

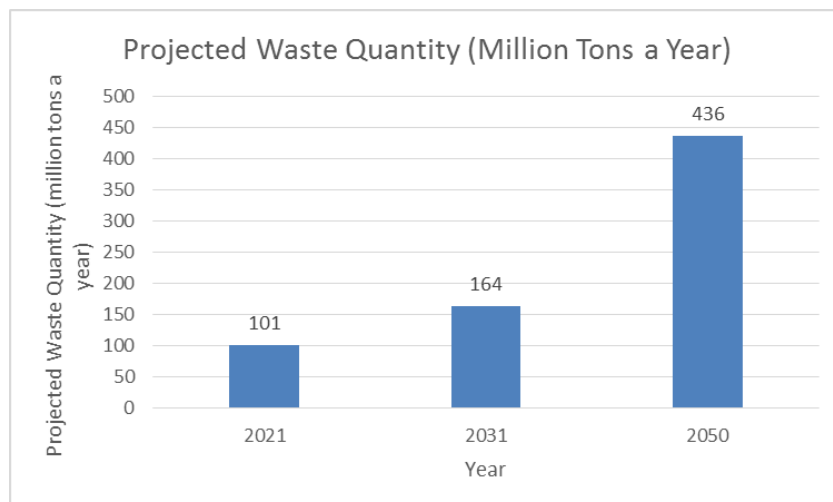
Landfills and Waste-to-Energy

According to the latest joint report by Assocham and accounting firm PwC, India will need Landfills the size of New Delhi District by 2050.

Considering that almost 80% of the waste in India is dumped without treatment, the country would require an estimated 88 square kilometer of precious land to be brought under waste disposal through landfilling by 2050, which is equivalent to the size of area under administration of the New Delhi Municipal Council. This will eventually render the land unfit for any other use for as long as a half century before it can be stabilized for other uses. The classic case is of capital's largest landfill site -- **Bhalswa in northwest Delhi which is finally set to be developed into a green belt.**

The North Delhi Municipal Corporation has taken the decision based on a report shared by the Delhi Development Authority (DDA) recently. DDA conducted study on the Lieutenant Governor's direction to find out the calorific value of garbage dumped here for years. The report said the garbage at the landfill lost its calorific value and can't be used as fuel for generating electricity or for embankment of roads. So the civic agency is considering the option of covering the place with soil and developing integrated lawns. It would be used as a picnic spot in future. In the absence of alternative sites, the civic body has been dumping garbage at the Bhalswa landfill though it crossing its capacity years ago. Every day, 3,000 metric tons of waste is dumped here — 2,000 from the North and 1000 from the South Corporation.

Tier 1 cities with population ranging from one to five million have been estimated to generate 80% of the country's total waste. With 50% of India's population projected to be living in urban areas by 2050, the volume of waste generation will grow by 5% every year. Thus, the projected waste quantity is: 101 million tons a year by 2021, 164 million tons a year by 2031, and 436 million tons a year by 2050.



In a bid to boost waste-to-energy plants, the Union Environment and Forests Ministry has recently relaxed some norms. The setting up of waste-to-energy (WtE) plants up to 15 megawatt capacity at existing landfill sites is also included in list. Besides sustainably managing waste, waste-to-energy plants provide other benefits, such as gate fees (the fee per ton paid by the municipality to the facility for receiving the waste), the electricity and/or co-generated heat that is produced, the value of scrap metal collected, and potentially, carbon credits for renewable energy (Because its fuel source is sustainable, waste-to-energy is considered a renewable technology). The norms state that green clearance is not required for activities such as segregation, composting, refuse-derived fuel (RFD) making. This is likely to reduce the time taken for setting up of WtE plants by at least six months.

