

Expert Roundtable Discussion on
My Bengaluru, My Manifesto
Solid Waste Management





MY BENGALURU MY MANIFESTO

SWALPA ADJUST *MADBEDI*

Discussion topics



- Current Waste Management Scenario in Bengaluru
- Analysis - Manifestos and Budgets by ruling political parties
- Recommendations to improve the waste management sector in Bengaluru

Outcome:



- Recommendations
- Short term and long term strategy to achieve recommendations
- Manifesto will be shared with political parties
- Continuous advocacy efforts



Bengaluru ranks 43rd among 45 cities under Swachh Survekshan 2022 list

A steep downfall from the **28th spot in the previous year** when 48 cities were compared. All these cities had a population of over 10 lakh.

While Madhya Pradesh's **Indore** was ranked first in the list for the sixth consecutive year, Surat and Navi Mumbai stood second and third. **Bengaluru was better only to Chennai and Madurai, which were in the bottom two.**

Current Waste Management Scenario in Bengaluru



Presently, the Bruhat Bengaluru Mahanagara Palike (BBMP), the agency vested with responsibility of collection and disposal of solid waste, is engaged in a series of approaches such as involvement of citizen, investment in infrastructure and technology, as well as monitoring the various systems that are involved in managing the present mix of actions and techniques.

For a more efficient and effective approach, BBMP has been divided into different administrative units. There are **294**

Health wards within the BBMP.

Within the BBMP, there are two departments which are directly involved in municipal solid waste management; they are

Health Department and Engineering Department.

The health Department is mainly responsible for collection, transportation and disposal of solid waste.

The Engineering Department is responsible for the removal of construction and demolition waste, whilst they also provide technical and infrastructural support to the health department.

Current Waste Management Scenario in Bengaluru

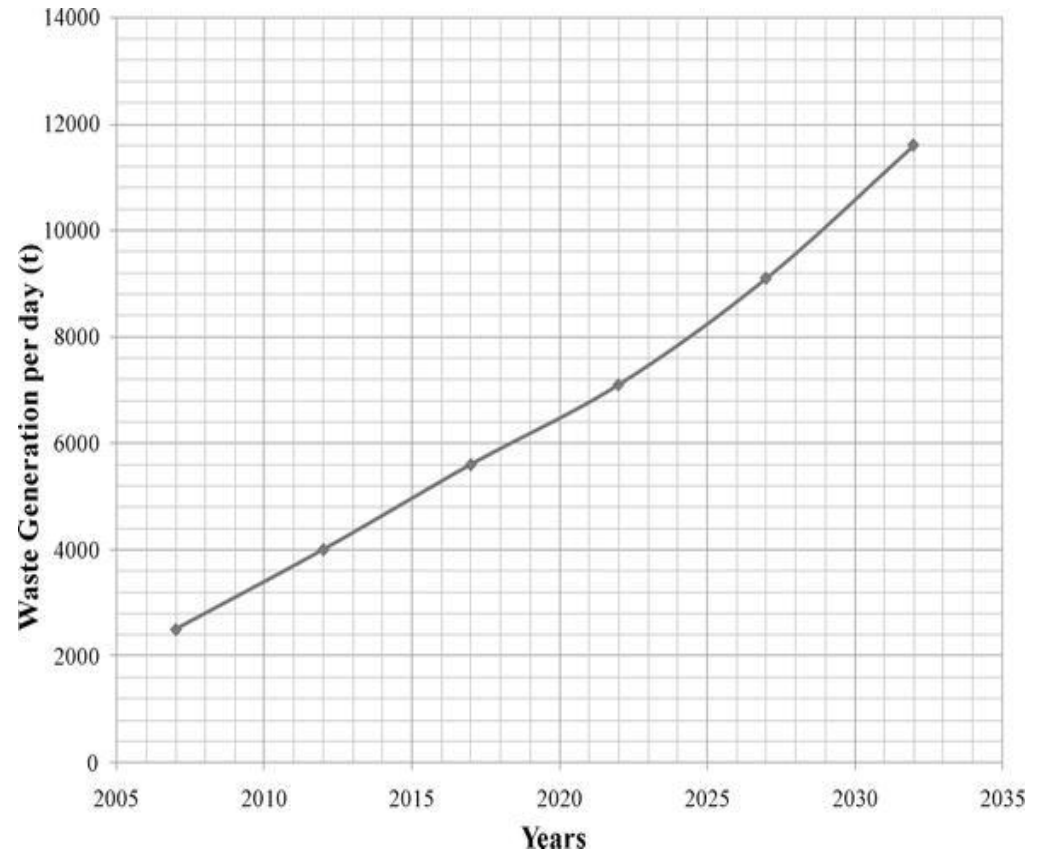


Solid Waste Generation

Most of the literature reported that the waste generation rate is 0.4–0.6 kg/ capita/day. The 0.5 kg/capita/day is proposed as waste generation rate for Bengaluru city.

