

Issues, Concerns and Strategies of Solid Waste Management: A Study Among the Households and Frontline Workers of Corporation of Chennai

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Abstract - The present Project is focused on the issues faced by the corporation of Chennai and its front line workers involving in the collection of garbage and solid waste from the households, segregation and disposal. The corporation of Chennai is taking its level best efforts to segregate the waste. But the non co-operation from households and huge quantity of solid waste from hotels, slaughter houses, wet markets and meat retail outlets, retail shops, private hospitals, clinics, diagnostic centres are disposed in the garbage collection points during the night hours. This becomes a difficult job to the front line workers to segregate and dispose. In addition, hazardous chemicals, acid bottles, broken ceramic tile pieces, glass and bottles, used shaving blades, hard metals, plastic sharp edged household items, footwear, leather, aluminium cans, oil, shampoo bottles and many others are found and in cases injuries are suffered by the garbage collection frontline workers of corporation of Chennai. In such scenario, the present study is trying to identify strategies to resolve the issues and concerns of solid waste management from households and commercial outlets. The secondary objectives could is to identify the problems of front line workers in the solid waste collection, segregation and disposal. To create the awareness among the public. To improve the strict implantation of solid waste segregation and collection at the collection point itself. To initiate the changes in the policy, rules and regulations for solid waste disposal practices of households and commercial outlets. In order to implement the green practices, to control pollution and to protect the environment, it is necessary to identify the gross route problems in the solid waste management through the front line workers is need of the hour, of course, the public and expert opinion can also taken from the experts in the design and developing of policies and implementation methods. A direct survey of sample area, review of collecting methods and issues and concerns in the solid waste disposal practices from the front line workers can help to identify the real time issues and resolve by drafting and implementation of effective strategies.

For the purpose of data collection, the existing date from the reports and issues, concerns and practices are reviewed the gaps are identified. A higher level policy making may not be helpful in resolving the issue due to behavioural issues associate with the implementation. Usage of technology in measuring the quantity and nature of solid waste disposed can be taken as a measure to fix charges. This intern helps in controlling the disposal of waste, reuse, recycling of segregated waste. The implementation is key in such ground practices and hence, the frontline workers dealing with solid waste management can give better idea on the issues and policy making can be based on their inputs can yield better results. A structures questionnaire along with the schedules interviews with the front line workers the opinions, suggestions and the issues can be discussed and the data classification and interpretation can help in identify the issues and to develop the strategies to resolve the issue in a best possible manner. This can help in creating the clean and green environment along with the hidden benefit of improved level of sanity, hygiene, public health, conservation, protection of natural resources and environment at large. Hence, the current research is contemporary in nature and socially relevant.

Keywords – Solid Waste, Household, worker.

I. INTRODUCTION

Solid waste management is a term that is used to refer to the process of collecting and treating solid wastes. It also offers solutions for recycling items that do not belong to garbage or trash. As long as people have been living in settlements and residential areas, garbage or solid waste has been an issue. The term solid waste management mainly refers to the complete process of collecting, treating and disposing of solid wastes. In the waste management process, the wastes are collected from different sources and are disposed of. This process includes collection, transportation, treatment, analysis and disposal. It needs to be monitored so that strict regulations and guidelines are followed.

Sources of Solid Wastes

- Solid domestic garbage.
- Solid waste material from various industries.
- Plastics, glass, metals, e-waste, etc.
- Medical waste.
- Construction waste, sewage sludge

The process of waste handling and disposal varies in different countries. In India, the processes differ according to the source of solid waste. They can be classified as: Municipal solid waste can further be divided into biodegradable, recyclable and hazardous domestic wastes. The biodegradable waste includes rotten food, vegetable peel and mostly wet kitchen waste. Recyclable waste includes plastic and hazardous wastes include, bulb, batteries, etc. The industry generated like chemical factories, medical waste from hospitals are considered as Hazardous Solid Waste and needs special settings to dispose of them. In any region, solid waste management is very important for the safe disposal of wastes and to reduce environmental pollution and avoid any health hazards that it may cause. Landfills are the most common method of disposing of solid wastes. Modern-day landfills are designed by taking care of various environmental factors and types of wastes, so as to minimise pollution and health risks.

