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India's cement sector is becoming energy efficient

It now has five of the top 10 companies in the world in this year's lowcarbon transition league report

Sustainability is the critical challenge for mankind in this century. Recognising this, the United Nations adopted the Sustainable Development Goals. India is succeeding in renewable energy in which it is on the way to achieving more than its commitments under the Paris Climate Agreement.

However, the transition to a circular economy needs to become part of the mainstream discourse on development. A circular economy means that waste from one part of the chain of economic activity becomes an input for some other productive economic activity. This requires a radical transformation.

For such a radical transformation to take place, constructive partnerships among different sectors of industry would be critical. Evolving a feasible policy, regulatory and other enabling measures that deliver outcomes would be the challenge. There has been some pioneering success with the Indian cement industry which can now be taken to the next level.

As India's thermal power plants mushroomed, fly ash from the burning of coal in these power plants kept growing and their disposal became an increasing problem. Thermal power plants and the cement industry made mutually satisfactory arrangements for the cement plants nearby to take fly ash and use it as raw material for making cement. The fly ash was given free, through a policy directive of the power ministry and the cement plants bore the transportation cost. The thermal plants had savings in the disposal cost of fly ash, especially in terms of land required for it. This arrangement was a win-win for both sides. Enabling regulatory standards that specified the extent to which fly ash could be used helped. Within 20 years of the start of the process, as much as 25% of the total fly ash being generated in the country is now being used by the cement industry.

With slag from the steel industry, the success has been spectacular, with full 100% utilisation. This is a good example of real progress towards a circular economy.

The use of waste as an alternative fuel and raw material is the core of a circular economy. The Indian cement industry has already made remarkable progress in energy efficiency and now has five of the top 10 companies in the world, including the first, this year in the lowcarbon transition league report. On World Environment Day, the industry offered to use all the plastic waste of the country (up to 12 million tonnes) as an alternative fuel by 2025, provided it is made available to it in a segregated form.

In Europe, the cement industry uses alternative fuel from biomass, municipal and industrial waste to get as much as 40% of its energy needs. India should have the ambition to reach a similar percentage.

Given the cement industry's achievements in energy efficiency and use of fly ash and steel industry slag, taking alternative fuel usage, including the existing commitment to use plastic waste, to the European level of 40% by 2025 should be worth attempting. This is an ambitious, though not unrealistic, target.

In Europe, the use of alternative fuels by the cement industry has been driven by availability and a cost advantage, the factors that have led to the utilisation of fly ash and steel slag in India. The primary challenge would be segregation and aggregation of waste, which can be used as an alternative fuel. Crop residue, which is burnt around this time in north India and aggravates air pollution, could be converted to briquettes and provided to cement plants. Used tires, rubber pieces, segregated municipal and industrial waste with enough calorific value could all be used. The need for additional space in landfill sites would get reduced. Air pollution would also be lowered as cement plants are usually away from urban centres and have state of the art emission control systems. For the cement industry, the cost of these alternative fuels in terms of calorific value would need to be lower than the cost of the traditional fuels that they use. On the other hand, there is a cost of segregating and aggregating plastic and other such wastes, or, of making briquettes from crop residue. The State needs to use the market mechanism to find the price for these and then to use repeated bulk procurement to drive down costs and prices.



The best and, perhaps, the only way to get rid of the plastic littering our countryside is to buy it through a competitive process and then make it available to the cement industry. It may well turn out that no subsidy would be needed as the price discovered through the market may be lower than the cost of the conventional fuels being used by the cement industry. But even if some initial subsidy is required, it would be worth providing it for getting over the problem of plastic and other such wastes.

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