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A Research Study on Waste Management and Waste Segregation Emperical Evidence on Metropolitian Cities of India

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Abstract:- Numerous studies and investigations have been done on the origins and properties of wastes, as well as the potential negative effects of improper treatment and best global practises. The definition of a waste, however, is still a matter of debate. How much do we actually know about what constitutes waste? What have waste management practises looked like historically? In order to provide answers from earlier studies, the current research paper aims to examine these crucial questions. To address the research aims, the report took a descriptive method. In particular, the work uses a descriptive approach to gather data from books, journal papers, and reports from environmental groups that have undergone peer review. Waste was determined to be a significant problem extent ambiguous, since a substance can only be considered garbage when the owner designates it as such. This is especially true given that one person might perceive a chemical as waste while another might see it as a resource. However, it was maintained that in order to properly regulate, it is necessary to define exactly what wastes are.

Waste segregation is another crucial step in this research paper because it enables efficient Reuse, Recycling, and Recovery (RRR). Unfortunately, it has not received much attention and is often used informally in poor nations. It is also impacted by a lack of understanding, lax enforcement of regulations, a lack of financial incentive, and low planning priority. This study was carried out on metropolitan cities in India. The research will continue on issues like the reuse and recycling of plastics, electronics, and the selling chain for metals is informal, going from households to waste collectors to recycling facilities, and then to industries. Waste segregation in various industries and how would it advance the growth of the nation.

Keywords:- *Waste management, waste segregation.*

I. INTRODUCTION

Solid waste management (SWM) done right is essential for both human and environmental health. Poor waste management can contaminate soils, water, and air, which lowers the quality of life. Ineffective waste management can also make people uncomfortable and sick unpleasant feeling The primary elements of SWM are generation, gathering, moving, and disposal.

The production of garbage is a crucial phase where source one can put reduction tactics into practise. However, there is a growing interest in waste minimization through reuse and recycling, which calls for effective management. Waste, an inevitable byproduct of human activities and industrial processes, represents materials or substances that are discarded, unwanted, or no longer deemed useful. Its historical evolution mirrors the progression of human civilizations and technological advancements. Early societies disposed of waste in open spaces, relying on natural decomposition. However, with the rise of industrialization and consumerism, waste management became a pressing concern. The modern era witnesses a diverse range of waste, categorized as solid, liquid, or gaseous, each posing unique challenges.

Solid waste encompasses everyday items like packaging and food scraps, contributing to the overwhelming volume of discarded materials. Liquid waste, often a result of industrial activities or household disposal, demands careful handling due to potential hazards. Gaseous waste involves pollutants released into the air, impacting both air quality and climate change.

The management of waste has become a critical aspect of environmental sustainability, urging societies to adopt practices that prioritize reduction, reuse, recycling, and responsible disposal. In the face of burgeoning environmental challenges, understanding and addressing the complexities of waste have become imperatives for a more sustainable future.

II. THE CONCEPT OF WASTE

Waste, a byproduct of human activities, industrial processes, and natural occurrences, encompasses materials or substances that are no longer useful or wanted. This concept is deeply intertwined with the evolution of human societies, technological advancements, and environmental consequences. The management of waste has become a critical aspect of maintaining ecological balance and sustainable living.

Human history reveals a shifting attitude towards waste. Early human settlements often disposed of waste in open areas, relying on natural decomposition processes. However, as civilizations progressed, so did the scale and complexity of waste generation. The industrial revolution marked a turning point, introducing mass production and consequently, increased waste production. The dawn of consumerism further exacerbated the issue, as disposable products became a societal norm.

Modern waste classification includes solid, liquid, and gaseous forms. Solid waste, comprising everyday items like packaging, clothing, and food scraps, poses significant challenges due to its sheer volume. Liquid waste, often

arising from industrial processes or households, may contain hazardous substances requiring careful treatment. Gaseous waste includes pollutants released into the air, contributing to air quality issues and climate change.

Effective waste management strategies aim to minimize environmental impact and promote sustainable practices. The hierarchy of waste management emphasizes a sequence of actions: reduce, reuse, recycle, and dispose. Reducing waste at the source involves minimizing consumption and opting for sustainable alternatives. Reusing items extends their lifespan, lessening the demand for new products. Recycling, the process of converting waste materials into new products reduces the need for raw materials and energy. Finally, proper disposal ensures that non-recyclable waste is handled in environmentally responsible ways.

