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Management of Solid Waste in India

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Existing technologies for the collection, transport, and disposal of trash that is solid are utterly disorganised throughout India. Urban local bodies (ULBs) are unable to efficiently manage the huge amounts of solid waste produced by fast expanding populations, which makes the issue more serious there. The ecosystem and general public health are at danger from improper solid waste management. In this essay, the condition of solid waste management in the nation of India is examined, and suggestions are made to address the various problems.

Keywords: Swacch Bharat, Solid Waste Management, Urban Waste, Covid-19.

I. INTRODUCTION

In urban India, solid waste management (SWM) has become one of the biggest development issues. Many studies show that improper waste disposal produces hazardous gases and leachates as a result of microbial decomposition, environmental factors, refuse characteristics, or land-filling practises. Urban local bodies (ULBs) are in charge of maintaining cities and towns clean in accordance with the 12th Schedule of the 74th Constitution Amendment Act of 1992. Unfortunately, the majority of ULBs suffer from a lack of suitable infrastructure as well as a number of institutional and strategic problems, including inadequate institutional capability, limited funding, or a lack of political will. Although while a large number of Indian ULBs do get government funding, practically all of them nevertheless face financial instability. All landfill sites in India have already been used, and the concerned ULBs lack the funds to purchase more land. Finding additional dump locations is also challenging since local politicians are reluctant to set aside land within their boundaries for garbage from other regions.

Many laws have been established to control how garbage is disposed of. In order to address these concerns, the Ministries of Housing and Urban Affairs (MOHUA) and Environment, Forest & Climate Change (MOEFCC) together launched policies and initiatives. Unfortunately, because of stakeholder confusion, a lack of understanding, and subpar regulator enforcement, the majority of initiatives have fallen short of their goals.

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II. HISTORICAL BACKGROUND

(A) Government Rules and Policies for SWM

1. SOLID WASTE MANAGEMENT RULES, 2016

The Municipal Solid Waste (Management & Handling) Regulations, 2000 were replaced by the SWM Rules, which were updated and announced by the MOEFCC in April 2016. The new regulations now apply outside of municipal boundaries. It enables waste producers to separate garbage at the source, designate dry waste for recycling and reuse, as well as use wet waste from the kitchen for decomposition or biomethanation. Dry waste includes things like paper, plastic, glass, and metal. The local authorities are responsible for setting up “the material recovery facilities or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorised waste-pickers and waste-collectors to separate recyclables from the waste and provide easy access to waste-pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities.” Also, the new regulations forbid waste producers from burying, burning, or depositing solid garbage in drains and bodies of water or in open areas that are accessible to the general public. Now, waste producers are required to pay a "user fee" to the garbage collector as well as a "spot fine" for littering and improper segregation. The regulations provide ULBs the power to create bylaws and specify the standards for issuing spot penalties. The 2016 SWM Regulations also advise composting or biomethanation as methods for processing, treating, and disposing of biodegradable waste on the premises. The engineering requirements and standards for establishing and running landfill sites are set out in Schedule 1 of the Regulations.

The regulations governing garbage segregation and recycling are currently not being followed to the letter, and some cities have failed to incorporate door-to-door collection into the unofficial sector. Moreover, the NIMBY syndrome-related issues are not addressed by the rules. The guideline note on MSWM states that in order to implement the scientific collection, management, processing, and disposal of SWM, adequate systems and infrastructural facilities must be put in place. The establishment of a Central Monitoring Committee, to be presided over by the Secretary of the MOEFCC, is encouraged by the 2016 Regulations. The oversight of the 2016 SWM Regulations' general application will fall to this body.

2. PLASTIC WASTE MANAGEMENT RULES, 2016

The former Plastic Waste (Management and Handling) Regulations of 2011 were repealed by the MOEFCC, which then published the Plastic Waste Management Rules of 2016. Due to the fact that plastic has now entered villages, the new regulations extend the authority from urban areas to rural ones. Before turning it over to a licenced trash collection operator, waste producers are responsible for sorting and storing the plastic waste they produce in compliance with the SWM Regulations of 2016. The regulations require trash providers to pay a user charge, which may be outlined in the ULBs' bylaws for managing plastic waste.

The Plastic Waste Management Regulations of 2016 have also been modified by the MOEFCC, and are now known as the Plastic Waste (Amendment) Rules of 2018. The modifications outline the difficulties and opportunities associated with the collecting, sorting, and recycling of plastic garbage and suggest legislative and administrative changes. The revision includes three significant adjustments. First, the phrase "non-recyclable multilayered plastic" has been substituted with "multi-layered plastic that is non-recyclable or non-energy recoverable or with no other application under Rule 9, in Sub-Rule 3. Second, Regulation 15, which addresses the cost of carry baggage, has been left out. Formerly, the law obliged sellers who sold plastic bags to register with their local ULB. The new regulations require brand owners and manufacturers who operate in more than two or more states to register with the CPCB in an effort to create a centralised registration system. Finally, the idea of Extended Producer Responsibility (EPR), which places the burden of garbage collection on both manufacturers and brand owners, has been implemented. The required thickness of carry bags has been recommended to be increased from 40 millimetres to 50 microns since plastic carry bags make up the majority of scattered debris. A required thickness of 50 microns has also been imposed for plastic sheets used to package and wrap goods. This will make it easier to collect and recycle plastic garbage effectively.

