

# #DataViz: Over Half Of Delhi's Garbage Ends Up In Landfills

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**New Delhi:** The national capital is home to 20 million people, and produces about 11,000 tonnes of municipal solid waste per day, highest among all Indian cities. Over half of this ends up in landfills, government data show.

Further, the city produces 4,399 million litres per day (MLD) of sewage. But treatment capacity has not kept pace--in the city and across the country--according to our analysis of government data.

Increasing awareness on segregation and improving the treatment capacity can help, we explain. In this DataViz, we compare the trajectories of municipal solid waste and sewage in three Indian cities: Delhi, Mumbai and Bengaluru.

## Rising waste production

Consider the solid waste production trajectories of India's metropolitan cities. The waste production in Mumbai peaked in 2014-15 at 11,000 tonnes per day and has been decreasing since. On the other hand, Delhi has seen a consistent increase in waste production over the years, peaking in 2018-19, with a 3.3% reduction the following year. The national capital has seen the sharpest growth, from 400 tonnes per day in 1999-2000 to 10,470 tonnes per day in 2019-20.

As the production of waste continues to increase, treatment remains inadequate. For the year 2020-21, as per data released by the Ministry of Statistics and Programme Implementation, the city produced 10,990 tonnes of solid waste, with less than half of it (5,139 tonnes) meeting treatment, while the rest is dumped in saturated landfills.

Landfilling is associated with various environmental pollution problems including underground water pollution due to leaching of various substances, air pollution due to suspension of particles and odour pollution from the deposition of municipal solid waste, a July 2022 article in *Environmental Science and Pollution Research* says. Furthermore, health impacts may occur through the pollution of the underground water and the emissions of gases, leading to carcinogenic and non-carcinogenic effects of the exposed population living in their vicinity.

According to the World Health Organisation, 22 types of diseases can be prevented or controlled by improving solid waste management in India. More than one in four deaths of children under the age of five are attributable to an unhealthy environment, government data show.

Amidst this, a plastic menace looms with the generation of 689.8 tonnes daily, according to the Centre for Science and Environment (CSE), the largest amount of plastic among metropolitan cities.

Between 2018-19 and 2021-22, Delhi's hazardous waste quadrupled--almost 24,000 Metric tonnes of hazardous waste was produced in 2021-22 as opposed to the authorised quantity of 3,406 metric tonnes by the National Inventory on Hazardous Waste.

## **Segregation issues**

A key issue in solid waste management is segregation. Here too, a complicated picture emerges. The New Delhi Municipal Corporation has recorded a 90% segregation rate, while South Delhi Municipal Corporation recorded 80% segregation rate in 13 of its wards,

including three model wards. The East Delhi Municipal Corporation has achieved 100% waste segregation in three of its model wards, but in 55 of its wards, segregation is at 30%.

India has a massive reserve of rag pickers--their numbers are estimated between 1.5 million and 4 million; Delhi itself has over 500,000. Ragpickers sustain themselves by collecting, sorting and segregating waste and then trading it. In doing so, they help clean up a significant proportion of the waste generated annually in India. The occupation exposes these workers to toxins, the International Archives of Occupational and Environmental Health shows. They have little or no access to protective gear.

Waste pickers and recyclers are at the forefront of this issue of segregation. Unsegregated waste poses occupational hazards and complicates the retrieval of recyclable materials, threatening their livelihoods and wellbeing. Also, recyclable and non-recyclable waste mingle, sending much of the waste to landfills, thereby hastening their saturation and increasing pollution.

### **Delhi's sewage pollutes the Yamuna**

The national inventory of sewage treatment, released by Central Pollution Control Board (CPCB) highlights the capacity gap within urban India.

Between 2014 and 2021, sewage production across India increased 17% from 62,000 MLD to 72,368 MLD. During the same period, the number of sewage treatment plants in the country nearly doubled (see chart above), and treatment capacity rose 41%, from 22,648 MLD to 31,841 MLD. That means, just about 44% of the sewage produced in the country is treated.

According to the Central Pollution Control Board (CPCB), while the Yamuna meets water quality criteria upon entering Delhi, by the time the river departs from the city, its waters bear the burden of untreated and partially treated domestic and industrial wastewater discharged through 24 identified drains. According to data from 2017, Delhi's daily sewage generation is 4,399 MLD, while the city's treatment capacity is 2,694 MLD. This implies that in 2017, close to 40% of Delhi's sewage was going untreated, a portion of that sewage finding its way into Yamuna.

The CPCB's account is echoed by Down to Earth's 2021 report, showing that the city administration lacks sufficient sewage treatment capabilities, resulting in the bulk of pollutants from untreated sewage being dumped into the Yamuna.

Bengaluru mirrors this capacity gap producing 2,182 MLD sewage of which only 721 MLD is treated. Compare this with Greater Mumbai, which produces 2,772 MLD sewage and treats 2,601 MLD, accounting for almost 95% of sewage produced in the city.

### **Possible solutions:**

#### **a. Implementing a Robust Municipal Waste Segregation Programme:**

Effective waste segregation is crucial for sustainable urban development. In its report, CSE advocates treating *waste as a resource*. This necessitates a strategic approach to material recovery and reuse. Aligning with this, the Swachh Bharat Mission (SBM) 2.0, launched on September 1, 2021, lays a comprehensive strategy for solid waste management in urban areas. It prioritises:

- Remediation of legacy dumpsites.
- Enhancing the well-being of sanitation workers and those involved in informal waste management.
- Phasing out single-use plastics, emphasising plastic management through recycling and reuse.
- Incorporating technological innovation, including digital tracking, to streamline waste management processes.

Examples of high-performing SBM 2.0 cities such as Surat and Vijayawada, albeit on a smaller scale, are useful in seeing how these synergies are implemented and sustained for urban centres. Some of India's smallest cities, such as Vengurla and Panchgani in Maharashtra, and mid-level cities, such as Alappuzha and Thiruvananthapuram in Kerala, are more efficient in managing waste compared to similarly populated or larger cities, **IndiaSpend** reported in 2018 based on a report by the CSE on 20 cities across 10 states.

#### **b. Enhancing STP Performance:**

The CPCB has demanded a thorough examination of STP performance in its 2015 report, a feat yet to materialise. To achieve urban sustainability, a rigorous performance evaluation of STPs is essential. This involves not only assessing their current operational efficiency but also integrating the latest technologies to maximise capacity utilisation. Regular audits and updates will ensure that STPs operate at full capacity, effectively managing the increasing sewage volumes. This approach not only improves waste management but also contributes to environmental protection and public health.

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