

Urban mining

In late April, the Municipal Corporation of Gurugram angrily ordered its officials to find out who dumped “malba” — the Hindi word for Construction and Demolition Waste (C&DW) on either side of the Gurugram-Faridabad road. Apparently, huge quantities of C&DW — about 500 tractor-trolleys — had been off-loaded “illegally” there. Officials were ordered to track the violators and stop this menace. Such knee-jerk reactions would, of course, be common-place across India’s 7,935 cities and towns.

Welcome to the world of “urban mining”. Construction accounts for nearly 65 per cent of the total investment in infrastructure. Population growth, a rapidly growing economy, urbanisation and industrialisation are all leading to construction of taller and bigger buildings replacing older and smaller ones.

India generates an estimated 170 million tonnes of C&DW every year, according to the Building Material Promotion Council. But the official recycling capacity is a meagre 6,500 tonnes per day — just about 1 per cent. C&DW is generated from construction, renovation, repair, and demolition of houses, large building structures, roads, bridges, piers, and dams. C&DW comprises wood, steel, concrete, gypsum, masonry, plaster, metal, and asphalt. The C&DW comprising cement mortar, stone, red bricks and concrete blocks undergoes screening, crushing and washing, and then can be processed to produce usable building materials such as fine aggregate, coarse aggregate, bricks/blocks, tiles, paver blocks, kerbstones and prefab slabs.

Aggregates made from this type of waste can substitute natural aggregates in a number of applications like road construction, landscaping and concrete production. This helps save natural resources and minimise the waste sent to landfills. Effective management of C&DW helps in curbing excessive consumption of natural resources and contributes to sustainable development. For example, the demand for sand more than doubled between 2010



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and 2020. In India, river sand is primarily used for construction. Increasing demand, constrained availability and limited government oversight have given rise to a thriving illegal trade in sand. Manufactured sand from C&DW provides an environmentally sustainable alternative. Since almost 60 per cent of the stock of buildings projected to be there in 2030 is yet to be built, effective management of C&DW, and therefore “greener construction” assumes even greater significance.

The typical C&DW value chain begins with demolition from where it is either collected and brought to a collection point designated by municipal authorities and then picked up by recyclers or collected by recyclers directly from the sites and brought to recycling centres or dumping grounds. The scrap metal is recovered during deconstruction.

The fact that only 1 per cent of C&DW is currently professionally processed is clearly unacceptable. This is particularly so in the context where garbage is increasingly being used for composting, power generation and scientific land-filling; and urban effluents, thanks to the Swachh Bharat campaign, coupled with river-cleaning initiatives, is being finally processed in modern effluent treatment plants. The processing and recycling of C&DW in India is limited to only four operational plants — three in Delhi located in Burari, East Kidwai Nagar and Shastri Park and one in Ahmedabad with capacities of 500 tonnes/day, 150 tonnes/day, 500 tonnes/day and 100 tonnes/day, respectively. The Municipal Corporations of Jaipur, Bengaluru, Pune and Bhopal are planning to set up processing plants of capacities in the range of 300-750 tonnes/day.

To address appropriate C&DW utilisation, elements of the existing policy framework need to be revisited.

Construction & Demolition Waste Management Rules were notified in 2016 and applies to all involved with C&DW. For example, the rules require state government and local authorities to procure and utilise 10-20 per cent of material made from

construction and demolition waste in municipal and government contracts. This is not implemented at all, as is evident from anecdotal evidence.

The concrete and cement industry can support this drive by embedding circularity within their operations. It stands to hugely benefit by using recycled C&DW by reducing its dependence on natural aggregates and raw materials. But in order to increase higher utilisation of C&DW in concrete and cement, a fresh set of norms are needed. The Bureau of Indian Standards needs to review many of the current specifications it mandates for C&DW usage in cement and concrete. In public works programmes too, usage can be increased from 20 per cent to higher levels of 30-50 per cent.

Due to lax implementation of the C&DW rules and inadequate infrastructure to collect and recycle C&DW, there are challenges faced by recyclers. There is a lack of legislation to impose “polluter pays”, and force municipalities to develop proper waste collection and processing sites.

It is not that the government is not seized of the matter. In a notification dated March 29, 2016, the Ministry of Environment, Forests and Climate Change has provided a regulatory framework for the management of municipal solid waste generated in urban areas of the country. These rules attempt to:

- Improve the collection, regeneration, recycling, treatment and disposal of C&DW in an environmentally sound manner.
- Emphasise the roles and accountability of waste generators and various stakeholders.

In March, 2017, the Central Pollution Control Board followed this up with detailed procedural guidelines on Environmental Management of C&DW.

Thus, it is not the lack of official frameworks for managing C&DW. The challenge lies in removing the laxity in their implementation at operating levels. This is now the big change required.

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