



Organic Waste Disposal Management: A Promising Environment Sustainability

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ABSTRACT

Solid waste management (SWM) is one of the primary responsibilities of city managers and one of the effective manifestations of good governance. Effective waste management can reduce negative health and environmental impacts, save resources, and improve urban livability. However, rapid urbanization and financial and institutional constraints have exacerbated unsustainable waste management practices, negatively impacting public health and environmental sustainability. As people consume the base's air and water, they generate large amounts of waste that impact their lives. Increasing industrialization, population, and waste generation pose major challenges to environmental sustainability in the absence of appropriate waste management measures (Sawalkar, RS, 2023). Considering these challenges, this study focuses on efforts to “reduce organic waste generation by encouraging its reduction, recycling, and reuse”. This research aims “incorporates feedback loops, focuses on processes, embodies adaptability, and moves waste away from disposal”.

KEYWORD:

Organic waste, compost, vermicomposting, waste management

INTRODUCTION

In India about 75% household solid waste per year is recovered, but only about 20% is recycled. Most of the collected waste is disposed of in landfills, seriously polluting the environment. It is estimated that the amount of waste generated domestically will more than double by 2030, reaching 165 million tons per year.

In India, around 50% of municipal waste is organic waste, so there is potential to recover 5.4 million tones of compost from municipal waste every year.

There is room for expansion in our knowledge of effective composting practices. Demonstration plots are needed to overcome municipal reluctance to use compost and organic fertilizers. and disposed of within the jurisdiction of a municipality (Periathamby, A. 2011 and OECD. 2018). For example, municipal solid waste often includes biodegradable materials (food, paper, organic waste), non-biodegradable materials (plastics, metals, expanded polystyrene), hazardous materials (petroleum, batteries, paint, electronic waste) or construction waste. (Public Health Solutions., 2017 and Department of Environment Water. 2022). SWM challenge facing municipalities in developing countries is also increasing Domestic waste, i.e. 'garbage' or 'garbage' produced by households, forms part of municipal solid waste. Currently, the world generates 2 billion tons of household waste every year and more than 60 tons of garbage every second (The World Counts., 2022).

There are two main types of trash that we produce every day. The first category of waste is plastics, metals, glass, and other household items. The 2nd is garden waste, food waste, degradable carbon, and other animal provides value by increasing the content and availability of nutrients that can be used as agricultural fertilizers. Soil biofertilizers produced through recycling processes “cleaner production, zero-waste policies, sustainability, and bio-based circular economy (CE)”. (Shristi Kharola et al., 2022)

Organic waste is material from biological sources. In many developing countries have significant incentives to convert organic waste into resources. The environmental benefits are significant and can be achieved in a cost-effective manner (Farouk Bannayara Salem., 2022).

“Organic wastes produced in nature by various means” exist in either solid or liquid states. Biodegradable organic waste with a moisture content of approximately 80–85%.

Common types of organic waste found in nature include:

1. General waste

Municipal solid waste includes common waste generated in daily life.

2. Cow dung

Cow dung is animal dung derived from cow and is excellent organic material resource. Cow dung constitute organic waste in the form of cow excrement. In addition, poultry waste and pig farm waste also increase the amount of organic waste

3. Food waste

The canned fruit and vegetable industry, the frozen vegetable industry, the fruit drying industry, as well as residential areas, hotels and restaurants are the main sources of food waste.

Importance of Recycling

Recycling has several benefits and helps prevent problems caused by waste accumulation in nature.

Common benefits or impacts of recycling organic waste include:

- Recycling biomass or biological waste can produce energy.
- Converting and using biofertilizer.
- It is about reducing pollution
- Producing biofertilizer through the recycling process improves soil quality, thereby increasing soil fertility and promoting plant growth.
- “Landfills tend to increase greenhouse gas emissions, which can be reduced by recycling such waste into less hazardous waste”.
- Recycling organic waste can also reduce the concentration of waste left behind by inefficient processes such as land filling.
- The stability of organic waste provides the added value of increasing its nutrient content and availability as agricultural fertilizers.

Household waste, waste management and environmental impact

According to 2020 World Bank report, more than 2 billion tons of “municipal solid waste” is generated every year, at least 33% of which is harmful to the environment. Globally, the average amount of waste generated per person per day is 0.74 kg (Abdullah N. et al., 2022). Although high-income countries make up only 16% of the world's population, their exports account for approximately 34% of the world's waste, or 683 million tons (The World Bank Group., 2022; Chen, D.M.C.;2020). Although high-income countries produce more waste than low-income and poor countries, they generally have better waste management systems that help solve these problems (Barbhuiya, N.H.;

Organic waste accounts for more than 50% of the world's municipal solid waste and is a serious problem in many regions. Recycling organic waste is one strategy to solve this problem. Vlachokostas et al. (2021). A plan was proposed that included setting up an area for a biodegradable waste treatment unit. It is 2 kilometers from the city and 7 kilometers from the slaughter house. This public space is easily accessible and close to the municipal garden. The selected locations are agriculturally intensive areas that mainly generate biodegradable waste (Abdullah N. et al., 2022). Hygiene is an important factor in the disposal of such waste (Vlachokostas et al., 2021).