In Bengaluru, **presently the waste generation is about 6,500 metric tons** and the waste generation is likely to grow over the coming years. Less than 60% of waste is collected; approximately 15% of waste is processed finally dumped into landfills

Bengaluru's daily garbage generation will touch **13,911 tonnes by 2031**.



Current Waste Management Scenario in Bengaluru

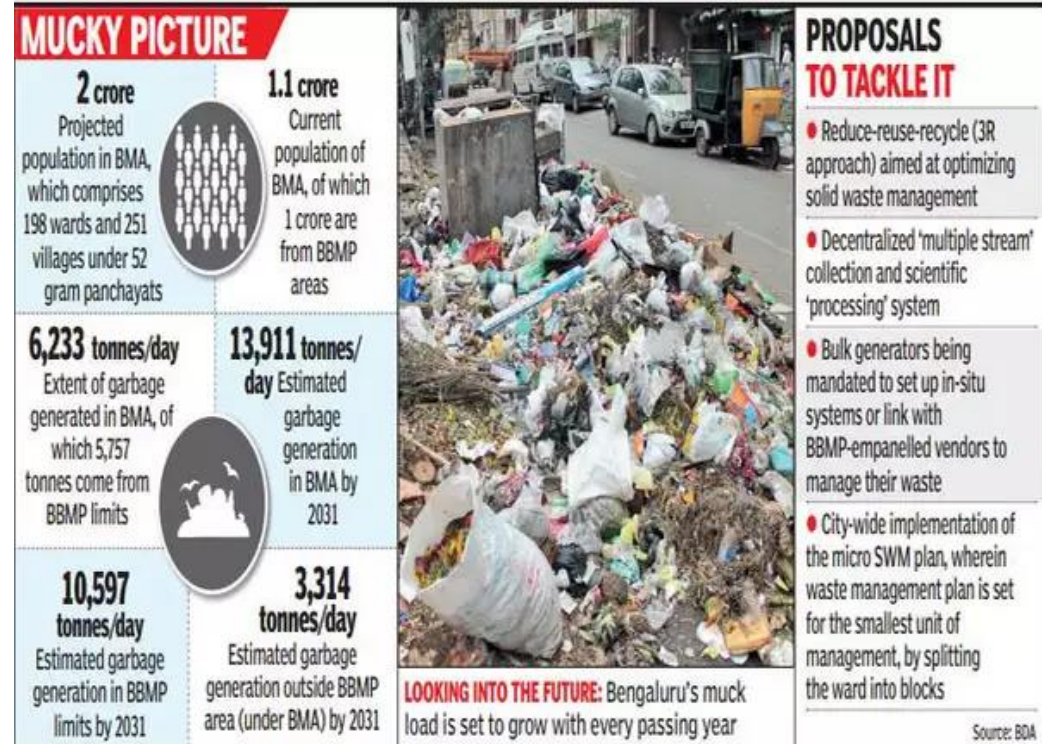


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Current Waste Management Scenario in Bengaluru



Characteristics of Municipal Solid Waste

In Bengaluru, **presently the waste generation is about 6,500 metric tons** of which about 60% is said to be wet waste

The biodegradable waste is about 55–60% matter. electronic is 16–25% and used for recycling purpose. 15% of inert materials will go to landfill.

Currently, around 1,500-2,000 tonnes per day of construction and demolition waste is generated in Bengaluru daily

Approximately 58.5% of the city's waste generation is from households, 49.7% from commercial establishments and 6.8% from street sweeping.



Current Waste Management Scenario in Bengaluru



Collection

Source [segregation](#) is still a concern in Bengaluru though awareness in picking up slowly.

BBMP manages about 30% of MSW and 70% of MSW activity starting from primary collection to disposal has been outsourced.

The collection of solid waste is carried out in two phases.

The first stage is a primary collection, in which the solid waste is collected on auto tipper & pushcarts. An Auto tipper has been provided for every 1000 households and a pushcart for every 200 households. About 20000 Pourakarmikas (Sweepers) are being utilized (both BBMP and contractors) in the door-to-door collection, street sweeping and transportation of MSW.