The environmental implications of improper waste disposal are profound. Landfills, common destinations for solid waste, contribute to soil and water pollution. Hazardous substances in electronic waste, for example, can leach into the environment, posing serious health risks. Incineration, an alternative waste disposal method, releases harmful pollutants into the air, affecting both human health and the atmosphere.

Plastic waste has emerged as a global concern, symbolizing the challenges of modern waste management. Single-use plastics, ubiquitous in daily life, have severe environmental consequences. They persist in the environment for centuries, leading to marine pollution, threatening wildlife, and contributing to the formation of "plastic islands" in oceans.

Beyond the environmental impact, waste management has economic and social dimensions. The cost of waste collection, transportation, and disposal strains municipal budgets. Recycling industries, however, offer economic opportunities by creating jobs and promoting a circular economy. Socially, raising awareness about responsible waste management fosters a sense of environmental stewardship and encourages sustainable behaviors.

The concept of "zero waste" has gained traction as a holistic approach to waste management. It envisions a society where resources are used efficiently, products are designed for longevity and recyclability, and the generation of waste is minimized. This philosophy aligns with the broader goals of sustainability, acknowledging the finite nature of resources on Earth.

III. STATEMENT OF THE PROBLEM

Although trash management services are generally acknowledged to be vital services that must be offered in every society, very little is understood about what really constitutes garbage. Realizing that waste is a highly individualized idea,with one person's garbage being another person's resource. Therefore, it is crucial to establish a clear definition of what constitutes waste. In order to determine what waste is, how it is classified, and how it is managed, the current research explores the notion of wastes and waste management

IV. LITERATURE REVIEW

- **"Waste Management Practices: Literature Review" by Rajalakshmi, R., and Venkatesan, M -** This work aims to provide a comprehensive review of existing waste management practices, analyzing their effectiveness, challenges, and potential areas for improvement. The objective is to contribute to the understanding of current waste management strategies and stimulate discussions on refining these practices.
- **"Solid Waste Management: Principles and Practice" by Chauhan, R -** This book sets out to establish a foundational understanding of the principles governing solid waste management. It aims to guide practitioners and policymakers by providing a comprehensive overview of the fundamentals, methods, and best practices in solid waste management.
- **"Integrated Solid Waste Management: Engineering Principles and Management Issues" by Tchobanoglous, G., Theisen, H., and Vigil, S. A -** The objective of this book is to present an integrated approach to solid waste management, covering both engineering aspects and management issues. It seeks to provide a holistic understanding of the complex challenges associated with waste management and proposes solutions that integrate technical, environmental, and societal considerations.
- "**Waste to Wealth: The Circular Economy Advantage" by Peter Lacy and Jakob Rutqvist**- This work focuses on the concept of a circular economy and aims to demonstrate how waste can be transformed into a valuable resource. The objective is to inspire businesses and policymakers to adopt circular economy principles, emphasizing sustainability, resource efficiency, and economic benefits.
- **"Introduction to Environmental Engineering and Science" by Gilbert M. Masters and Wendell P. Ela -** While covering various environmental engineering topics, this book includes a section on waste management. The objective is to provide students and professionals with a foundational understanding of environmental engineering principles, including waste management practices and challenges.
- **"Waste Management and Sustainable Consumption: Reflections on Consumer Waste" by Dr. Pratima (Tima) Bansal and Dr. David Howard -** Focused on consumer waste, this work explores the relationship between waste generation and sustainable consumption. The objective is to critically examine patterns of consumer waste, identify drivers of unsustainable practices, and propose strategies for promoting sustainable consumption patterns.
- **"Municipal Solid Waste Management: Processing - Energy Recovery - Global Examples" by Christophe Briand -** This book is dedicated to municipal solid waste management with a focus on processing and energy recovery. The objective is to provide insights into global examples of waste management practices, emphasizing

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technological approaches for efficient processing and harnessing energy from waste.

V. OBJECTIVE OF THE STUDY

Numerous studies and investigations have been done on the origins and properties of wastes, as well as the potential negative effects of improper treatment and best global practices. The definition of a waste, however, is still a matter of debate. How much do we actually know about what constitutes waste?

