

Response to request for review for Project 0863: Optimum utilisation of clinker for Pozzolana Portland Cement (PPC) production at Birla Plus Cement in Bathinda, Punjab, India.

Comment No.1:

The PP claims additionality of the project, based on barriers due to the increase of additives and hence the reduction of the clinker content. However the project activity in the baseline situation already achieved a level of 25,6% additives without the help of CDM. The barriers described refer to the increase of additives so far, but provide no convincing arguments how further increase of the level of additives would create a substantial additional barrier.

Response by project proponent:

In the PDD submitted for registration, two barriers have been addressed for the project activity *i.e.* technological barriers and other barriers (such as market barrier). (There is also a strong financial barrier to the project activity but given an option we would not like to share financial data (internal benchmark, cost of the new technology, the cost of clinker manufacturing etc.) in public domain primarily due to competition.)

The project activity is increase in the blending percentage of the cement produced. The plant started manufacturing blended cement in the year 2003-04 with approximately 25% blending. Next year (2004-05) there was marginal increase 0.02% in the blending percentage. While increasing the blending percentage it is always challenging to maintain the quality of final product, for example in the beginning (2003-04) there were 233 complaints on the quality of final product (Blended cement). We addressed it by keeping the blending percentage constant (*i.e.* approximately 25%) but at the same time by reaching out to the customers. User of the blended cement were educated and trained to use this blended cement for obtaining the desired quality and result. Because of this initiative the customer complaints on quality of blended cement reduced to 146 in the year 2004-05.

Going forward, without compromising on quality we had following two options:

1. To manufacture cement with same blending percentage
2. To use some latest state of the art technology to increase blending percentage with keeping the quality intact.

We have opted for second option. This technology includes grinding aids, twin tube vibrating mill, roller press *etc.*. Application of this technology produces extra fine clinker and fly ash in order to allow increase in the blending percentage. Use and application of this new technology is unique for the Indian cement industry (the letters from technology suppliers have been submitted for the uniqueness of the technology). This has exposed us to several risks such as high investment in an unknown technology and no prior experience of use of such technology.

The key technological issues envisaged in the operation of the roller press are:

1. Operation of rollers in roller press: In roller press there are two rollers. One is fixed (only zig-zag motion) and second is moving (rotation and zig zag motion). Due to different feed size; it is very difficult to maintain smooth operation of the roller press. During the different type of feed conditions only one roller motor gets loaded and other is under loaded and creating the operation problems.



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2. Feed to roller press: Particle size is very important to roller press. The ratio of fresh feed to recirculation is maintained as 1:4. Maintaining the ratio is difficult and depends on the fresh feed. If the feed is not uniform in size then the recirculation will be more and energy consumption will be more resulting in uneconomical use of equipment.

At the plant site of project activity there is no experience of operation of the same. The inefficient operation will increase the operational and maintenance problems in the plant.

The project activity started in the year when we started investing in technologies for increasing blending percentage (greater than 25.6%) in PPC (please refer to Annex 1).

From the above discussion it is clear that the project activity is facing mainly technological barriers. For the supporting the above statements following documents are submitted with this response:

1. Action Plan of increasing the blending percentage in the plant (Annex 1)
2. Letter from twin tube vibrating mill supplier (Annex 2)
3. Letter from roller press supplier (Annex 3)
4. Technical specifications on the roller press system (Annex 9)

From the actual market data it is evident that the number of complaints is directly correlated to the blending percentage. It is clear that the increasing blending percentage is increasing the dissatisfaction of consumers and causing a negative impact on the brand value of the product. The excel sheet of monthwise complaints is attached. The data used is recorded as per ISO 9001 practice. Apart from this the letters for the poor quality of cement is received from the agents and marketing persons. The same is attached for reference.