The waste collected from the households is brought to a common point, i.e., secondary locations from where the waste is transferred to landfill sites/ treatment through tipper trucks & compactors.

The BBMP has assigned the primary and secondary collection and transportation activity to Self Help Groups (SHG's) which are basically below poverty women's groups and landfill sites are operated by the private sector based on [public-private partnership](#) (PPP).

Annually about 250 crores is spent on solid waste management-towards salaries for 3197 Pourakarmikas by BBMP directly, and for 18562 Pourakarmikas through contractor who performs door-to-door collection, Tipping fees etc.

Current Waste Management Scenario in Bengaluru



Disposal Practices in Bengaluru

Presently, Bengaluru does not have any scientific treatment method facilities for solid waste generated by municipal and industries around Bengaluru.

Existing Treatment & Disposal facilities in BBMP.

Sl.No	Zone	Existing Disposal Site/Facility
1	South	Bingipura, Mavallipura, KCDC
2	East	MSGP, Mavallipura, KCDC,
3	West	Terra firma, Mavallipura, KCDC
4	Yelahanka	Mavallipura, Terrafirma
5	Bommanahalli	Bingipura, Laxmipura
6	Mahadevapura	Terrafirma
7	Dasarahalli	MSGP
8	Raja Rajeshwari Nagar	MSGP/Terrafirma

Bangalore is processing **2100 tonnes of municipal trash every day** on average.

Terra Firma has a capacity of 1500 t/d, Mavallipura has a capacity of 600 t/d, Karnataka Composting Development Corporation Ltd (KCDC) has a capacity of 300 t/d.

The waste produced by the bulk generators such as hotels, restaurants, kalyana mandapas, markets, etc., is being directly collected and transported to the treatment/disposal facilities. The treatment facilities have been developed around the city, and their spread over the entire zone

Current Waste Management Scenario in Bengaluru



Disposal Practices in Bengaluru

These new facilities are being set up at the following locations:

Kannahalli is 500 TPD,

Seegihalli is 200 TPD,

Doddabidarakallu is 200 TPD,

Lingaderenahalli is 200 TPD,

Subrayanpalya is 200 TPD,

Chikkanagamangala is 500 TPD,

KCDC (upgradation) is 500 TPD.

These are majorly wet waste composting plants with a provision to screen compost out of mixed MSW & provision also to store the non-compostable/ non-recyclable materials. These materials can be used for co-incineration in cement industries/ power generation

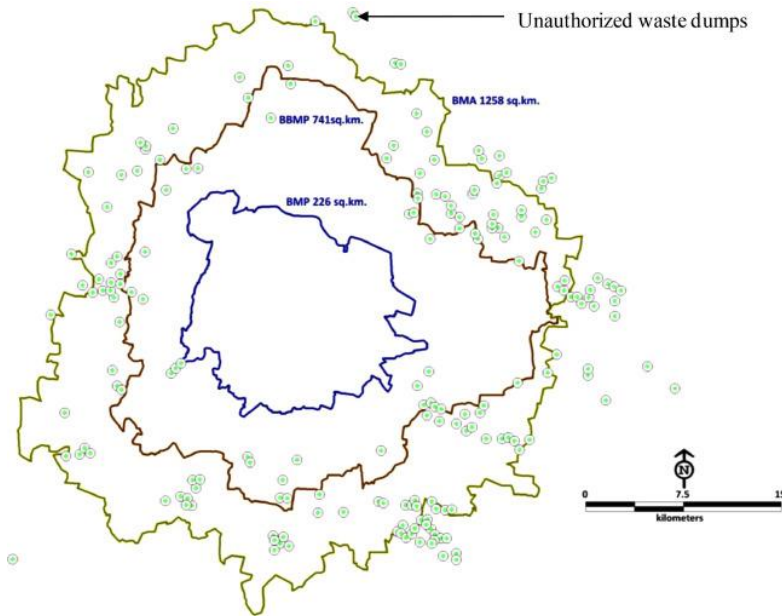
Dry Garbage Collection Centers (DWCCs) are operated by different agencies in Bengaluru in collaboration with the BBMP. For effective operation, DWCCs are built up on municipal, government, and private lands with the support of numerous NGOs, waste pickers, and contractors. The dry waste produced in the wards is collected, further classified, and transferred to various recycling facilities for recycling.

