# PRE-FEASIBILITY REPORT

**FOR**
**EXTENSION OF VALIDITY OF ENVIRONMENTAL CLEARANCE**
**[REF.NO. J-11011/541/2010-IA-II (I) DATED 16th DECEMBER, 2011]**

**OF**

## INTEGRATED CEMENT PLANT OF 6.0 MTPA & CAPTIVE POWER PLANT OF 90 MW CPP

**at**

**Bankur village, Chittapur Tehsil, Gulbarga district, Karnataka**

**Project Proponent:**
**Jaypee Cement Corporation Limited**
**(formerly M/s Zawar Cement Private Limited)**

**October, 2018**

# PROJECT PROFILE

## 1. PREAMBLE

Jaypee Cement Corporation Limited (JCCL) (formerly M/s Zawar Cement Private Limited[ZCPL]), had proposed to set-up a new cement project having a total capacity of 6.0 mio tpa, in two phases (each 3.0 mio tpa) at Shahabad (Karnataka). Environmental Clearance for an integrated cement plant 6.0 MTPA, in two phases (3 MTPA each) with 90 MW CPP (30 MW + 60 MW) was granted by MoEF&CC vide reference No. J-11011/541/2010-IA-II(I) dated16th December 2011.

As part implementation, JCCL has established Cement Grinding Unit of 2.40 MTPA and 60 MW CPP of said integrated project. This report outlines the Project Profile for the Project.

## 2. PLANT LOCATION & INFRASTRUCTURE

### 2.1 Plant Location

The plant is under implementation within the boundary limits of existing Jaypee Cement Corporation Limited (JCCL) (formerly M/s Zawar Cement Private Limited), located in Shahabad district of Karnataka.

The Cement plant was originally owned by ACC, operating with 0.5 MTPA capacity from 4 Nos. Wet Process kilns. The Plant was since been shutdown dismantled and taken out and new cement plant adopting latest State-of-the-Art Technology, was proposed to be set up within the boundary limits of existing Jaypee Cement Corporation Limited (JCCL).

### 2.2 Infrastructure

- **Land**

The land required for the Cement Plant, mines and colony is already available with JCCL. The break-up of areas, as reported is as follows:

- Existing Plant Area : 38 Hectare
- Colony Area : 15 Hectare
- Mining Area : 328 Hectare
- Unutilized area, road,railway track, water supply station, etc. : 140Hectare
-

- **Land Available**
  - → **Plant : 38 Ha**
  - → **Colony : 15 Ha**
  - → **Mining Area : 328 Hectare**
  - → **Misc. Area : 140 Ha**

- **Rail Network**

JCCL already has a captive railway siding which is connected with Shahabad Railway Station. Shahabad falls on the main south-central railway line, connecting Chennai and Mumbai.

- **Road Network**

The plant is located adjacent to the State Highway, running between Gulbarga and Wadi. Distances of some of the important places, are:

| | | |
|---|---|---|
| Shahabad | : | 5 km |
| Gulbarga | : | 35 km |
| Hamnabad (NH) | : | 95 km |
| Raichur (Source of flyash) | : | 100 km |
| Hyderabad | : | 240 km |
| Bellary (source of slag) | : | 250 km |
| Pune | : | 390 km |
| Chennai | : | 500 km |
| Bangalore | : | 540 km |
| Mumbai | : | 570 km |

- **Power**

The maximum estimated power demand for 6 MTPA cement plant is 79 MW. It is proposed to install a CPP of 90 MW (30+60 MW) in two phases. CPP (60 MW) has already installed & operational as a part implementation.

For emergency requirement, it is proposed to take 20 MVA power from existing Shahabad Grid sub-station. Apart from the above, 10.5 MW DG power is also proposed to be installed, for black start of CPP.

- **Rail Network**

  **JCCL already has a captive railway siding which is connected with Shahabad Railway Station (SC railway)**

- **Road Network**

  **The Plant is located adjacent to the State Highway, running between Gulbarga and Wadi**

- **Power Demand – 79 MW**
- **90 MW (60+30) Captive Thermal Plant**
- **10 .5 MW DG set**
- **20 MVA Grid Power**

**60 MW CPP has established as a part of implementation.**

### Water

Water is available from river Kagna, situated 5 Km from the plant. A 300 mm dia pipe-line is already laid.

Total water requirement is expected to be around 6000 m3/day in Phase I & Phase-II (including captive power plant) and colony.

**Water Requirement**

- **6000 $m^3/d$**

**Water Source**

- **Kagina River (5 Km)**
- **Line already laid**

**Township**

- **800 houses, with all social amenities.**

- **Social Amenities**

A full-fledged township, comprising of 800 houses, guest house, school, shopping centre, club, etc. is already in place, which only needs to be re-furbished. The township shall have essential facilities for key plant personnel / visitors.

