Chapter 48
A Study of Eco-Friendly Supply Chain Management at Cement Industries of Chhattisgarh

Gazala Yasmin Ashraf
Disha Institute of Management and Technology, India

EXECUTIVE SUMMARY

India has experienced one of the fastest economic growth rates in the world which has been a dramatic driver in the nature and scale of impact on the country's environment and natural resources. Environmental risks and problems are widening. The issues of managing environment impacts are capturing public attention. Modernization and technology up-gradation is a continuous process for any growing industry and is equally true for the cement industry. With increasing awareness of environmental protection worldwide, the green trend of conserving the Earth's resources and protecting the environment is overwhelming, thereby exerting pressure on corporations in India. The pressure and drive accompanying globalization has prompted enterprises to improve their environmental performance (Zhu and Sarkis, 2006). Consequently, corporations have shown growing concern for the environment over the past ten years (Sheu, et al., 2005). The pressure on corporations to improve their environmental performances comes from globalization rather than localization (Sarkis and Tamarkin, 2005). Increasing environmental concern has gradually become part of the overall corporation culture and, in turn, has helped to reengineer the strategies of corporations (Madu, et al., 2002).

INTRODUCTION

Effective environment management continues to play a key role in the efforts of Cement industry to operate in a sustainable manner. The Indian cement industry today is by and large comparable to the best in the world in respect of quality standards, fuel & power consumption, environmental norms, use of latest technology and capacity. The productivity parameters are now nearing the theoretical bests and alternate means, like alternate fuels and raw materials have to be found to ensure further improvement in productivity and reduction in production costs.

DOI: 10.4018/978-1-4666-2625-6.ch048

All plants of Chhattisgarh except mini cement plants are certified with EMS (Environment Management System) – ISO 14001:2004.

The contemporarily adopted state-of-the-art-technology in cement manufacture has also incorporated advanced air pollution control devices (APCD), equipment and systems like bag filters and ESPs, and the contribution to the atmospheric pollution has been drastically reduced.

The Indian cement industry is being recognized for efforts in lowering its carbon footprint. These include measures such as promoting green cement, modernization and adoption of new technology, process improvements, steps to achieve greater thermal and electrical energy efficiency, the pursuit of renewable energy, alternative fuels and raw materials, optimizing transportation costs and leads and striving for cost-competitiveness. Two recent independent studies record the achievements of the Indian cement industry in terms of its track record in key parameters of sustainable development.

Centre for Science & Environment (CSE), India's leading environmental NGO, has published a report titled "Challenge of the New Balance" which reveals comparative details of the energy and emissions profile of six sectors of Indian industry including cement which account for the largest share of the country's carbon dioxide emissions.

Another study concluded almost concurrently titled "Low Carbon Roadmap for Indian Cement Industry" was published by the CII- Sohrabji Godrej Green Business Centre of the Confederation of Indian Industry in May 2010. The objective of the study, as suggested by its title, is to create a roadmap for the cement industry to achieve a target of 20% reduction in its greenhouse gas emission intensity.

Need for Eco-Friendliness

Concrete is second only to water as the most consumed substance on earth, with nearly three tonnes of the material used annually for each person on the planet.

Cement is the critical ingredient in concrete, locking together the sand and gravel constituents in an inert matrix; it is the 'glue' which holds together much of modern society's infrastructure.

India's cement industry is the world's second largest after that of China. Even as most of the global economy struggled to recover from the downturn that set in two years ago, the Indian cement industry sustained steady growth of 10.3 per cent in 2009, directly proportional to the growth of the national economy. Overall cement despatches in 2009 were about 195 million tonnes, up from 177 million tonnes in 2008. Demand for cement grew in all regions of the country, led significantly by rapid developments in infrastructure development and a generally stable housing sector. We expect that prospects for the cement industry will continue to be encouraging in the next decade.

Cement manufacture does not significantly generate any toxic, hazardous or obnoxious pollutants. It contributes to atmospheric pollution in the form of suspended particulate matter (SPM) and emission of a major green-house gas like CO2. Waste water discharge is usually limited to surface run off and cooling water only and causes no substantial contribution to water pollution (EIPPC, 2001).

Quarrying activities associated with the cement industry impact land use and biodiversity. Ecological concern arising from the degradation of mined out area is also one factor in the pollution control initiative of the industry. Fugitive (particulate) emission is also a potential pollutant during in-process material handling in several stages of cement manufacture; ranging from limestone excavation to final packing of cement.

To produce a tonne of cement[1] uses approximately 1.5 tonnes of raw materials, 0.3 tonnes of air and 6 gigajoules of fuel[2]; and releases 0.94 tonnes of carbon dioxide (Battelle, 2002a). The raw materials are primarily limestone together with clay, gypsum and other materials which may include blast furnace slag and fly ash according to the desired properties of the finished product.