What have waste management practices looked like historically? In order to provide answers from earlier studies, the current paper aims to examine these crucial questions. To address the research aims, the report took a desktop method. In particular, the work uses a descriptive approach to gather data from books, journal papers, and reports from environmental groups that have undergone peer review. Waste was determined to be a significant problem.

Since a substance can only be considered garbage when the owner designates it as such. This is especially true given that one person might perceive a chemical as waste while another might see it as a resource. However, it was claimed that it is important to characterize wastes precisely because they serve as the foundation for regulation.

VI. METHODOLOGY

A. Description of the Study Area

This literature review extensively relies on secondary data, a common characteristic of desktop studies, where pre-existing information is utilized for analysis and deriving crucial conclusions. The study draws upon a diverse range of sources, including books, journal articles, unpublished papers, government reports, and content from organizational and private webpages. This research approach is chosen when a substantial body of work exists on the subject, and the study aims to address specific questions based on previous research. Consequently, the current paper employs this methodological approach to scrutinize the perspectives of various researchers concerning waste, its categorization, and management. This ensures a thorough exploration of existing knowledge and insights within the academic discourse on waste-related topics.

B. Classification and Types of Waste

Waste can take on many different forms, and there are various ways to characterize waste. The physical states, physical qualities, reusable potentials, biodegradable potentials, source of production, and level of environmental effect are some typical features utilized in the classification of garbage (Demirbas, 2011; Dixon & Jones, 2005; White et al., 1995). According to White et al. (1995), waste can be roughly categorised into three basic categories based on their physical states: liquid, solid, and gaseous waste.

Below are examples of the classifications that are most frequently used.

- Source of Household/Domestic waste, Industrial waste, Agricultural waste, Commercial trash, Demolition and construction waste, Mining.
- Physical state of Solid waste, liquid waste, and Gaseous waste Environmental effects
- Waste that is either harmful or non-hazardous. Due to the research study's limited scope, liquid wastes, which can be disposed of via sewer networks or lost to ground water, and hazardous wastes, which require tighter environmental controls, because of their potential to cause environmental harm, are excluded. Only solid waste will be discussed in detail, excluding hazardous solid waste.

VII. WASTE GENERATED IN METROPOLITIAN CITIES OF INDIA

A. DELHI

The garbage problem in Delhi is not brand-new. Everything has come to a complete standstill as rubbish heaps continue to accumulate and corporate management practices fail on a systemic level. Due to the recent sanitation workers' strike and the threat of garbage stacking up in the city, a bench led by the National Green Tribunal (NGT) on Tuesday (January 10) summoned the East Delhi Municipal Corporation (EDMC) and Sanitation Workers Union to appear before them on Wednesday (January 11). A notification was also given to the Aam Aadmi Party (AAP), the Center, and the Ministry of Urban Development and Housing, requesting a response by January 11 on the matter.

The EDMC's about 20,000 civic workers have embarked on and for the fifth time since 2015, an indefinite strike for unpaid salaries. Why does this occur annually in the wealthiest municipalities in the nation is the big issue.

The city produces more than 9,500 tonnes of trash per day (TPD) each day. Waste is gathered and delivered to three dump locations at Bhalswa, Okhla, and Ghazipur at a rate of about 8,000 TPD. Given that the informal sector handles the majority of garbage management, the actual amount of waste generated in the city may be significantly higher. In Delhi, there are reportedly over 150,000 rag pickers. Worse, the 2016 Solid Waste Management Rules' criteria were not followed when designing the three dump sites. The Master Plan for Delhi, 2021, states back in 2008, these landfills had already reached their capacity. Aquifers and groundwater near and surrounding most of these sites have been affected.

According to the Union Ministry of Urban Development's most recent draught handbook on managing municipal solid trash, 40 ha of land can store three million tonnes of rubbish (keeping in mind that the life of a landfill is 20 years). Delhi requires 800 acres of land, which, at the current circle rate, would cost Rs 80,000 crores.

But the land isn't actually in the city. Municipalities must also pay ongoing operational costs for labour and equipment at the dump, which amount to around Rs 300 per tonne of garbage. Expenditure Almost Rs 800 per tonne is spent on transportation (according to Tufail Ahmed, who has been managing landfills in Delhi for almost three decades now). Every tonne of rubbish disposed of in a landfill would cost the MCD roughly Rs 14,500, according

to an analysis by the Centre for Science and Environment (CSE), which is an amount that is seriously unsustainable.

