENERATOR (PHASE I)

To meet the hot air requirement for the mill, a coal fired of ~ 20 MKcal HAG has been envisaged to be used for mill startup during cold condition, high material moisture & as and when required.

COAL CRUSHING (PHASE I)

To meet the fine coal requirement of HAG, a crusher of capacity 5 TPH is proposed.

MILL DE-DUSTING

The solution envisaged for de-dusting of cement mill gases is with a bag house. Bag house will be designed to meet the requirements of prevalent environmental norms.

CEMENT STORAGE PHASE I

Cement storage capacity :

1 Nos RCC two compartment silo of 8,000 MT capacity for Perfect Plus & PPC/Multicem & 1 nos RCC two compartment silo of capacity 8,000 MT for Unique/Normal PSC & Ultimate /Ultra/ Super premium has been considered for cement storage in Phase I.

Cement from the grinding system shall be transported to the silos with the help of airsides and bucket elevator. The silos shall be designed as mass-flow silos with inverted cones at the bottom and aerated extraction system and de-dusting of the silo and cone.

From the PPC/PSC silos, cement shall be transported to the packers, with the help of a set of airsides and bucket elevators.

PHASE II

Storage capacity (intermediate product) : Steel Silo 1: 2,000 MT for OPC
Steel Silo 2: 2,000 MT for ground SLAG

1 nos. Steel silo of 2,000 MT capacity for OPC & 1 nos Steel silo of capacity 2,000 MT for ground fine Slag has been considered in Phase II.

BLENDER

Cement from intermediate OPC silo & ground Slag from Slag Silo shall be extracted and measured by Rota scale and will be sent to proposed Blender of capacity 300 TPH.

After blending, blended cement i.e., PSC shall be stored in PSC silo for further packing.

5.0 EXISTING BASELINE ENVIRONMENT SCENARIO :

Baseline environment data for all the components has been collected during the period Dec 2019. – Feb. '2020. The detail findings are here as under ;

[i] Meteorology :

The average temperature was recorded to be in the range of 16.6 -18.2 °C during the study period. The maximum reading was found to be 31.7 °C during Feb'20 and the minimum was found to be 5.5 °C during Dec.'19.

During the study the average relative humidity was found to be in the range of 60 – 65%. The minimum values was found during Dec.'19 and maximum value was found during Jan.'2020.

No rainfall was observed during the study period.

The wind is predominantly blowing from W/ WNW to ESE direction. The wind speeds are of the range of 0.5 - 8.8 m/sec. and the calm condition is 6.68%.

[ii] Demographic Profile

Kolhna is a large village located in Wazirganj Block of Gaya district, Bihar with total 341 families residing. The Kolhna village has population of 2086 of which 1066 are males while 1020 are females as per Population Census 2011. As per Census 2011, Wazirganj's population is 221731. Out of this, 113601 are males whereas the females count 108130 here.

Kolhna village has higher literacy rate compared to Bihar. In 2011, literacy rate of Kolhna village was 75.86 % compared to 61.80 % of Bihar. In Kolhna Male literacy stands at 85.67 % while female literacy rate was 65.66 % Wazirganj block is having 51% literacy rate. 113172 out of total 221731 population is educated here. In males the literacy ratio is 59% as 68032 males out of total 113601 are literate whereas female literacy ratio is 41% as 45140 out of total 108130 females are literate in this Block.

In Kolhana village Scheduled Caste (SC) population is 715, out of which 350 are males and 365 females. The Scheduled Tribe (ST) population is zero.

The prevailing sex ratio in Kolhana village area is 957 females per 1000 males.

[iii] Socio Economic Profile

Agriculture is the one of the main sources of income in the study area. About 54.3 % of the total population is farmer. 22.6 % of the total population has been found to be working as agricultural labourers. About 15 % of the total population has been in to trade and commerce.

[iv] Topography and Land Use

Topography of the study area is more or less flat to uneven, with surface level variation of about 1 m. The average height of the ground surface at the proposed plant site is about 117 m. above mean sea level (MSL). Project site falls under Gangetic plains, which is a typical fore deep basin formed due to collision of India and China plates. The present pedigenic and sedimentation processes in this basin are essentially the continuation of those prevailing since Mid Miocene.

[v] Water Quality

8 ground water samples & 2 surface water samples were collected & analyzed from the study area.

Ground Water Quality

All the water samples were bearing an agreeable taste. The colour of all the water samples was found to be <5 Hazen unit. Odour of all the water was unobjectionable.

The water samples were found to be free from contaminations due to Fluoride & Boron. The dissolved solids level in the water samples were found in the range of 324 - 396 mg/l., which is very much in the permissible limits. The water sample from *Eru* was having the minimum TDS while maximum dissolved solids were found at Jamunawan.

The chlorides were found to be in the range of 19 – 27 mg/l. The Sulphates were found in the range of 16.0 – 35.3 mg/l. Total hardness values in the

range of 229 – 300 mg/l. It is well within the permissible limits of IS 10500:2012. Total Alkalinity values were in the range of 205 – 277 mg/l.

Values of Iron are in range of 0.18 – 0.32 mg/l. & values for Zinc are in range of 0.16 – 0.48 mg/l.

All other parameters have been found to be within the permissible limits prescribed under the IS : 10500 :2012 for drinking water.

Surface Water Quality

The surface water can be best used for Irrigation and domestic purposes.

[vi] Ambient Air Quality :

To ascertain the baseline Ambient Air Quality status of the study area, monitoring of AAQ was conducted at 8 locations around the project area.

