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Solid Waste Collection Management.

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A B S T R A C T

Solid waste management has become a major environmental issue in India. The increase in population and urbanization are largely responsible for the increase in solid waste. Municipal Solid Waste (MSW) includes mostly residential waste, commercial waste, and market waste, Domestic house waste, street sweeping etc. It consists of biodegradable waste, recyclable waste, inert waste, combustible and non-combustible waste etc. At present any scientific system is rarely been practiced for the safe disposal of municipal solid waste in city. Inefficient storage, collection, transportation, treatment and disposal of waste lead to contamination of air, surface and ground water, which result in formation of breeding grounds for vectors, pests, rodents, etc. causing public health problems. Proper planning for collection, transportation, treatment and disposal of solid waste are therefore, extremely essential for the protection of environment, health, sanitation and social wellbeing of the people.

Keywords: Industrialization, prosperity, recession, solid garbage, waste management, landfill, Environment.

Introduction

Solid waste management is an essential service in every society. However, before introducing the process, it is necessary to start a discussion about the material to be processed - solid waste. Solid waste is a variety of animal and human waste that is discarded as unwanted and useless. Solid waste is generated by industrial, residential and commercial activities in a given area and can be handled in a number of ways. As such, landfills are usually classified as sanitary, municipal, construction and demolition or industrial landfills. Waste can be classified by material such as plastic, paper, glass, metal and organic waste. Classification can also be based on potential hazards, including radioactive, flammable, infectious, toxic or non-toxic waste. Categories can also be related to the origin of the waste, whether it is industrial, domestic, commercial, institutional or construction and demolition. Regardless of origin, content or hazardous potential, solid waste must be managed systematically to ensure best practices for the environment. Since solid waste management is an important part of environmental hygiene, it must be included in environmental planning..

Solid waste management (SWM) is a major concern for many local municipal bodies in India, where urbanization, industrialization and economic growth have increased the per capita generation of municipal solid waste. Effective SWM is a major challenge in densely populated cities. Achieving sustainability in a country with a rapidly growing population and improving living standards is more difficult in India because it is a diverse country with many different religious groups, cultures and traditions .Despite social, economic and environmental developments, SWM systems in India have remained relatively unchanged. The informal sector plays a key role in creating value from waste, as approximately 90 percent of residual waste is currently landfilled instead of being properly disposed of. There is an urgent need to switch to a more sustainable SWM, which requires new waste management systems and facilities. Current SWM systems are inefficient and the waste has negative effects on public health, the environment and the economy. The Ministry of Environment and Forests (MOEF) has established waste management and management regulations in India, but enforcement is irregular and limited.

• Generation of waste

• Storage of waste

• Collection of waste

• Transportation of waste

• Process of segregation

• Disposal of waste

Solid waste Collection:

Figure 1: Solid waste Collection.

Integration of waste management:

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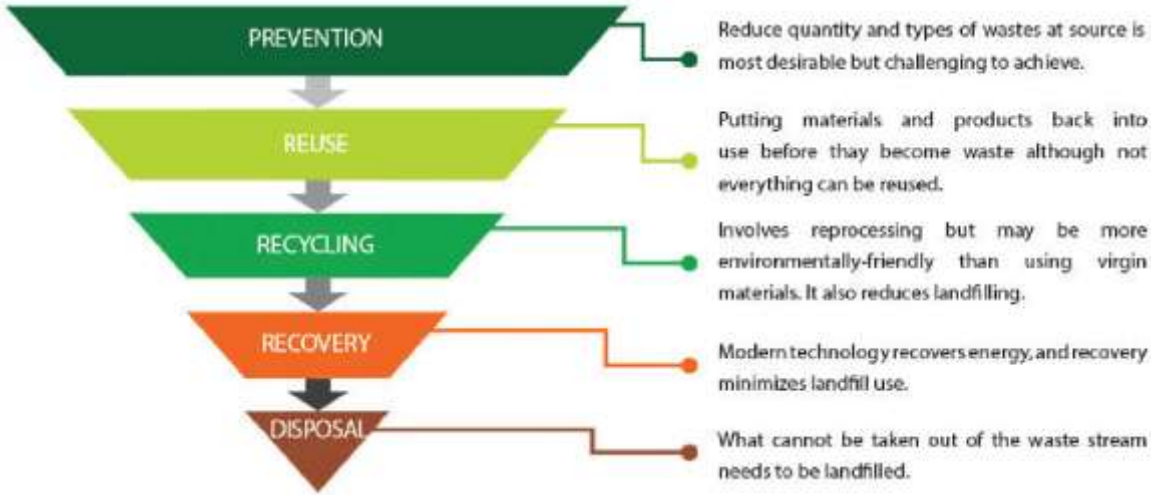

(Reference for image : Semantic Scholar)

Fig 2 : Showing Prevention of solid waste collection.

The waste management system has undergone changes in recent decades, with recycling and valorization gaining more attention than landfilling. Sustainable resource use and solid waste management are clearly shown in Figure 2.

India is the world's third largest producer of solid waste, producing about 62 million tons annually. 70% of the city's waste is collected, only 20% is treated and the rest is thrown into landfills and landfills. There is a lot of volume. This is a serious problem not only for the environment but also for public health.