II. EFFECTS OF POOR SOLID WASTE MANAGEMENT

Due to improper disposal of solid waste particularly by waste management organizations, the collected wastes get heap up and become a problem for both the environment and also for the public. By dumping of huge garbage, drives biodegradable materials to decay and decompose under abnormal, uncontrolled and unhygienic conditions. After a few days of decomposition, it becomes a breeding ground for different types of disease-causing insects as well as infectious organisms. A foul smell is produced and it also spoils the aesthetic value of the area. The solid wastes collected from different industries include toxic metals,

chemicals, and other hazardous wastes. When these wastes are released into the environment, they can produce biological and physicochemical problems to the environment, the chemicals may drain into the soil and pollute the groundwater and also alter the productivity of the soils in that particular area. In rare cases, the hazardous wastes may get mixed up with the ordinary garbage and other combustible wastes causing the disposal process even harder and risky. By burning the paper and other scraps along with the hazardous wastes, dioxins and poisonous gasses are produced and released into the air which results in causing various diseases including chronic disease, skin infections, cancer, etc. Causes of waste management are important to understand from social, health and environmental perspective. If not for efficient waste management, the streets would be littered with filth, lakes and rivers would become very toxic for life. Human health would be severely affected if careful waste management practices did not exist. Therefore, the major causes of waste management practices come into play after environmental disasters especially oil spills.

In many cities, Heaps of garbage lying along the roads while passing through a highway. Open dumping is the most common method of waste disposal in India. The trash heaps are usually left open to the environment and the elements. These seldom have a sparse covering which can often attract pests or vermin. Sometimes, these dumps are subjected to open burning, which can release toxic fumes and smokes. There have also been instances where enough heat has been generated to trigger a spontaneous combustion. Sometimes, wastes are illegally dumped into rivers and canals or used to fill land depressions without proper consultations. These practices cause a lot of problems in the long run. These can range from the degradation of the soil quality to leaching toxic chemicals into underground water sources. Therefore, to prevent such scenarios, proper waste disposal methods should be adopted.

III. REVIEW OF LITERATURE

Solid waste management is a universal issue that matters to every single person in the world. And with over 90% of waste openly dumped or burned in low-income countries, it is the poor and most vulnerable those are disproportionately affected. In recent years, landslides of waste dumps have buried homes and people under piles of waste. And it is the poorest who often live near waste dumps and power their city's recycling system through waste picking, leaving them susceptible to serious health repercussions. "Poorly managed waste is contaminating the world's oceans, clogging drains and causing flooding, transmitting diseases, increasing respiratory problems from burning, harming animals that consume waste unknowingly, and affecting economic development. Greenhouse gasses from waste are also a key contributor to climate change. In 2016, 5% of

global emissions were generated from solid waste management, excluding transportation. “Solid waste management is everyone’s business. Ensuring effective and proper solid waste management is critical to the achievement of the Sustainable Development Goals. Left unmanaged, dumped or burned, waste harms human health, hurts the environment and climate, and hinders economic growth in poor and rich countries alike.

What a Waste 2.0

While this is a topic that people are aware of, waste generation is increasing at an alarming rate. Countries are rapidly developing without adequate systems in place to manage the changing waste composition of citizens. Cities, home to over half of humanity and generating more than 80% of the world’s GDP, are at the forefront of tackling the global waste challenge. According to the World Bank’s What a Waste 2.0 report, the world generates 2.01 billion tonnes of municipal solid waste annually, with at least 33% of that not managed in an environmentally safe manner. An update to a previous edition, the 2018 report projects that rapid urbanization, population growth, and economic development will push global waste to increase by 70% over the next 30 years – to a staggering 3.40 billion tonnes of waste generated annually.

Toward sustainable solid waste management

Environmentally sound waste management touches so many critical aspects of development. Yet, solid waste management is often an overlooked issue when it comes to planning sustainable, healthy, and inclusive cities and communities. Governments must take urgent action to address waste management for their people and the planet. Moving toward sustainable waste management requires lasting efforts and a significant cost. According to What a Waste 2.0, waste management can be the single highest budget item for many local administrations. In low-income countries, it comprises 20% of municipal budgets, on average. Solid waste management is everyone’s business. Ensuring effective and proper solid waste management is critical to the achievement of the Sustainable Development Goals.

IV. DESCRIPTION OF PROPOSED PROJECT AND STATEMENT OF THE PROBLEM

The current study is on the identification of issues and concerns in the solid waste management of households and commercial outlets from Chennai city. This can help to identify the ground level issues in the solid waste management segregation and collection and disposal. This can pave a way to find the better strategy to handle solid waste management in the sample area. i.e Chennai city. The present project is proposed to conduct in Chennai by consulting and collecting the data from all the zones in Chennai city. The sample selection will be done in random basis. The sample respondents could be the households,

commercial outlets, experts on solid waste management and officials from the corporation of Chennai during the project period. The basic idea is to improve the solid waste management practices from the source to disposal and thereby by the sustainable goals of the economy namely improved level of public health and environmental protection can be ensured at large. The key to success in doing this is to devise the appropriate policy and implementation of the same through the stakeholders’ co-operation and support. The role of creating awareness and the degree of making them as apart in the process of solid waste management is important.