The concept of waste-to-energy has been pitched to urban local bodies as a panacea. Delete and burn. But it is not taking place. The WTE facility that is located immediately next to Sukhdev Vihar's residents' homes is a problem. Years have passed since they last let the windows out. Nearly 2,000 TPD of trash is being disposed of at the Okhla Waste-to-Energy facility. a waste of The South Delhi Municipal Corporation (SDMC) delivers 1,800 metric tonnes per day (MTD) to this plant, whereas the New Delhi Municipal Corporation supplies roughly 200 MTD (NDMC). 450 tonnes of solid trash can be burned off in an hour to produce 5 MW of power. The facility, which is situated on 5.6 hectares of land, has received a total investment of Rs 250 crore.

The Sukhdev Vihar Residents Welfare Association filed a petition with the tribunal asking that a waste-to-energy facility be shut down because it allegedly uses illegal mass-burning technology that pollutes the environment. The facility is still operating, though, and even the green court has not requested any action.

B. MUMBAI

Mumbai Solid Waste Management Mumbai has a 603 sq km long shoreline area. The island city (or main city), the western suburbs, and the eastern suburbs are the three geographically distinct parts of Mumbai. For administrative purposes, these are also referred to as Division I, Division II, and Division III, respectively. Nearly 13 million people call the city home, and that number is growing daily. It goes without saying that such a large environment produces a tremendous amount of waste, which the local government must manage. Waste Production Mumbai produces 7,025 tonnes of trash every day on average. The garbage is made up of: 2,000 tonnes of debris; 5,025 tonnes of mixed rubbish (biodegradable and recyclable).

Vegetable and fruit scraps, leaves, damaged food, eggshells, cotton, and other materials make up the biodegradable garbage (wet waste). Newspapers, thermocol, plastic, battery cells, wires, iron sheets, glass, and other recyclable materials are included in dry waste. Construction, remodeling, and demolition trash are all examples of debris. Clay and soil from road corners and drains make up silt. As the city's population grows, it is predicted that by 2008, such waste will amount to 9,000 tonnes per day. Average Mumbai City Resident Waste Production An individual's waste production is influenced by the socioeconomic group they are a part of. For instance, a wealthy household may produce roughly four to five kilogram’s of mixed garbage per day, whereas a middle-class family will produce between One to three kilogram’s of mixed garbage are produced daily by poor families living in slums, and they produce about 500 grams of waste daily.

Control of Waste Officially, the handling of trash in the city falls under the purview of the Municipal Corporation of Greater Mumbai (MCGM). The traditional method has been one of collection and disposal, whereby municipal authorities collect trash from neighborhoods and dispose of it at the three main dump sites that currently serve the city. Garbage collectors working for different housing societies manually gather home rubbish and place it in the trash can at designated street corners. In the city, there are about 5,800 community trash cans. Trucks collect trash from the streets in South Mumbai in the case of take it to a transfer station in Mahalakshmi using garbage cans. The waste is moved from Mahalakshmi to the dumping grounds in the northern section of Mumbai using a separate mode of transportation. The dumping grounds receive rubbish from every other area in the city. This is how around 95% of the rubbish produced in the city is disposed of. An 800-vehicle fleet, which includes trucks rented from private contractors, is used in this primarily manual operation, which involves 35,000 MCGM employees and is collected in shifts each day. MCGM makes 2,000 trips per day using municipal and private trucks using roughly Rs15–20 lakh to collect and carry trash and debris.

C. BANGALORE

The state capital of Karnataka is located on the northern part of the Deccan level edge of two other South Indian states, namely Tamil Nadu and Andhra Pradesh, at Latitude 13°50′ North and Longitude 77°36′ east. It has a calm, healthy air. It is set up at 900 meters in height. Bangalore has been seduced to become one of Asia's fastest-growing metropolitan networks since the 1980s (Dittrich, 2004). The fifth most amazing city in India is the 1258 sq km-large Bangalore Metropolitan Zone [5]. The local specialists are working to provide the proper robust waste administration framework at a pleasant level as a result of an increasing population and the needs created by the Information Technology (IT) sector.