Composition of municipal solid waste in India 2019-2023

Showing below In the Flow Chart

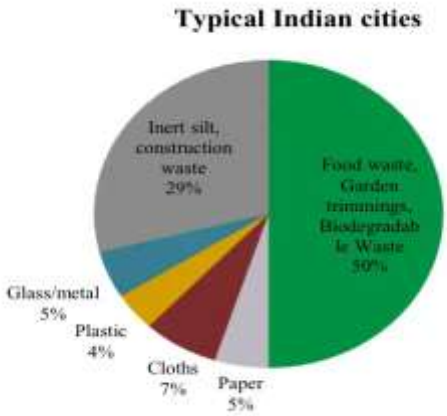

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Fig 3 : composition of municipal solid waste in India 2019-2023.

Challenges of Municipal Waste Management in India

- Poor Infrastructure
- Inadequate collection and transportation
- Ineffective regulations and unimplemented policies
- Lack of public awareness and participation

1. Poor Infrastructure.

India has a huge gap in municipal waste management. This includes landfills, processing facilities and waste-to-energy plants.

There are more than 2,200 plants in India that compost waste. But there are more than 3,100 landfills and landfills. Delhi's Ghazipur estate reached its full potential a decade ago. However, more than 2,500 tons of waste are still received each day.

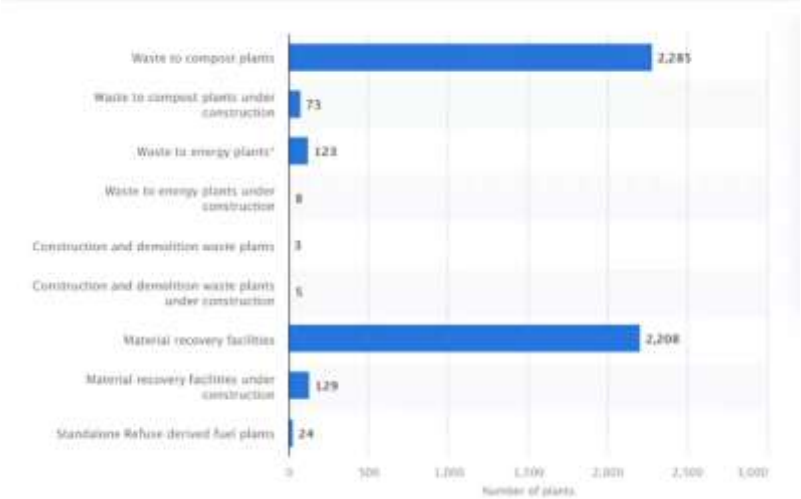

Fig: 4 Functional solid waste treatment plants across India as of December 2021

2. Inadequate collection and transportation

Even today, many parts of India do not have door-to-door pickup services. Some city waste is left in open spaces, on sidewalks and in overflowing bins .The good news is that Madhya Pradesh has demonstrated 100% door-to-door urban waste collection. In fact, this is the first step to make Indore the cleanest city. In many towns and cities, garbage collectors continue to collect it. They usually work in safe places. In the absence of proper systems, many things are left in public places with poor hygiene. Although the informal waste collection sector collects, there is no way to transport it to fully functioning waste management facilities..

3. Ineffective regulations and unimplemented policies

The Indian government has established policies and regulations for household waste management. Its implementation is still weak or non-existent. For example, the Solid Waste Management Rules, 2016 provide a framework for solid waste management in the country. However, only 41% of municipal governments nationwide have solid waste management plans.

4. Lack of public awareness and participation

In many parts of India, public knowledge about municipal solid waste management is low. Public participation is limited. According to a study carried out by the Central Commission for Pollution Control, only one in three households segregates and collects garbage. And one in three people throws their waste outdoors. There is increasing pressure on local governments.

The Way Forward for Municipal Waste Management in India

- Use a waste-to-energy plant that uses urban solid waste as biomass for energy generation.
- Households are encouraged to compost their wet waste at source, which can reduce 80% of organic waste sent to the ground.
- Upcycling is increasingly popular in cities and a way of life in rural areas. Encouraging recycling, reuse and recycling can reduce the amount of waste going to landfills and waste treatment plants.
- The separation of waste at source makes it much easier and reduces the burden on collection plants.Public-private partnerships can accelerate the development and implementation of urban waste management infrastructure.
- Understanding the informal waste sector through the participation of local waste collectors and recyclers can improve livelihoods and manage waste effectively..

Conclusion

India faces major challenges in waste management due to its large population and enormous amount of waste - about 1.3 billion tonnes per year, which is a third of the world's total. India needs to improve its recycling industry as currently only 5% of recycled material is recycled. Solving these problems is crucial for a sustainable future and environmental protection. Going forward, India needs to plan for long-term waste management and adapt strategies to changing lifestyles. Household and institutional waste must be sorted at the point of origin to make recycling more efficient. The goal is to minimize the use of landfills, but this requires the active participation of the community. Widespread recycling of e-waste is crucial to solving the problem of electronic disposal. India needs to take steps to address these challenges as this is not just an Indian problem but a global problem that affects everyone..

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