Current Waste Management Scenario in Bengaluru



Illegal Dump Sites

There are more than 60 dump sites and it consists of both municipal and industrial waste existing in and around Bengaluru city. While the Bruhat Bengaluru Mahanagara Palike (BBMP) and the Karnataka State Pollution Control Board (KSPCB) close these sites, the new ones emerge elsewhere posing health risks to residents in their vicinity. The BBMP is merely collecting waste and dispose it. While the waste should be ideally segregated at the source, it is not done scientifically at present.



Additionally, open dumping in the city's expansion zone causes serious issues for the structures built on these old dumps. Bangalore lacks facilities for the rational handling of solid waste generated by local businesses and municipalities. Due to this, a few illegal and unlicensed dump protests have gained traction in Bangalore.

Source: [Scenarios of waste management nexus in Bangalore by B P Naveen in Nov,2021](#)

Current Waste Management Scenario in Bengaluru



Major issues in transporting waste

1. Due to open beds in tractors and trucks, the waste spills from the truck, during transport, thereby causing a nuisance.
2. Loading of waste by manual without the use of the protective gears is dangerous to the health of workers.
3. The secondary storage system is not synchronized with the transport system. Problems arise when a transport fleet is modernized because waste at secondary storage system is still dumped on the ground.
4. Due to an inadequate number of vehicles, the area cannot be serviced properly.
5. Due to inadequate workshop facilities and maintenance procedures, the vehicles are poorly maintained. This problem leads to break down of trucks and become out of service for a long time.



Issues

The following are some of the major problems for BBMP are:

1. Inappropriate plan for the disposal of MSWM taking the actual quantities and its composition
2. Less expertise and exposure to the urban city MSW adopting the modern techniques and best practices. The system and practice continued to be outdated and inefficient
3. Lack of technical and trained manpower
4. Lack of community involvement
5. Partial awareness creation in MSW
6. Outdated management information systems
7. Low budgetary provision in BBMP
8. There are no clear plans to enhance their efficiency or improve working conditions through the provision of modern equipment and protective gear
9. Improper waste management can, and has, led to great environmental, social, economic, and public health disasters.



Challenges → Opportunities

- Bangalore should improve its waste management system. Approximately 60% of Bangalore's residential waste is collected, while only 15% is handled and treated. because of the network's lack of mindfulness and the escape clauses in the current waste management solutions.
- Projects for waste treatment are typically managed by several ministries or departments. The project failed as a result of the lack of coordination. An integrated system can be developed with the assistance of various government departments or agencies working together.
- Construction and operation of properly planned sanitary landfill through public private partnerships/private sector.
- Effective segregation of waste at source itself, and send the recyclable separately to the respective processing units
- It is better to concentration on energy production through anaerobic digestion and for land application rather than composting which is not economical.

Manifestos v/s Budgets by ruling Political Parties (2019-2023)



BJP Bengaluru Manifesto 2018	State Budget 2020-21	State Budget 2021-22
<p>Bengaluru's Garbage City tag will be addressed in a short period through a comprehensive framework of laws and solutions. SwachhaBengaluru will tackle both the Solid Waste and Sewage in a complete framework and will make it a Landfill Free city.</p>	<p>Comprehensive solid waste management programmes will be undertaken in all urban local bodies with external aid. The prefeasibility report and detailed project report will be prepared during the year 2020-21. (detailed report in Karnatak Economic ://efaidnbmnnnibpcajpcglclefindmkaj/https://planning.karnataka.gov.in/storage/pdf-files/Economic%20Survey/Chapter%20Eng%202020.pdf)</p>	<p>For the disposal of non-biodegradable wastes, material recovery facilities having capacity of 10 tonnes per day will be developed in 5 Corporations at an expenditure of Rs.11 crore. https://timesofindia.indiatimes.com/city/mangaluru/karnataka-to-get-three-more-material-recovery-units/articleshow/86947276.cms</p>
<p>Commit to making Bengaluru a "Zero Garbage" city.</p>		<p>To encourage the participation of public in solid waste management, 'Swachha Gruha' learning centres will be developed in all the district headquarters of the state at an expenditure of Rs.9 crore. https://hsrcitizenforum.in/swachagraha-kalika-kendra</p> <p>To reduce the burden on centralised wet waste processing centres and to reduce transportation cost, it is proposed to develop a total of 89 community mixed compost units in 10 city corporations and 59 city municipal councils of the State at a cost of Rs.2.50 crore. (216 composting plants, 15 Biogas and 217 RDF/Palletization have been set up in the State. It is reported that 221 Regional/Individual landfill sites are identified and 52 Landfill sites are constructed by the state) chrome extension://efaidnbmnnnibpcajpcglclefindmkaj/https://cpcb.nic.in/uploads/MSW/MSW_AnnualReport_2020-21.pdf</p>