3. MUNICIPAL SOLID WASTE MANAGEMENT MANUAL, 2016

The MOHUA, in partnership with GIZ Deutsche Gesellschaft für Internationale Zusammenarbeit, prepared the Manual for MSWM, in compliance with the SWM Regulations of 2016. The Manual offers direction to ULBs on MSWM system planning, design, implementation, and monitoring. It provides guidance on how to choose the best options for a city based on the amount of waste produced, local waste

characteristics, local geographical conditions, availability of land, and other relevant criteria, and it advocates for the effective preparation and handling of MSW through a seven-step approach. In order to ensure implementation success, this method places a strong focus on community or stakeholder participation and inter-departmental collaboration at the local-authority level.

While choosing the MSW processing or technological solutions, the planning process recommends modifying the integrated solid waste management (ISWM) hierarchy (See Figure 1). The most popular waste avoidance techniques include recycle to recover material wealth for making new goods, waste minimization at the source, and product reuse. The alternative that is least recommended is to dispose of rubbish in open dumps. The 3R strategy and the ISWM go hand in hand very closely. In order to ensure the ecologically sound disposal of solid waste and encourage resource recovery from trash, it is a valuable guide for all ULBs.

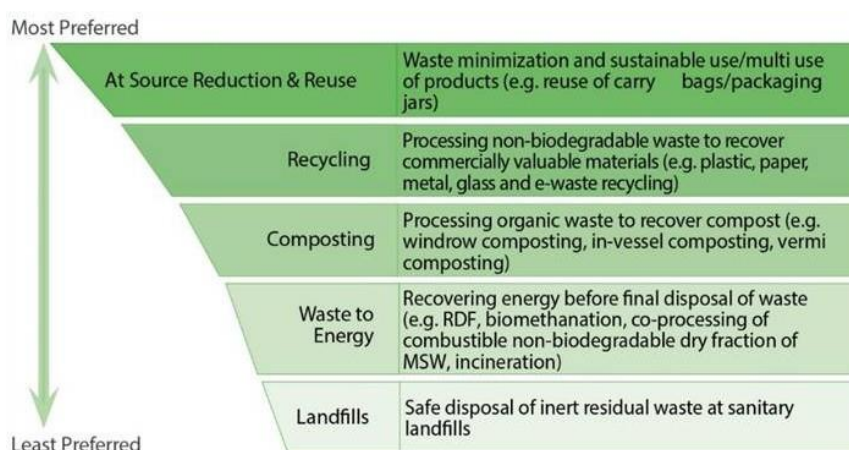


Figure 1: Integrated Solid Waste Management System Hierarchy

4. SWACHH BHARAT MISSION (URBAN)

The Indian government announced the Swachh Bharat Mission (SBM) on October 2, 2014, with the intention of establishing a "Clean India" with a focus on ending open defecation by October 2019. The expanding issues of open defecation, sanitation, and SWM are addressed by the SBM. It calls for public involvement in eradicating rubbish, providing sanitary infrastructure, and laying the foundation for Swachh Bharat.

To assist cities in accelerating their implementation efforts, the Mission Directorate has taken a number of actions.

III. THE IMPACT OF COVID-19

One of the most serious worldwide problems in the contemporary period is the COVID-

19 epidemic. Most nations instituted forced lockdowns, limiting people's freedom of movement, in reaction to the outbreak. The statewide mandate was implemented in India on March 25, 2020, and it was extended four more times, through May 31, 2020.

The Solid Waste Association of North America has seen several changes in the volume and source of solid trash created after the imposition of the lockdowns. Despite the fact that there has never been an incidence of COVID-19 transmission through medical waste, “excessive volume of COVID-19 waste (personnel protective equipment (PPE) kits, surgical mask, gloves) has become a significant challenge for its proper handling to the waste management authorities.” Guidelines have been developed for residents to efficiently minimise and separate garbage in order to address the problem. In light of the COVID-19 situation, the European Commission has developed rules for waste management.

IV. EMERGING CHALLENGES IN SWM

India is the third-largest producer of solid waste, after only China and the United States. It faces significant challenges associated with waste collection, transportation, treatment, and disposal. ULBs are ill-equipped to handle the increasing quantity of waste, which is a direct result of India's ever-increasing urban population and average income, leading to drastic changes in the consumption pattern in cities. A callous public attitude towards waste further exacerbates the situation.