Summary results are as under ;

Stn. No.	Location Name	24-hourly average concentration ($\mu\text{g}/\text{m}^3$)									
		PM ₁₀		PM _{2.5}		SO ₂		NO ₂		CO (mg/m ³)	
		Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
A 1	Kurkihar/Kolhana (Near Project Site)	42.8	55.4	26.1	38.6	5.3	11.2	9.8	23.7	0.10	0.13
A 2	Ghuriyawan	28.3	54.6	16.8	30.6	5.5	9.7	11.8	23.4	0.10	0.15
A 3	Babhandih	51.7	66.1	31.1	43.8	6.5	12.4	14.7	26.8	0.11	0.16
A 4	Eru	43.7	57.4	28.4	37.1	5.4	10.8	11.2	24.2	0.10	0.13
A 5	Bariya	26.7	51.5	15.8	28.9	5.7	11.4	12.8	25.7	0.10	0.17
A 6	Wazirganj	33.1	67.2	19.9	47.4	6.9	16.1	15.2	27.8	0.12	0.22
A 7	Tarwan	50.5	65.1	30.3	39.1	6.4	18.7	13.7	29.1	0.10	0.18
A 8	Jamunawan	45.9	60.3	29.8	39.0	8.2	19.8	16.0	32.0	0.11	0.19

It can be observed from the above table the AAQ status around the project area is well within the limits of NAAQS, 2009

6.0 ENVIRONMENTAL IMPACTS OF PROPOSED CEMENT GRINDING PROJECT ;

There are two sources from which the environment of the area can be affected if suitable control measures are not strictly applied. These are, discharge of waste water either on land or in surface water bodies and emissions from the stack. Both these two aspects have been taken into consideration while envisaging the proposed cement grinding project. No industrial waste water will be generated or discharged

outside project premises. Domestic wastewater will be treated through STP inside the project premises.

Cement mill will be equipped with pulse jet bag filters & Dust collection system for minimizing air pollution load.

However, Air Quality Impact prediction shows that after establishment of proposed cement grinding unit predicted incremental GLCs of Pollutants is not found to be significant to add up on the existing ambient air quality.

The green belt/ plantation will be made as per CPCB guidelines and local species will be used for plantation.

7.0 SOLID WASTE GENERATION AND MANAGEMENT

Cement dust will be Collected from Dust Collection Systems and recycle and reuse in cement manufacturing process.

Main features of the solid waste management plan conceived for the project is as follows:

- Ash will be generated from the combustion of coal used in HAG and the entire quantity of ash will be used in PPC manufacturing. Proper ash handling system will be provided to ensure no dust generation during handling, filling and transportation.
- Dust collected by the bag filters will be automatically recycled in the system
- Other solid waste will be in the form of rejected conveyor belts, torn/ damaged cement bags, paper/ wooden/ plastic waste etc. which are not hazardous in nature and will be sold to recyclers on regular basis

8.0 IMPACT ON SOCIO ECONOMIC STATUS

Proposed cement project may change socio economic condition of the nearby areas. As there will be flow of financial and material resources, there remains a large possibility of growth of population in the business, trade, commerce and service sector. The inflow of financial and material resources would contribute towards changing the socioeconomic environment of the areas as this would introduce a mixed culture emphasizing urban traits in place of traditional, prevalent rural customs. The economic, cultural and technological changes are likely to induce social stress and ethical changes. All these would enhance the local economy

9.0 ENVIRONMENTAL MANAGEMENT PLAN

A comprehensive Environmental Management Plan has been prepared under which the unit will adopt measures in preserving the environment from degradation. Important among those are Green Belt Development Plan which would act as Noise damper also. The environmental monitoring program on all components of environment has been drawn and indicated in the EMP in detail which is a part of EIA.

M/s Birla Corporation Limited will adopt all measures for better environmental management. Pulse Jet Bag Filters with dust collection system will be installed with Cement Mill for better air environment, because man needs inhalation every moment, so also is Flora and Fauna dependent on it. BCL will developed & maintain green belt and plantation all around the project premises for better environmental management.

Birla Corporation Ltd. is committed to address the concerns raised during the public consultation as per MoEFCC OM vide F. No. 22-65/2017-IA.III Dt: 30.09.2020.

10.0 OCCUPATIONAL HEALTH AND SAFETY

M/s Birla Corporation Limited will adopt all precautionary measures to reduce the risk of exposure of employees to occupational safety and health hazards. Pre & post medical check-ups will be done of all the employees. Employees will be regularly examined and the medical records will be maintained for each employee.

11.0 RAINWATER HARVESTING

Keeping in mind the importance of water, it is proposed to conserve water by rainwater harvesting by which the subsoil water condition / moisture content is maintained / improved to a great extent. Also it is proposed to harness rainwater from the roof area by collecting the same in a rainwater collection tank of suitable capacity and will be recharged to ground water aquifers.

12.0 CONCLUSION

- No Industrial Waste water will be generated due to operation of proposed cement grinding project.
- Ground water characteristics are also well within the limits of IS 10500:2012.

- Emissions from Stacks of proposed cement mill will within the limits of E(P) Rules. Ambient Air Quality within the study area are within the National Ambient Air Quality Standards (Nov.'2009).
- Ambient Noise Level of the project area is also well within the limits for Industrial Area.
- Generated solid wastes (Cement Dust) from project operation is being re-utilized at the source end.
- Good green belt, plantation & landscaping will be developed and maintained within the premises.

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