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Innovation On Demand

Co-processing guidelines

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In many developing and newly industrialised countries, ever increasing quantities of waste are disposed of in an uncontrolled manner, incinerated or dumped in poorly-operated landfill sites. The uncontrolled disposal of waste becomes particularly serious, where hazardous industrial waste is involved as it contaminates soil, water and air and.

The cement industry offers an alternative form of waste treatment, known as co-processing, where alternative fuels and raw materials (AFR) generated from waste enter the cement production process. If managed properly, this method can constitute an environmentally and economically attractive and safe solution for certain waste materials. Waste types used as alternative fuels include waste oil, tyres, plastics, solvents, impregnated sawdust and other industrial or fossil-based waste. Alternative fuels are an important source of energy for the cement industry. They contribute toward the aim of decreasing fossil fuel use and costs while conserving natural resources, and lowering global CO₂ emissions.

Guidelines formulated during first PPP

The public private partnership (PPP) between Holcim and GTZ, supported by the German Federal Ministry for Economic Cooperation and Development (BMZ), was introduced to promote and support the co-processing concept in selected developing countries. During their first partnership that commenced in 2003, internationally acceptable guidelines¹ on co-processing waste material in cement kilns were developed by a group of experts from GTZ and Holcim. They include some basic rules and principles that should be observed

In emerging markets, waste management is one of society's most significant challenges. In 2003, Holcim started a strategic alliance with the Deutsche Gesellschaft für Technische Zusammenarbeit GTZ GmbH, a German government-owned international cooperation enterprise for sustainable development. The objective was to explore options for using waste as a valuable resource in cement processing. After achieving its goals, the partnership formally ended in 2008, but the collaboration continues.



Rice husks are a valuable secondary fuel for the cement industry in many parts of the world. Cement producers can now seek carefully assessed guidelines for utilising such fuels in kilns.

when co-processing waste materials. Amongst other things, AFR use should respect the waste hierarchy, be integrated into waste management programmes, support strategies for resource efficiency and not hamper waste reduction efforts. There should be no negative impacts on cement kiln emissions, and co-processing should not harm the quality of the cement produced.

Furthermore, the guidelines include specific principles and requirements for co-processing waste in cement kilns, including the observation of and compliance with all applicable laws and regulations, environmental aspects of cement production and AFR pre-processing, operational issues, occupational health and safety as well as communication and corporate social responsibility.

The outreach programme for the guidelines included pilot projects, communication, consultation and engagement with various bodies. The comments of national authorities, UN organisations, international and local NGOs and the cement industry itself were

carefully reflected upon and considered as all these stakeholders can influence and impact guideline acceptance and take-up. The launch of the document in July 2006 resulted in worldwide interest and demand to build up capacities for co-processing.

Implementation in more than 20 countries

To implement the guidelines, which to date have been translated from English into seven languages, and to disseminate the gained experiences, a second three-year lasting co-operation commenced in 2006. Since the start of the second partnership, the recommendations have been implemented in more than 20 countries. Among them are several Latin American countries which have been active participants of the GTZ-Holcim strategic alliance since the beginning. Chile and Mexico served as pilot countries during the first partnership agreement (besides Morocco and the Philippines) and were joined by Costa Rica and El Salvador in the second. The collaboration has resulted in high

recognition and implementation of co-processing throughout Latin America, Asia and North Africa.

Further insights gained through stakeholder dialogues

The experience gained during the six years of collaboration, lessons learned and possibilities for further cooperation were, among others, the topics of international and local stakeholder dialogues at the end of the PPP. Strong partners, shared visions and a clear commitment have proved to be key success factors in the strategic alliance between the private and public sector. Compared with 'traditional' development cooperation, a public-private partnership has a more practical approach. Resources can be accessed more easily and quickly and may potentially be used in a more sustainable way, as the 'private' part of the work continues after the partnership has ended. These were some of the most significant insights gained by representatives from NGOs, ecological institutes, consulting and governmental agencies, the World Business Council for Sustainable Development (WBCSD), and the alliance partners GTZ and Holcim during the second stakeholder dialogue held, in Zurich, in November 2008. A first stakeholder dialogue in 2007 had dealt with the objectives of exploring and defining the boundaries and significance of co-processing as part of an integrated waste management concept for developing countries as well as the role of the different partners.



Waste paint – storage and condition is important

Capacity building given high priority

As co-processing is a proven technique providing viable solutions for companies, governments and society, stakeholder feedback made it clear that capacity building is considered a top priority. Consequently, a training kit on co-processing waste material in cement production based on the GTZ-Holcim guidelines was prepared in cooperation with the University of Applied Sciences Northwestern Switzerland. The material has been designed to enable public authorities and NGOs to understand the benefits, risks, and opportunities of co-processing

as a contribution toward sustainable development. The kit consists of eight modules containing presentation slides, a textbook and additional training material².

A success story to build on

Since the main objectives of the GTZ-Holcim partnership, development of the guidelines and their model application, had been achieved and the government supported PPP was restricted to a pre-determined time horizon, the strategic alliance concluded at the end of 2008.

At a closing event to celebrate the strategic alliance, participants emphasised that the concept of the partnership was perceived as a 'win-win' solution for all parties. The partners expressed their satisfaction with the results of the cooperation, which was described as a "success story we can build on for the future."

Within the PPP, Holcim has improved its efficiency and reduced its ecological footprint, while GTZ

has strengthened partner governments in developing countries, enabling the saving of resources and more sustainable waste management. Nevertheless collaboration between GTZ and Holcim will continue

on a national level to ensure implementation of the guidelines. To improve the capacities of the different stakeholders in partner countries, the dissemination of the training kit will be important.

At corporate level, the two parties plan to explore new PPP opportunities.

And finally, as a result of several discussions, at the end of 2008, the Basel Convention³ initiated a process for the preparation of technical recommendations for co-processing of hazardous wastes in cement kilns. These guidelines will incorporate much experience gained through the PPP between Holcim and GTZ. The draft, being prepared in Chile by the Health and Environmental authority in cooperation with GTZ and the local cement industry (Cemento Polpaico/Holcim, Lafarge, Bío Bío), is scheduled to be presented for consideration at the Conference of Parties in 2011.

References

1. The GTZ-Holcim guidelines on co-processing waste materials in cement production can be downloaded from the Sustainable Development section of: www.holcim.com
2. The training kit is available on www.coprocem.com where you can also find detailed information on the GTZ-Holcim PPP. The kit consists of eight modules: 'Introduction', 'Waste management', 'Understand cement production', 'Application of pre- and co-processing', 'Occupational health and safety', 'Legislation and permitting', 'CSR and communication' and 'Life cycle analysis'.
3. The Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and their Disposal, an UNEP initiative, came into force 1992. For further information see: www.basel.int

Benchmarking performance has assisted the GTZ-Holcim alliance in assessing how best to utilise secondary fuel sources like solid waste in plastic barrels