1. As there is no system in place for collecting data on garbage creation on a regular basis, data on the amount of waste generated in India is inconsistent. As a result, estimates and predictions for solid waste vary greatly amongst agencies.
2. According to the SWM Regulations 2016, waste generators are required to separate their trash into three categories: biodegradable, non-biodegradable, and hazardous waste. The separated garbage must then be given to licenced waste collectors. Nevertheless, ULBs have not developed the procedures and technology necessary for the collection, segregation, and processing of various waste categories. Also, the general population is unaware of the segregating process.
3. Without taking necessary safeguards, the majority of Indian cities and towns discharge their trash in low-lying areas outside the city. According to research, there is no landfill-ready terrain. Finding fresh land becomes a difficult task since ULBs lack the money to purchase it.

4. Maintaining social distances at the treatment plants and among the collecting workers, as well as a lack of PPE/safety gear for conservancy employees, are two new issues that the COVID-19 epidemic has brought to India's SWM system. These issues jeopardise other procedures, waste treatment standards, and employee safety in SWM.

CORPORATION PLANS TO DEVELOP WASTE PROCESSING FACILITY JUST 10 KM AWAY FROM BANDHWARI NEWS, 2023 [16]

GURGAON: A lushly verdant area of land in the Aravalis is about 10 kilometres away from the Bandhwari dump. The location near Pali village, where MCG and MCF intend to build a waste processing plant in place of the Bandhwari dump, is home to kikar and dhak trees scattered over 74.4 acres, providing a spectacular view of the hills. Two cities, Gurgaon and Faridabad, will dump and treat their daily trash at the location. The fate of this green region, which is also in the Aravalis, is predicted to be the same as that of Bandhwari.

A visit by TOI on Wednesday to the proposed waste processing site in Pali revealed that, in addition to a private company-run facility for the treatment, storage, and disposal of hazardous waste, the hamlet already has a crusher zone operating nearby.

Residents claim that reopening a waste-processing factory in Aravalis will contaminate the area's air and water supply. They further claimed that some of them already had TB, while others had cancer as a result of the crusher zone's air pollution. They claimed that establishing a trash dumpyard would increase the health risks in Pali.

Locals claim that they won't permit businesses to begin construction on the garbage plant when they enter their community to do so.

Our community already has a facility to handle industrial hazardous trash as well as a crusher zone. In our community, there are TB and cancer sufferers. The government is currently planning to build a waste processing and disposal plant, which would poison our air and contaminate our groundwater. The settlement is situated across 6,000 bighas, while the Aravali pahar (hills), a portion of which the authorities plan to turn into a garbage processing centre, is spread across 12,000 bighas (about 3,000 acres). Our livelihood is the pahar, said Raghubir Singh, a 62-year-old inhabitant of Pali village, which has a population of about 20,000. The primary occupation of the hamlet is cattle farming.

Because of the nature of the land and the fact that our community is at the foothills, he said, if garbage is placed there, the odour and leachate would inevitably move from the pahar towards the settlement.

We have watched how the corporations of Gurgaon & Faridabad steadily ruined the Aravalis in Bandhwari, according to another local, 40-year-old Vijender Bhadana. The entire village of Bandhwari is currently in pain. The administration is now attempting to recreate the catastrophe in Pali after becoming a silent observer of it for so long. The government's goal is to destroy Aravalis, but we won't allow that to happen. Pali won't turn into another Bandhwari, we promise.

Agriculture and livestock raising are the village's two main economic activities. Wheat, mustard, bajra, and jowar are grown by villagers. The recent dismissal of the petitions contesting the purchase of the common village land for the waste processing project by the Punjab and Haryana High Court. The locals said that they are currently preparing to petition the Supreme Court.

Our village is still under the control of the panchayat and is not yet under MCF control. It is the only village in Haryana where land ownership has been transferred to a municipal corporation although the hamlet is still governed by a panchayat.

V. CONCLUSION

As ULBs have mainly failed to manage solid waste effectively, the SWM system in India is in a critical situation. These local organisations lack the cash necessary to purchase new property or procure the SWM-related technology since they are so heavily dependent on state governments for support. Moreover, garbage pickers, important members of the workforce in the business, lack legal standing and protection, making it difficult for them to enforce procedures for the collection & segregation of waste. Institutional and financial difficulties must be resolved first if the situation is to become better. Even while the 2016 SWM Regulations do significantly address a number of concerns, compliance is still low. With the purpose of promoting the decentralisation of the waste management system, a policy document or action plan must be created.

Citizen engagement should be encouraged, especially in source segregation and treatment procedures, to increase the effectiveness of SWM in India. To reduce waste and littering and boost reuse and recycling, the policy agenda for sustainable SWM must promote behavioural change among voters, elected officials, and decision-makers. In order to significantly improve India's SWM system, community awareness and a shift in people's attitudes regarding solid waste and its disposal are necessary.

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