- **Environmental Aspects**

An aesthetic, pleasant and lush green environment shall be developed in & around plant and colony area.

## 3. RAW MATERIALS AND FUEL

The Raw Material required for producing Cement are:

| Material | Quantity (MTPA) | Source |
|---|---|---|
| Limestone | 6.8 | Captive Bankur Mine |
| Fly ash | 2.0 | State Thermal Power Plant at Raichur & from CPP |
| Gypsum | 0.3 | Rajasthan |
| Coal | Indian 1.4 | Singareni Collieries /Western Coal fields |
| | Imported 0.88 | MOU with M/s. Adani Enterprises Ltd. for supply of 1.4 MTPA Imported Coal from South Africa & Indonesia |

- **Limestone Requirement - 6.80 mio tpa**

The limestone required for producing clinker shall be sourced from captive Bankur Mine, located around 6 km from the plant. Bankur mines is spread over an area of 328 ha.

The limestone shall be transported by a by a pipe conveyor system from mines to Plant. Quality of the limestone shall be controlled for manufacturing quality cement.

Depending upon quality of limestone, suitable corrective materials shall be mixed with limestone, to make it a cement grade mix. All needful corrective materials such as iron ore, bauxite, etc. can be sourced from the nearby places, conveniently. Its percentage is likely to be 2 to 3% only.

- **Fly Ash Requirement - 2.0 mio tpa**

Flyash required for this unit shall be sourced from State Thermal Power Plant at Raichur and from CPP.

- **Gypsum Requirement - 0.30 mio tpa**

Gypsum is proposed to be sourced from Rajasthan. Alternatively, chemical/ marine gypsum can be used.

- **Coal Requirement (incl. for CPP)-**

Indian Coal - 1.4 mio tpa ; Imported Coal - 0.88 mio tpa

Coal is proposed to be sourced from Singareni Collieries /Western Coal fields. MOU with M/s. Adani Enterprises Ltd. for supply of 1.4 MTPA Imported Coal from South Africa & Indonesia is already in place for supply of Imported Coal.

## 4. TECHNICAL CONCEPT

### 4.1 Phase I

- Kiln Capacity : 3.4 mio tpa
- Cement Capacity : 3.0 mio tpa
- Product mix : 35% OPC : 65% PPC
- Mix in cement :

| | OPC | PPC |
|---|---|---|
| - Clinker | 95% | 66% |
| - Fly ash dry / wet | - | 30% |
| - Gypsum | 5% | 4% |

- Logistics :
  - Inflow
    - Raw material - By conveyors
    - Coal - By rail
    - Other material - By road
  - Outflow : By rail / trucks.

- **Kiln Cap. : 3.4 mio tpa**
- **Cement Cap. : 3.0 mio tpa**
- **Product Mix : 35% OPC, 65% PPC**
- **Mix in Cement**

| | OPC | PPC |
|---|---|---|
| - Clinker | : 95% | 66% |
| - FA dry/wet | : - | 30% |
| - Gypsum | : 5% | 4% |

- **Logistic**
  - **Inflow - By conveyors**
  - **Outflow - By Rail / road**
- **Process : 6 Stage preheater/ precalciner kiln**

- Manufacturing Process : Calcination by State-of-the-Art 6-stage preheater/ pre-calciner kiln, producing low N0x and SOx.

  All grinding processes by energy efficient vertical roller mills.

  Pollution control by Bag filters.

- **Captive Power Plant**

| | |
|---|---|
| 30 MW comparing of 132 TPH boiler and 30 MW Turbine . Condensate cooling with ACC & WCC | 60 MW Turbine with 250 TPH Boiler , Condensate cooling with ACC (already installed) |

- **Details of Main Equipment:**

| Description | Phase-I (TPH) | Phase-II (TPH) |
|---|---|---|
| Limestone Crusher | 1000 | 1000 |
| Raw Material Grinding | 480 | 480 |
| Pyro process (TPD) | 6060 | 6060 |
| Coal Mill | 55 | 55 |
| Cement Grinding Mill | 2x250 | 2x250 |
| Packing (double discharge) | 3x240 | 3x240 |

- ❖ Packing Capacity : 4 x 240 tph double discharge
- ❖ Truck Loading : 12 Loading bays for 4 Packers
- ❖ Wagon Loading : By 12 Wagon Loading Machine (6 working, 6 standby)
- ❖ Wagon Unloading : By 1200 tph hydraulic Wagon Tippler
- ❖ Boiler for CPP 132 TPH AFBC
- ❖ Turbine 30 MW
- ❖ Condensate cooling ACC &WCC
- ❖ Boiler for CPP 250 TPH CFBC in phase II
- ❖ Turbine 60 MW
- ❖ Condensate cooling ACC

