



Waste Management Initiatives in India its types and Challenges

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Abstract: The purpose of authoring this article is to investigate existing practices connected to various waste management initiatives implemented in India for human well-being. The other goal is to make suggestions and recommendations to improve waste management procedures in Indian towns. This work relies on secondary research. It provides in-depth understanding of India's numerous waste management projects and identifies areas for development in waste management for societal benefit. The purpose of this study is to better comprehend the essential role that the formal sector plays in waste management in our country. This is an original piece that could be expanded upon.

Keywords: India, Recycling, Waste Disposal, Waste Management

Introduction: "There are few things certain in life - one is death, second is change and the other is waste." No one can stop these things from happening in our lives. However, with better management, we can prepare ourselves. Here we shall discuss waste and waste management. Everyone has the right to clean air, water, and food. This right can be achieved by ensuring a clean and healthy environment. Now for the first question: what is waste? Any item that is not required by the owner, producer, or processor is discarded. Waste is often disposed of in landfills once a product's life cycle has ended.

The population boom, combined with people's improved lifestyles, leads in increased solid waste creation in both urban and rural areas of the country. In India, like in other industries, there is a clear separation between solid waste from urban and rural areas. However, due to increased urbanization, rapid acceptance of the "use and throw" philosophy, and equally rapid communication between urban and rural areas, the distance between the two is closing. Rural solid trash is more biodegradable, but urban waste contains more non-biodegradable components such as plastics and packaging. The unpleasant attitude toward solid waste and its handling is, nonetheless, shared by both sectors. Making waste out of sight is the most typical practice.

In recent decades, the number of projects launched by the government, non-governmental organizations (NGOs), commercial corporations, and the general public has expanded dramatically. Nonetheless, land filling remains the leading solid waste disposal option in the United States and many other nations, including India. It is commonly known that current waste management policies are unsustainable in the long run. As a result, waste management is changing dramatically in order to provide more environmentally friendly solutions. We investigate these solutions in the hopes of providing the waste management industry with a more economically viable and socially acceptable solution to our existing waste management problem. This report discusses various achievements in waste management measures implemented by India.

Types of wasteland management: Domestic waste, factory waste, waste from an oil factory, e-waste, construction waste, agricultural waste, food processing waste, biomedical waste, nuclear waste, slaughterhouse waste, and so on. We can classify garbage in the following ways:

- Solid waste- vegetable waste, kitchen waste, household waste etc.
- E-waste- discarded electronic devices such as computer, TV, music systems etc.
- Plastic waste- plastic bags, bottles, bucket, etc.
- Metal waste- unused metal sheet, metal scraps etc.

Wet waste (Biodegradable) includes the following:



- Kitchen waste including food waste of all kinds, cooked and uncooked, including eggshells and bones
- Flower and fruit waste including juice peels and house-plant waste
- Garden sweeping or yard waste consisting of green/dry leaves
- Sanitary wastes
- Green waste from vegetable & fruit vendors/shops
- Waste from food & tea stalls/shops etc.

Dry waste (Non-biodegradable) includes the following:

- Paper and plastic, all kinds
- Cardboard and cartons
- Containers of all kinds excluding those containing hazardous material
- Packaging of all kinds
- Glass of all kinds
- Metals of all kinds
- Rags, rubber
- House sweeping (dust etc.)
- Ashes
- Foils, wrappings, pouches, sachets and tetra packs (rinsed)

Westland Management in India: The waste management market is divided into four segments: municipal waste, industrial waste, bio-medical waste, and electronics waste. All four forms of trash are governed by separate laws and policies, depending on the nature of the waste. In India, waste management practices are based on actual trash generation, primary storage, primary collection, secondary collection and transportation, recycling, treatment, and disposal. In India, municipal corporations, in collaboration with the public health department, play an essential role in garbage management in each city. In addition to other responsibilities, the Municipal Corporation is in charge of managing the city's MSW. The public health department is in charge of cleanliness, street cleaning, epidemic control, and food adulteration. There is a clear and strong hierarchy of positions in the Municipal Corporation.