Governance and citizen inclusion

- Poor waste management is a health hazard for citizens. Articulate a vision for responsible waste management for Bengaluru city and strict enforcement of the same.
- Increase the planning and monitoring capability for waste management in the city
- Micro level waste management plan is required.
- Waste management dashboard at ward, constituency and city level to be put up in public domain to track monthly progress.
- Proactively disclose tenders and expenditure of all waste management related projects.
- Recruit experts/environmental engineers to efficiently monitor waste management at ward level
- Establish single door platform to enable Corporate companies to adopt Dry waste collection centers and waste processing centers
- It has been pointed out that there are more than 10 types of waste that have to be collected and properly disposed of. If each type of waste is handled by a different wing of BBMP, it would be difficult to keep footpaths and streets clean. Therefore, all types of waste including removal of debris, animal carcasses, dry leaves, tree branches, logs and wood, cut cables etc should be handled by a single agency, the SWM wing. A suitable order to clearly spell out responsibility may be issued by the Chief Commissioner, BBMP.



Segregation and collection

- Set up scientific transfer points wherein waste from smaller vehicle is directly loaded to the bigger vehicle.
- Construction & debris waste is the largest contributor to air pollution in Bengaluru City. Build collection centers to collect construction and debris waste at every assembly constituency/ward depending on the quantum of construction waste generated in the locality.

Waste processing

- Decentralized waste processing units across Bengaluru. Wet waste and garden waste generated in the ward to be processed in the Award.
- All the processing plants set up in Bengaluru city be made fully functional.
- Every ward to have state of the art Dry Waste Collection Centers. Provide secondary segregation staff for DWCC. Do not permit any wet waste or debris to enter dry waste center. Provide compactors to reduce the space occupied by dry waste.
- Enforce waste segregation and responsible processing/disposal by bulk waste generators such temples, apartments, educational institutions, hotels and tech campuses which contributes to 25% of cities waste
- Burning of leaf waste is a major issue across Bengaluru. Leaf waste processing plants should be set at ward level and measures to be taken to prevent burning of waste.
- Bengaluru generates around 92000 tonnes of e-waste per year. Set up collection points for e-waste and increase capacity of DWCC to collect e-waste. Partner with e-waste processors to manage e-waste.
- Bengaluru city generates approximately 3600 tonnes of C&D waste per day. Set up C& D waste processing plants to efficiently manage minimum of 4000 tonnes per day
- Strictly enforce and ensure all medical/sanitary waste is processed by designated vendor

Visual cleanliness

- Visual cleanliness for Bengaluru city to be a high priority.
- Littering in public spaces, streets, footpaths and vacant sites to be heavily fined at INR 10,000 per instance.
- Health Inspectors /Jr. Health inspector are not able to collect spot fines for littering, violations of trade license etc. Hence POS machines should be issued to Senior. Health Inspectors and Jr. Health Inspectors for collection of spot fines.
- Strict enforcement of plastic ban
- There are many commercial hubs in the city that see business activity till late night. **But SWM operators are engaged to collect waste in only one shift; except in Majestic, Chickpet and KR Market where it is collected in two shifts. The second shift is not monitored as well as the morning shift during which the supervisory officials are more active.** The waste that accumulates during the daytime gives a shabby look during the evenings. Other commercial areas like **Malleshwaram, Jayanagar, and Brigade Road etc. should also have a well monitored second shift of garbage collection.** Extra autos may be given for the evening shift or existing autos can be paid for 2-3 hours additional duty at evening time.

Visual cleanliness

- It is recommended that more mechanical sweeping machines be procured either by purchase or by hiring at the rate of one for every ward i.e. 243 machines for the city. The monitoring system for ensuring that the tendered work is turned out by all machines should be manned 24x7 in the BBMP/Zonal Control Room.
- The mechanical sweeping machines have to travel long distances to dump the dust collected during sweeping. This reduces their uptime on the job. Therefore, **transit dumping points should be set up in suitable places for the sweeping machines to dump their dust and continue sweeping.** This would improve their productivity