In terms of CO₂ emissions, when waste-to-energy is compared to landfills that do not recover their methane emissions, waste-to-energy saves one ton of CO₂ per ton of waste; when compared to landfills that do recover their landfill gases, it saves about half a ton of CO₂ per ton of waste. Under the Swachh Bharat initiative, setting up of these facilities need to be expedited by State governments and municipal bodies.

Commissioned in 1993, the Bhalswa landfill site became functional in 1994. But due to lack of any garbage management laws, the site turned into a mountain of garbage. North Delhi Municipal Corporation (DMC) has initiated the process of landscaping the Bhalswa landfill and finding the alternative site to dump waste. Simultaneously the project to establish a waste to energy plant on 12 acres of land adjacent to the landfill to process newly generated garbage is under progress. They will need buyers for the power generated at the waste-energy plant and space to dump the residue generated from the plant. The civic agency is talking to the Agricultural Produce Market Committee, Azadpur, for transferring eight acres of land near the landfill. Last year, the North DMC had prepared a plan for reclaiming the landfill site. It had appointed a consultant to evaluate the cost and time needed to reclaim the 40 acres of land but the estimated costs and time exceeded DMC's capacity.

According to the joint report, some issues hampering waste management in India are improper planning, complex institutional set-up, constraints in capacity for waste management and limited funds with urban local bodies. Though private sector can play a critical and greater role in waste management in India, there are various issues and bottlenecks on different fronts that have made it challenging to successfully implement projects. The report recommended that the government give industry status to the waste management sector "to provide it necessary boost" and ensure regulatory adherence.

Recent developments in India:

*SAIL-BSP uses plasma tech to dispose toxic waste:

For the first time, State-run Steel Authority of India Limited's flagship Bhilai Steel Plant (BSP) will use plasma technology for the disposal of hazardous waste. This is being done for the conservation of environment and natural resources. The company would be setting up a state-of-the-art Polychlorinated Biphenyls (PCBs) management facility in collaboration with the United Nations Development Organization (UNIDO) and the Ministry of Environment & Forests & Climate Change. This is going to be the first time that UNIDO would be sharing the technology with India and the facility would also be the first of its kind in the entire South Asia region. The facility would have two process units for the safe disposal and decontamination of PCB waste: the PCB Decontamination System and the Plascon Destruction System, where the pure PCBs and other POPs shall be destroyed in the Plasma Arc system under controlled temperature conditions.

*Faridabad, Gurugram ink pact for first integrated solid waste project

The civic bodies of Faridabad and Gurugram have inked an agreement to set up the first integrated solid waste project in the State. The project is allocated to Ecogreen Energy, a Chinese company, for the setting up of the project at Bandhwari village on the Faridabad-Gurugram highway. The state-of-the-art waste energy plant would use waste from Faridabad and Gurugram and this Rs 330-crore project will produce 10MW of power from waste daily. This is first-of-its-kind plant in the country to work on the output-based incentive where the power produced by the plant would be purchased by the state power department at a rate of Rs 10.4 per unit.

*Chandigarh to have one-stop waste management plant

Electricity, Compost and Biogas will be produced from waste under one roof at the solid waste management plant which will help dispose of 650 tonne waste coming every day from Sonapat and Panipat. The plant would be set up at a cost of Rs. 176 crore in the Sonapat cluster comprising Sonapat, Panipat, Samalkha and Gannaur towns. Garbage would be collected from houses and transported to the plant.

The global waste-to-energy market is projected to grow about 5.9% yearly to reach \$37.64 billion by 2020. The Waste-to-Energy Research and Technology Council is helping foster this growth by promoting the best technologies, working with its sister organizations in Brazil, Chile, China, India, Italy and elsewhere, and spreading the word about the benefits of waste-to-energy. **Strong shift in trend towards energy security around the world coupled with decreasing landfill area is expected to remain a key driving factor for the global WTE market.** Thermal WTE technologies emerged as the leading WTE technology and accounted for 88.2% of total market revenue in 2013. Operational ease and simple process associated with thermal technologies have been major factors driving its market.