The Mayor holds the highest power in the Municipal Corporation and is elected for a five-year term. A City Commissioner serves under the Mayor. The Executive Officer reports to the city commissioner and oversees different departments such as public health, water works, public works, house tax, lighting, projection tax, demand, and a workshop, all of which are led by their respective department heads. The Public Health Department employs the following personnel: Health Officer, Chief Sanitary and Food Inspector, Sanitary and Food Inspectors, Sanitary Supervisor, Sweepers, and others. The solid waste management (SWM) system operates in four phases: street cleaning, collection, transportation, and disposal.

These zones are further separated into sanitary wards to facilitate solid waste collection and transportation operations. Currently, waste management in India primarily entails collecting waste from residential and industrial areas and disposing it at disposal sites. The authorities, usually municipal, are compelled to handle solid waste generated within their respective limits; the standard method is to lift solid trash from the source of origin and transport it to distant locations known as dumping grounds and/or landfill sites for disposal. Once the waste has been evacuated, the treatment is limited to spreading it across a greater area in order to keep it out of public view. Waste collection is typically done on a contracted basis.



Waste Collection in India:

Primarily by the city municipality

- No gradation of waste product eg bio-degradable, glasses, poly bags, paper shreds etc.
- Dumps these wastes to the city outskirts Local raddiwala /

kabadiwala (Rag pickers)

- Collecting small iron pieces by magnets
- Collecting glass bottles
- Collecting paper for recycling

In Delhi - MCD- Sophisticated DWM (Delhi Waste Management) vehicle.

Waste Management Initiatives in India: In recent years, India's Central and State Governments, as well as local (municipal) authorities, have paid close attention to solid waste management. There are several partnerships/alliances in the sector of solid waste management in Indian cities. These alliances include public-private, community-public, and private-private partnerships. To determine the status of existing partnerships in the study area, first identify the various parties involved in waste management.

- The public sector includes local authorities and public departments at the city level.
- The private-formal sector includes registered enterprises that collect, transport, treat, dispose, and recycle waste.
- The private-informal sector includes waste-pickers, dump-pickers, itinerant-waste buyers, traders, and non-registered small-scale enterprises.
- The public sector includes municipalities.

The National Solid Waste Association of India (NSWAI) is India's sole premier professional non-profit organization dedicated to solid waste management, including toxic and hazardous waste, as well as biomedical waste. It was established on January 25, 1996. NSWAI assists the Ministry of Environment and Forest (MoEF), New Delhi in many domains of solid waste management by making policies and action plans, and is entrusted with the responsibility of collecting information and other statistics pertaining to solid waste management.

Initiatives taken by Private Companies: Several commercial companies provide comprehensive trash management solutions. For example, Subhash Projects and Marketing Limited (SPML) is a major Engineering and Infrastructure development company with 26 years of experience in Water, Power, and Infrastructure. SPML is now making progress in urban infrastructure, solid waste management, water and waste water systems, cross-country pipelines, ports, and SEZs through BOOT/PPP programs. "SPML Enviro" is Subhash Projects and Marketing Limited's arm that provides integrated environment solutions. It offers a comprehensive solution for the collection, transportation, and disposal of municipal and hazardous waste, as well as the segregation and recycling of municipal waste, the construction and management of sanitary landfills, the construction and operation of compost plants, and the waste-to-energy plants at the Delhi and Hyderabad airports.

The PTDR is a proven, cost-effective, ecologically friendly, and economically viable waste remediation system. SPML Enviro and its joint venture partners have proven capabilities to successfully execute projects on a turn-key basis involving Okhla sewage treatment plant, Delhi Jal Board, Bewana common effluent treatment, Delhi State Industrial Development Corporation, Yelahanka primary/tertiary sewage treatment plant, Bangalore Water Supply and Sewerage Board, Okhla common effluent treatment plant, Sewage treatment plant, My SPML has also formed a joint venture with the United States-based company INSITUFORM Technologies (INC). INSITUFORM is a pioneer in sewer restoration initiatives around the



world.

