

Waste Management – Indore, India

Creating a Zero Plastic City

Indore is the largest city of the state of Madhya Pradesh with a population of about three million people (2,707,000 estimated as per the projected population of 2023 by census. Known as the 'Financial Capital' and the 'Educational Hub' of the state, Indore is spread across a vast land area of 530 square kilometres. Situated 190 km west of the capital city Bhopal, Indore has continued to grab the top spot in the 'Cleanest Cities of India' list since 2017.

The Indore Municipal Corporation has pledged and successfully managed to make the whole city Open Defecation Free (ODF) and landfill-free under the Swachh Bharat Mission. It has already established four waste free zones. With Manual Composting Units, Waste Processing Plants and Energy Plants; the IMC has managed to treat waste at the source. It has also taken steps to make the whole process feasible, organised and sustainable. Indore is one also of the major cities to be developed as a 'Smart City' under the Smart Cities Mission.

Aim to establish Indore as a 'Zero plastic city'

With its vast land area and mammoth population, Indore was one of the biggest plastic waste generators in Madhya Pradesh back in 2013. However, the city has continued to secure the top spot in the Cleanest Cities of India list for the past six years in a row (2017 to 2022) under the Swachh Bharat Mission. The first step under the mission has been moving to a six-bin system for commercial to household waste, right at the source. Separate bins are used and provided for dry waste, wet waste, plastic waste, e-waste, domestic sanitary waste, and domestic hazardous waste.

Another major step taken in the direction of establishing Indore as a 'Zero Plastic City' under the Swachh Bharat Mission 2016, has been the setting up of the Centralized Processing Unit in Devguradia, Nemawar Road, by the Indore Municipal Corporation. The capital cost of the plant is INR 23.43 million (USD 378,030).

City's entire waste reaches Devguradia processing site. Indore city's entire garbage, collected through the six-bin system, first reaches the garbage stations. The waste collected from the garbage transfer stations all across the city is then weighed and compressed at the site area which is around 146 acres. It is further moved to the Devguradia processing site for final processing.



Photograph 1: Centralized Processing Unit in Devguradia

Centralized Organic Wet Waste Processing Unit

The CPU consists of a Centralized Organic Wet Waste Processing Unit where the bulk wet waste (30 kg and above) is processed. The Nepra Resource Management Private Ltd. under the PPP model, Aavishkaar, has pumped in INR 156.25 million (USD 2,520,200) for Material Recovery Facility (MRF). Manual segregation of dry waste (through kabadiwalas) into various components such as metal, rubber, board, plastic takes place here. The recyclable waste is sold to 14 kabadiwalas which are registered and authorised by the IMC. The inert recovered at MRFs is then transferred to the sanitary landfill located near the premises in covered containers.

Plastic Waste Collection and Processing Unit

Plastic Waste Collection and Processing Unit, set up by IMC helps in the reuse and recycling of the city's plastic waste. Waste pickers manually segregate and sell the recyclable plastic. IMC has also installed a plastic cleansing machine known as a 'Phatka Machine', where the rest of the waste is sent. Another innovative idea is the use of Reverse Vending Machines, which reduces the plastic bottle waste and also limits the transportation cost of bottles. So far, the machine has been installed in ten different public locations in the city.



Photograph 2: Wet Waste Processing Unit

Plastic Waste Fuel Converter unit

Then comes the Plastic Waste Fuel Converter unit which works on the reverse polymerization process. With 10 tonnes of scrap plastic waste, it can produce at least 3,000 litres of fuel per day. Bioremediation of old dumpsites helps in the treatment of old garbage through biomining. There is also the Construction and Demolition (C&D) Waste Plant, set up by IMC, working on the construction and demolition debris waste processing facility with the PPP model. Last but not the least, there is also the Scientific Landfill Site which are two engineered landfills of 6.25 acres up for use.

Conclusion

The journey of Indore transferring from one of the biggest waste producing cities of the state to emerging as the cleanest cities has been achieved through breakthrough and inventive approach. The success of Indore's waste management plant can now act as an exemplary model and example for other cities dealing with the waste menace. Going forward, IMC has also installed plants to convert wet waste into energy sources, thereby reducing air pollution and decreasing the city's dependency on fossil fuel.