Waste collection and transportation is mainly done based on predetermined routes, resulting in unnecessary costs and wasted equipment (Abdullah N. et al., 2022). Even if filled packaging is spilled onto the road, empty packaging is often the first to be collected. Such spills can also lead to increased cleanup costs, health and safety risks, and lawsuits from residents.

Figure1: shows the breakdown of municipal solid waste generated around the world by material category, of which food and green waste account for 44%.

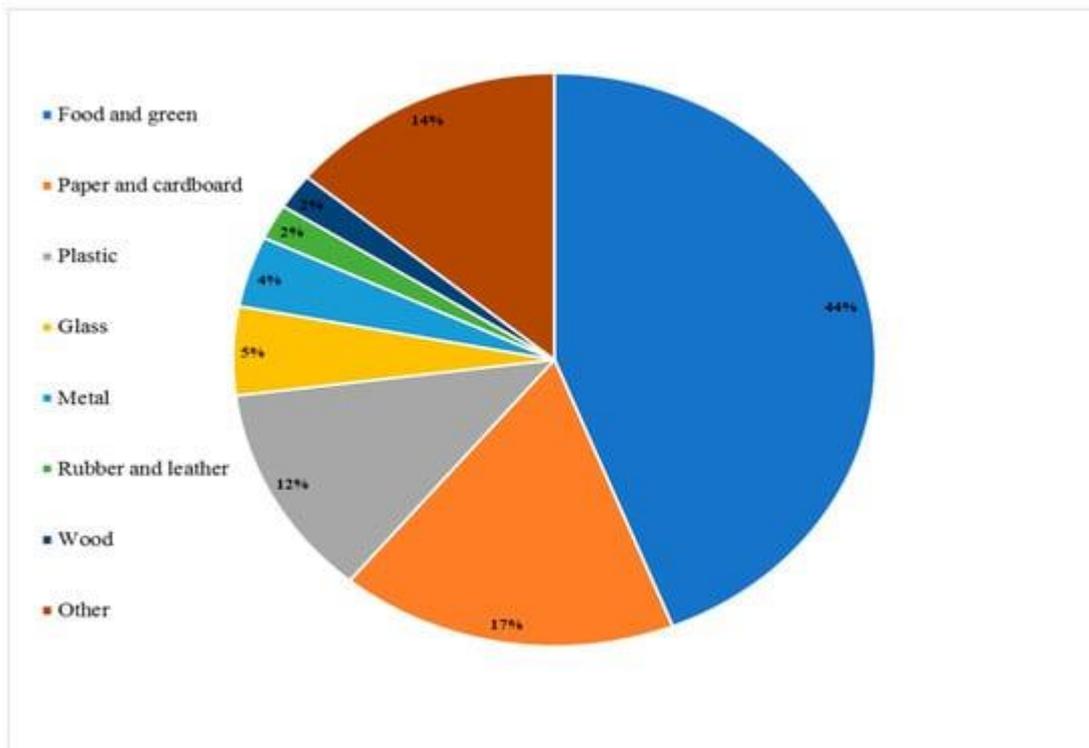


Figure 1. “Municipal solid waste generated” around the world in 2016, categorized by material category (The World Bank Group., 2022).

CONCLUSION

In order to become a sustainable city in India, implementing waste management through a future-oriented integrated framework for household waste management is considered to be a viable pursuit.

This creates smart, efficient waste management solutions that save citizens time and effort in understanding waste types and researching urban waste management methods. Business owners must play their part and take more responsibility for the consequences that may affect their production and the environment. On the other hand, given the current situation, governments have a role to play in ensuring that rules and policies are sufficiently strict and enforceable.

Composting and diversion are the most common methods of safely managing organic waste. Compost breaks down waste and turns it into nutrient-rich fertilizer. (Randy Miller, 2020) Finally, while technology is streamlining waste management processes in various sectors such as the Internet of Things (IoT), waste-to-energy technology is reducing the amount of waste sent to landfills. It acts as a reduction tool. As stated in this strategy (Okedu, KE et al., 2022), companies also have a role to play in leveraging technology and sustainable strategies to reduce costs and environmental pollution. Good governance can control people's behavior to a certain extent. However, education is important because people are aware of the consequences of improper waste management, and social factors are fundamental to achieving the vision of sustainable cities that many countries are pursuing. As mentioned above, climate change and natural disasters are occurring more frequently than ever before due to an irresponsible focus on

development while ignoring the state of the planet and emerging signs of pollution. It shows invisible signs that human's value the natural resources given to them.

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