Initiatives taken by Indian corporate: Many firms in India have implemented a variety of projects. For example, HCL Infosystem thinks that the producers of electronic items are responsible for assisting an environmentally acceptable disposal. Once the product has reached the end of its useful life. The HCL Info system supports India's ongoing initiative to establish distinct e-waste legislation. HCL has been developing an accessible, convenient, and safe e-waste recycling strategy in India. HCL has developed an online e-waste recycling request registration mechanism through which clients (both individual and corporate) can submit requests for e-waste disposal. In addition to corporate customers, HCL has expanded its e-waste collection program to retail customers through its HCL Touch spread points located throughout the country. HCL provides recycling services to its customers regardless of when and where they purchased the product. To promote electronic trash recycling, Nokia India introduced the 'Take Back' program, in which customers may drop off their old handsets at the company's stores and earn prizes. The take-back campaign aims to educate mobile phone users on the significance of recycling electronic waste. As part of this campaign, Nokia encourages mobile phone customers to dispose of used handsets and accessories, such as chargers and handsets, regardless of brand.

Challenges in India: Key concerns and obstacles include inadequate collection and segregation at the source, paucity of land, e-waste dumping, a lack of knowledge, and so on. Simple dumping of mixed garbage is commonplace, particularly in poorer nations, who lack the financial resources to implement the expensive technologies proposed by wealthier countries.

In India, the "new Municipal Solid Waste Management Rules 2000," which went into force in January 2004, fail to manage trash in a cyclical manner. Waste management remains a linear system of collection and disposal, which poses health and environmental risks. Urban India is expected to face a significant trash disposal problem in the future years. Until now, the problem of waste has been viewed as one of cleaning and disposing of garbage. However, a closer look at the existing and future reality reveals that waste needs to be addressed holistically, considering both its natural resource foundations and health implications.

There is a tremendous need for private sector participation in waste management, but we cannot disregard the risks associated with private sector participation. The risks of private sector involvement may include a lack of transparency, a business failure that disrupts public services, or a lack of collaboration among stakeholders. Another significant topic is: how effective are public-private partnerships? We recall that a Chennai-based firm and the French conglomerate Onyx collaborated on rubbish collection. However, we don't know how effective it was in practical terms. The Corporation paid a significant amount for waste removal. However, there were complaints against the company. In any case, the corporation was merely collecting waste and dumping it at the dump sites.

Suggestions for future improvement: The political will is the primary priority. In general, government agencies and localities prioritize current problems while failing to consider future difficulties caused by environmental degradation. They believe that they will solve problems as they arise, but not right now. Because doing anything for the environment yields no political benefits or guarantees a seat the next time around. Now the question is, how can we change this mentality? We believe there should be a positive approach to long-term planning and implementation. Legislation and effective enforcement are critical to sustainability, for which the framework must be constructed.

Improvements in trash storage and collection are required. This can be accomplished by providing standard bins for each residence and neighborhood that are placed outside for easy pickup. In regions where this is not feasible, centrally situated waste collection stations should be constructed and shared by multiple



houses. rubbish must be sorted more at the source to separate recyclable elements and reduce the amount of rubbish that must be collected and disposed of. Collaboration is essential between communities, the informal sector, formal garbage collectors, and authorities. An effective solid waste management system should attempt to reduce manual handling while achieving 100% solid trash collection and transportation. The acceptance and transfer of technologies from rich countries without adjusting them to the local or regional viewpoint would be a mistake on the side of developing countries. As a result, the technical components of waste management must include a variety of factors while developing and implementing strategies based on the country's specific condition. It would demand for the development of the management sector, which must work in tandem with technical planning.

The general public can play an essential role. Public engagement is required for an effective waste management system. Changes in segregation and littering habits can alter the approach to waste management. For example, in West Bengal's heritage town, there was a garbage management campaign. Within two years, it successfully exposed citizens to the importance of source segregation and not littering in public settings. The city is now growing cleaner, and more people are joining the initiative.

Conclusion: Simply put, we need a more severe integrated and strategic waste prevention framework to properly handle trash-related concerns. There is an urgent need to improve existing systems rather than just replacing them with models from affluent countries. To prevent epidemics and make each city a healthy city, both economically and environmentally, India urgently need a well-defined strategic waste management plan and its strict implementation. To achieve financial sustainability, socio-economic and environmental goals in the field of waste management, there is a need to systematically analyze the strengths and weaknesses of the community and the municipal corporation, based on which an effective waste management system can be developed.

All of the solutions above are specific to India and will only be effective if we all take personal responsibility for keeping the environment clean. As a general public, we cannot do much to shape policies and laws, or to adopt newer technologies connected to recycling and other waste management alternatives, but we can play an important role in this process by following a few guidelines. Here are a few suggestions to help you attain this aim.

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