The data was gathered from members of the Bruhat Bangalore Mahanagara Palike (BBMP) with various roles within the system, pertinent stakeholders, and community representatives. With around 8.4 million residents, Bangalore city produces about 4500MT of municipal solid waste (MSW) every day at a rate of 0.5 kg/day/per person. Approximately 15% of waste is treated before being thrown into landfills, while less than 60% of rubbish is collected. In Bangalore's urban and rural areas, landfills, burning rubbish, and illegal dumping are all too common, even if recycling hasn't yet reached its full potential.

Bangalore lacks facilities for the rational handling of solid waste generated by local businesses and municipalities. Due of this, a few illegal and unlicensed dump protests have gained traction in Bangalore. As evident as the territory of these dumpsites near towards and their breaking point in Bangalore city is the area of unapproved dump areas in and around Bangalore city. The city of Bangalore's road system close to waste locations.

In Bangalore, many of the residential flats adhere to the practise of separating their garbage into dry, wet, and sanitary categories. They have specific bins for this. A small number of the locals believe that the BBMP corporators should conduct a door-to-door campaign to inform the locals about trash segregation and its importance.

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The BBMP has stated that it will use an efficient microbial solution to turn the wet waste into manure at the transfer stations. Pure kitchen garbage combined with cow dung, according to farmers, makes excellent manure for agricultural regions. Farmers from the surrounding areas have agreed to help the BBMP collect separated wet trash. Farmers are willing to pay 60 rupees per tonne. According to the Pollution Control Board, one acre of Up to 20 tonnes of wet waste can be used annually on farms. The BBMP intends to turn the separated wet waste into ready-to-use green manure and sell it to neighbouring states in conjunction with the agricultural university. Dry waste will be sent to the landfills, where the BBMP would pay its employees Rs. 10 per kg of plastic.

According to Rule 103 B of the Karnataka Municipal Corporation Act, the corporation may impose a solid waste management on every owner or occupant of buildings or lands or both in the city for the purposes of collecting, transporting, and disposing of solid waste in addition to the property tax levied under Section 103 at a rate not exceeding one thousand rupees per month as may be prescribed.

Apartment complexes with more than ten units are required to pay for waste removal. They also pay a waste cess of 3% of their property tax. Residents oppose the BBMP's plan to collect cess when hotels and residences are left to handle waste segregation on their own.

D. CHENNAI

With an estimated 3000 tonnes per day of solid garbage production, Chennai's Corporation is the major producer. It has two land fill locations—Kodungaiyur and Perungudi—and a network of transfer stations. Other than domestic and commercial garbage and, to a lesser extent, building debris, the current system of waste collection, transfer, and dumping does not distinguish between different forms of waste. Hospital and industrial waste disposal is the generator's duty, however a significant amount of this garbage also enters the Corporation system.

The management of municipal solid trash is a serious issue in Indian cities, particularly Chennai in the state of Tamil Nadu. According to reports, Chennai produces the most solid trash per person daily at 0.75 kg, ranking first in the nation. Municipal solid garbage is typically collected, moved, and disposed of without being treated or processed. Large amounts of trash were left neglected along the river banks and by the sides of the highways. Open rubbish disposal promotes the growth of disease vectors, and dump sites raise the possibility of groundwater contamination. The French business Onyx was given a contract to manage solid trash in Chennai for the first time.

The continued threats to the environment and human health are increased by the collected waste at open dump sites. The largest vegetable market in India, Koyambedu, and Madhavaram Poultry Farm were surveyed as part of the current study to see how well-aware they were of organic waste management. The perspective on the collecting and disposal of organic waste was provided by the study's findings. In the study locations, about 50% of respondents incorrectly dispose of damaged fruits and vegetables. About 30% of the participants dispose of poultry waste in the Madhavaram region, where there is no solid waste treatment facility, so these wastes are not handled. Because the corresponding marketplaces are located at Koyambedu and Madhavaram, respectively, public dump solid vegetable wastes have been detected there.

