

'CUSSA': THE CITY'S LATEST PROFANITY

By Deepthi Sanjiv, Bangalore Mirror Bureau | Updated: Oct 21, 2017, 01:00 AM IST



Collaborative work of research by experts from IISc and the University of Melbourne finds several lacunae in Bengaluru's garbage disposal system; discusses several ways to mitigate the resultant greenhouse gas emissions

An analysis of daily solid waste generation from 1967 residential households in surveyed areas of Greater Bengaluru was about 772.2 kg and a per capita of 91.01 ± 45.52 g/day. A team of researchers including Dr. Ramachandra TV from the Energy & Wetlands Research Group, Centre for Ecological Sciences (CES), Indian Institute of Science, Bengaluru, Bharath HA, faculty at Indian Institute of Technology Kharagpur, Gouri Kulkarni from IISC and Sun Sheng Han from The University of Melbourne in the paper titled 'Municipal solid waste: Generation, composition and GHG emissions in Bengaluru revealed that the organic fraction (82%) constitute a major portion of household wastes. The total organic waste is 632.92 ± 0.210 kg/day with the per capita organic waste generation of 74 ± 35 g/person/day. The study stressed on the need for appropriate treatment

options to minimise Green House Gas (GHG) emissions.

The authors noted that the municipal solid waste in developing countries mainly consists of degradable materials (>70%), which plays a significant role in GHG emissions in urban localities. The increasing municipal solid waste generation along with the high fraction of organic waste and its unscientific disposal is leading to emission of GHG (methane, CO₂, etc.) in the atmosphere. Proportion of municipal solid wastes collected by the agencies disposed at identified sites is about 60 per cent, while the balance is disposed of at unauthorized disposal sites leading to environmental consequences including GHG emissions. Mitigation strategy necessitates understanding of composition of waste for its treatment and management in an environmentally sound way. Integrated solid waste management strategy is suggested to manage the organic fractions through technology and policy interventions, which helps in mitigating GHG emissions with potential economic benefits, the paper stated.

Bengaluru's population has increased enormously from 5.7 million (as per Census 2001) to 9.6 million (in 2016), accounting for 46.68% growth in a decade. The population density has increased from as 7,778 (in 2001) to 12,955 (in 2011) persons per sq.km, with vertical growth in many pockets. Bengaluru city grew rapidly during last four decades due to unplanned urbanization and has now become one among the fastest growing global cities.

The experts stated that the quantum of Municipal Solid Waste (MSW) has increased from 650 tonnes per day (TPD) in 1988 to 1,450 in 2000 and 3,000 - 3600 TPD in 2012 due to the increase in population with the expansion of spatial extent. The daily collection is estimated at 3,600 TPD with a per capita generation from 0.16 kg/d in 1988 to 0.58 kg/d in 2009.

Central system

Presently, a quasi-centralized collection system is employed in Bengaluru and the waste collection system from households (HH) closely follows the Municipal Solid Waste (handling and management) Rules 2000, employing door-to-door collection. In most residential areas, the provision of dustbin is removed to avoid multiple handling of waste. The city has been facing a severe shortage of landfills to dump garbage due to unplanned urbanization. In 1988, the city was producing 650 TPD of waste, among which about 100 TPD of market wastes were taken back for direct application on the land and another 150 TPD was handled by the Karnataka Compost Development Corporation. A large segment of decomposable waste was 'open dumped' along the various arterial roads on the outskirts of the city. This trend of open dumping had continued beyond 2000. Today, as the quantum of wastes has increased drastically, most wastes are being openly dumped at about 60 known dumping sites and many unrecorded sites. Composting accounts for 3.14 per cent, but with the increase in urban solid waste, the number of compost plants has not increased. Among these, more than 35 sites possess a mixture of domestic and industrial waste. This highlights that the existing solid waste treatment methods in the city are neither efficient nor well-organized.

The assessment of waste generation was done through quantification of waste generated at household per day. The total waste generation was 772.216 kg per day, surveyed across 8,434 individuals. The organic fraction in municipal solid waste based on sample household data is about 74.09 ± 34.94 g/person/day whereas in Delhi about 0.500 kg/capita/d was generated. Waste composition reveals that organic fraction constitutes the major share (81.96%) followed by paper (12.69%). The few notable factors which are responsible for the variations are change in food habits, affluence, income and change in lifestyle. The average organic waste ranges from 66.24 ± 36.77 g/person/day (South East) to 78.84 ± 33.02 g/person/day (East) and inorganic waste of about 24.71 g/person/day (South, North West) to 31.13 ± 34.19 g/person/day (East).