❖ **Storages**

| Material | Phase I | Phase II |
|---|---|---|
| Limestone | 2x 5,0000 t | 2x 5,0000 t |
| Blending Silo | 24,000 t | 24,000 t |
| Clinker | 1x50,000 t | 1x50,000 t |
| Gypsum | Existing gantry to be used | - |
| Coal | 2 x 12000 t | - |
| Cement | 2x20000 t | 1x20000 t |
| Fly Ash | 5000 t | 5000 t |

- Specific Heat Consumption : 710 Kcal/ Kg clinker
- Specific Power Consumption : Around 80 kWh/t of cement
- Process Control : Distributed control system comprising of micro-processor based controls and field instrumentation. Plant operation shall be controlled from central control room.

## 5. ENVIRONMENTAL ASPECTS

Environmental considerations and protection measures assume greater importance for the project. JCCL shall ensure that the proposed cement plant causes no adverse impact on the area.

JCCL has proposed to use State of Art Technology with computer controls to ensure high efficiency in plant operations. This would result in low per unit energy consumption and low particulate emissions. The proposed project is planned to meet all environmental norms.

The following actions shall be ensured, which are of paramount importance for the proposed project:

- Creation of green belt inside the plant and along the boundary area.
- Investment in general development of the area.

- **Emission level - PM less than 30 mg/Nm$^3$**
- **Manpower**
  - **Construction - 3150**
  - **Operation (PH I ) - 500**
  - **Operation (PH II) - 400**

## 6. MANPOWER REQUIREMENT

### 6.1 Phase I

During construction phase, the total company's manpower requirement shall be around 150 people. However, around 3000 contract labour shall work for executing the project.

#### Operation Phase

The total manpower requirement in for the plant during operation phase is estimated to be around 500 excluding contract labour ,required for auxiliary services like, loading of cement bags, unloading of stores & miscellaneous materials and general cleaning work.

### 6.2 Phase II

In Phase II manpower requirement during operation phase shall be 400.

## 7. IMPLEMENTATION SCHEDULE

As part implementation, JCCL has established Cement Grinding Unit of 2.40 MTPA and 60 MW CPP upon receiving Environmental Clearance vide dated 16th December, 2011 followed by Consent to Establish from KSPCB vide ref. No. KSPCB/010/HPI/Jaypee Cement/2011-12/235 dt. 26th May, 2012 and Consent to Operate vide ref. No. PCB/HPI/010/2014-15/2032 dt. 24th March, 2015. The validity of current consent to operate is upto 30th June, 2021.

Orders were placed on M/s Loesche India & M/s Loesche, GmbH, M/s FLS India & M/s FLS DK, M/s Pfeiffer India & M/s Pfeiffer AG in April, 2010 and May, 2010 to procure the Plant & Machinery for implementation of Cement Plant. However, all orders & contracts will now have to be revised due to lapse of time. It has made investments to the tune of Rs. 1,500 Crores in the said project till date.

The clinker manufacturing plant was not taken up for implementation after placing order for major Plant & Machinery due to delay in receiving Environmental Clearance for the Captive Limestone Mine, though the application was submitted simultaneously to MoEF&CC. The Statement catapulate the chronological order of various activities in processing the application for Environmental Clearance for the Limestone Mine is attached as Annexure _IV.

## 7. INVESTMENT

The investment on the proposed project is expected to be around **Rs. 3000 crores** (in two phases). Break-up is as follows:

| Particulars | | Amount (Rs Crores) | |
|---|---|---|---|
| | | Phase I | Phase II |
| • Land & Site Development | : | 20 | 100 |
| • Civil Works and Colony | : | 250 | 200 |
| • Plant & Machinery | : | 500 | 435 |
| • Engineering & Consulting Fee | : | 10 | 10 |
| • Miscellaneous Fixed Assets (incl. CPP & Railway siding) | : | 475 | 400 |
| • Pre-operative Expenses (incl. acquisition expenses) | : | 220 | 150 |
| • Contingency | : | 75 | 75 |
| • Margin Money | : | 50 | 30 |
| **Total** | : | **1600** | **1400** |

**Project Cost (Rs. Crores)**

| | | Ph. I | Ph. II |
|---|---|---|---|
| • Land | : | 20 | 100 |
| • Civil Works | : | 250 | 200 |
| • Plant & Mach. | : | 500 | 435 |
| • Engg. & Cons. Fee | : | 10 | 10 |
| • Msc. Fix. Assets | : | 475 | 400 |
| • Pre-op. Exp. | : | 220 | 150 |
| • Contingency | : | 75 | 75 |
| • Margin Money | : | 50 | 30 |
| Total | : | 1600 | 1400 |