According to the participants' responses, it was found that most of them dispose of roughly 30 kg of vegetable and fruit waste each day, while some people dispose of 50-60 kg of chicken waste and a small number of participants said they dispose of 100-200 kg of food waste each day. All of the contestants admitted that they were only employing dumping as their only particular technique. While a small number of individuals acknowledged using private dump yards, the majority of people did not. Some of the participants said they used municipal services, while others said they hired a private company to remove their trash. The majority of those present concurred that they had a garbage collection centre, although few of them were unaware of the system, which indicates that the public is not being made aware of it or taught the proper procedures. The majority of participants lacked knowledge of the different sorts of garbage, it was discovered. While some participants were aware of the many trash types, they were not knowledgeable about garbage management. Very few respondents indicated that they were aware of how to dispose of waste as recommended by the government or by a private organisation. However, it was discovered that the majority of respondents were unaware of proper trash disposal. Almost 90% of the participants did not dispose of their waste in a sensible manner. Most respondents were unaware of vermicomposting, and creation of manure from organic wastes with little awareness of the vermicomposting process among participants. It was discovered that none of the participants had a plan or potential strategy for efficiently processing the waste. According to the survey's findings, it is obvious that most respondents don't regularly dispose of their waste because most urban residents living close to markets are unaware of the many sorts of waste and how to dispose of them. Therefore, there is a need to raise knowledge about the proper management of organic waste as well as the usage of vermicompost to transform these wastes into manure that would increase agricultural production. Despite the fact that the participants are generally concerned about the environment because of garbage disposal, they lack strategies and recommendations for managing them sustainably. As a result of the major environmental and health problems caused by garbage, community involvement is crucial. The public needs to be educated and made aware of the many waste types, their origins, disposal options, management options, associated health and environmental effects of wastes, and environmentally friendly waste processing techniques.

E. KOLKATA

The State of West Bengal has 20 districts among which the city of Kolkata holds a place of significance both in the field of administration and commercial activities. The city is under the administrative jurisdiction of Kolkata Municipal Corporation. The Kolkata Municipal Corporation has a total area of 205 sq. km (census 2011) with a geographical

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extension of 22°27'N to 22°39'N latitude and 88°14'E to 88°26'E longitude. The territorial jurisdiction of Kolkata Municipal Corporation (KMC) has been divided into 15 Boroughs consisting of 141.

Large-scale MSW production in the metropolitan areas surrounding Kolkata has turned into a significant environmental problem. Urban local bodies are committed to providing services, but the growing severity of the problems makes it difficult for them to manage this issue effectively. The main issues with MSW management at KMA stem from a lack of waste segregation at the source, a low percentage of house-to-house collection, a large number of open vats, a waste transportation system with outdated vehicles that performs poorly, a collection system that is ineffective in newly added areas, and an informal recycling system that is ineffective. Additionally, MSW collection from home to house should be organized using techniques such collection on consistent, pre-planned schedule and scheduling. The collection bins need to have features like steel containers with lids and a large enough capacity to hold 20% more waste than is anticipated to be generated in a given year.

The region, with a design for mechanical loading and unloading, installation in the proper places, etc. Municipal officials need to keep the storage areas maintained so that they don't produce unhealthy and unsanitary conditions. The MSW transportation vehicles need to be properly maintained, and the Dumper Placer needs to gradually replace the outdated transportation vehicles. Transporting recyclables directly to recycling facilities would increase their revenue because those facilities would pay the firms a specific amount in return. This would aid in formalizing the informal recycling facilities that are currently set up. By the ULBs, recycling of solid waste needs to be encouraged. The systematic process of recycling solid trash could include rag pickers and scavengers who are interested in salvaging recyclable organic garbage. Such involvement would enhance the scavengers' and rag-pickers' socioeconomic circumstances. the private sector so far, little interest has been shown in this crucial municipal service area. A few local bodies have explored private sector participation in the country during the past few years, but it has largely been limited to contracting for the transportation of waste from waste storage depots/roadside vats to the dumping ground. Solid waste management in ULBs depends on coordinated efforts from the municipal authority and the general public. The involvement of the ward committees is crucial for containerized collection, proper segregation, and a smooth transportation system. Citizens' contributions might generate a sizeable sum of money for house-to-house collection services, the selling of organic recyclables, the sale of compost, and other byproducts.

VIII. CONCLUSION

Being mindful of how well people treat the environment is even more crucial in light of the exponentially growing global population. Resources and land are scarce, and there is only so much that can be done to harm the plant's health. As trash production rises yearly, it is clear that this trend is unsustainable in the long run. Recycling and landfills are only able to temporarily lessen the effects of this significant trash output. However, the issue's source needs to be examined first if municipal solid waste is to be properly treated. It will be much simpler to identify environmentally sound solutions to dispose of rubbish if less waste is produced in the first place.

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