V. NEED FOR THE STUDY

The increasing volume and complexity of waste associated with the modern economy is posing a serious risk to ecosystems and human health. Every year, an estimated 11.2 billion tonnes of solid waste is collected worldwide and decay of the organic proportion of solid waste is contributing about 5 per cent of global greenhouse gas emissions. Every year, an estimated 11.2 billion tons of solid waste are collected worldwide. Of all the waste streams, waste from electrical and electronic equipment containing new and complex hazardous substances presents the fastest-growing challenge in both developed and developing countries.

Poor waste management - ranging from non-existing collection systems to ineffective disposal -causes air pollution, water and soil contamination. Open and unsanitary landfills contribute to contamination of drinking water and can cause infection and transmit diseases. The dispersal of debris pollutes ecosystems and dangerous substances from electronic waste or industrial garbage puts a strain on the health of urban dwellers and the environment. The solution, in the first place, is the minimization of waste. Where waste cannot be avoided, recovery of materials and energy from waste as well as remanufacturing and recycling waste into usable products should be the second option. Recycling leads to substantial resource savings.

Why Chennai and Greater Chennai

Every day around 5400 MT of garbage is collected from the city. Night conservancy is also being carried out in all bus route roads and Markets / commercial areas of the city. Door to door collection of garbage is done in all zones. Collection of Municipal Solid Waste at source (Door to door collection) has been implemented in all Zones. About 95% of the households were covered under this programme. This has been achieved only on introduction of Tricycles which stands as a wonder tool for better collection of MSW at door steps. Now about 5400 Tricycles are in use for reduction of dust bins on road side. Source separation is promoted to reduce the waste coming to the Landfill, thereby increasing the life time of the Landfills.

Strategies for planning and integrated waste management

Understanding how much and where waste is generated – as well as the types of waste being generated – allows local governments to realistically allocate budget and land, assess relevant technologies, and consider strategic partners for service provision, such as the private sector or non-governmental organizations. With a focus on waste data, supporting cities to make critical solid waste management financing, policy, and planning decisions is key. In an era of rapid urbanization and population growth, solid waste management is critical for sustainable, healthy, and inclusive cities and communities. If no action is taken, the world will be on a dangerous path to more waste and overwhelming pollution. Lives, livelihoods, and the environment would pay an even higher price than they are today. Many solutions already exist to reverse that trend. What is needed is urgent action at all levels of society.

VI. SPECIFIC OBJECTIVES OF THE PROJECT

Primary Objective:

1. To resolve the issues and concerns of solid waste management from households and commercial outlets in the Corporation of Chennai.

The secondary objectives

1. To identify the problems of front line workers in the solid waste collection, segregation and disposal.
2. To identify the issues in segregation of solid waste among the households and commercial outlets in the sample area.
3. To specify the methods to create awareness on the importance of solid waste management among the public.
4. To identify the methods to improve the strict implantation of solid waste segregation and collection at the collection point itself.
5. To recommend the changes in the policy, rules and regulations for solid waste disposal practices of households and commercial outlets.

VII. PLAN OF ACTION, METHODOLOGY AND DESIGN

The current study proposes a hybrid method of survey of sample area, sample respondents selection and collection of data. The primary data will be collected through scheduled interviews, structured questionnaire. The data analysis will be carried out in the light of set objectives and the strategies can be identifying to implement in the ground level. The part of the study includes creation of awareness campaigns on need for solid waste management and its effects on the public health and environment at large. This can help in

making the stakeholders in the path of solid waste management.

VIII. OUTCOMES OF THE PROJECT

The current project can identify the issues in the solid waste collection and segregation at source point. The current work helps to identify the issues faced by front line workers in the solid waste collection and segregation. This can help to collect Perceptions of solid waste generators with regard to separation and disposal of waste. Finally, finding the suitable appropriate strategies to involve the stakeholders in the process of solid waste management and reach out the sustainable goals.

IX. SUMMARY AND CONCLUSION

The environmental conditions of the earth are drastically changing day by day and it leads to excess level of carbon monoxide and green house gases, global warming indicators. The natural calamities like floods, earthquakes and acid rains become new normal. The increased level of viral diseases is in alarming stage and brings the entire world stand still with COVID-19. Hence, the basic reasons for all these are the poor control on environment protection and conservation of natural resources. This trend may lead to erode the human species from the earth. The nearest cause for all these is migration and urbanization along with no proper solid waste management practices in place. This leads to increased level of land fill and garbage mingled with e-wastage and toxic wastage creating a big damage to environment and human health and well being. Creating awareness among the general public and diverting them to behave in a socially responsible manner is need of the hour. The reduction of usage, reuse and recycling practices may bring down the solid waste and enhance the span of damage. Mean while other environmental protection steps is to be planned and implemented on war footing basis for the survival of human race in the planet earth.

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