1. Excel sheet for monthly complaints starting from 2004-05. (Annex 4)
2. Letters from agents for the quality of cement (Annex 5)

Response by TÜV SÜD:

The project proponent has clearly demonstrated that the project activity was facing significant technological and market barriers. At the baseline blending percentage of 25.6%, a considerable amount of consumer complaints about the quality of the cement was being received. One consumer has complained about the “black carbon particles floating on top”, which is a clear sign that improvements in the blending technology were necessary which could only be met with investments in new technological equipments. With the existing technology, a further increase in the additive percentage was therefore not an option, otherwise the company would have continued increasing the blending percentage without investing INR 400 million (approx. EUR 7 million). However, in order to ensure that the increased blending was producing cement of a good quality, significant investments were made in technological equipment, including grinding aids, twin tube vibrating mill, and a roller press. The twin tube vibrating mill, for example, enables the grinding of fly ash to a very high degree of fineness, which results in enhancement of percentage absorption of fly ash in cement (see Annex 2). The roller press system enables the increase in blending percentage up to 35% (see Annex 3 and Annex 9). Only with the investment in this technology was the company able to increase the blending percentage beyond baseline levels while ensuring that the quality of the cement remains high. Furthermore, this technology is unique for the cement industry in India, thus presenting yet another barrier.

Therefore, the audit team believes that the project activity faced considerable barriers that prevented an increase of additives beyond the baseline levels of 25.6%. Relevant documents are uploaded along with this response.



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Comment No.2:

Furthermore the PP does not provide any information on the cost savings related to the reduced use of clinker.

Response by project proponent:

As there is option for choosing Barrier analysis or Investment analysis; In the PDD only barrier analysis route was used for demonstration of additionality, but the project also has a strong case in terms of investment additionality.

We are investing more than **400 Million INR** for the project activity. Looking into these investment and new technology the IRR (annex 6) of the project activity is below the company's internal benchmark (WACC 12.5%) as well as the lending rate of the Indian banks (Based on Reserve Bank of India (RBI) data, Annex 7).

It is worth mentioning that though the project activity will reduce the cost of PPC manufacturing (due to reduce clinker consumption) but at the same time it will increase the cost of marketing the product as blended cement has a negative perception in the minds of customers (this incremental cost is not considered in IRR calculation).

The IRR of the project without CDM (7.82%) is less than the internal benchmark of Grasim Industries Cement Division (Weighted average cost of capital 12.5% for cement business) as well as with the lending rate of RBI (10.25-11%, please refer column No 8 for 2003-04 of Annex 7). The organisation was well aware of CDM revenue (since it already has registered three CDM projects) and it was evident to the organisation that the project activity could become sustainable only with CDM revenues. The financial calculations are submitted with this response.

For the supporting of the same following documents are attached:

1. IRR sheet and Break up of Cost (INR 400 Million) (Annex 6)
2. RBI interest rates (Annex 7)
3. Purchase order of major equipments (Annex 8)

We are confident that the EB will agree to our point of view regarding the importance of CDM revenue for the sustainability of the project and grant its consent to register the project.

Response by TÜV SÜD:

The Additionality Tool mentions that either Step 2 (Investment Analysis) or Step 3 (Barrier Analysis) may be used, which is why the submitted PDD did not go into detail on the cost savings associated with reduced use of clinker. The Barrier Analysis clearly demonstrated that the project faced significant technological and market barriers.

Nevertheless, the attached IRR analysis demonstrates that the cost savings due to reduced use of clinker were not enough to bring the project IRR (which is the same as equity IRR in this case since the project was 100% equity funded) above the company's internal benchmark (WACC = 12.5%) because of the high investment cost, amongst others. The CDM revenues help bring the project IRR above this internal benchmark and the company is aware of CDM since they already have three registered CDM projects. The project proponent has also demonstrated that significant investments were made in this first-of-its-kind technology (INR 400 million = approx. EUR 7 million) to ensure that the quality of the blended cement remains high with a further increase in blending percentage. Also it has been shown that the consumer complaints keep increasing with higher blending percentages, which indicates that additional marketing efforts are necessary to make the cement with increased



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blending percentage acceptable for the consumers. These costs have not been included in the IRR analysis.

In conclusion, although there are some cost savings associated with reduced cost of clinker, the investment costs in the new technology and the marketing efforts are costs that cause the project to be financially unattractive without CDM revenues.