

Research Study on Solid Waste Management

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Abstract- Solid management is one of the basic essential services provided by municipal authorities, NGO, private sector to keep the clean cities. Solid waste management include the collection, transporting, treatment and disposal of solid waste together with monitoring and regulation. In India vast environmental problem are rising in solid waste management due to urbanization. Solid waste is one of the biggest problem of cities. Solid waste is managed by three basic rules REDUCE, RECYCLE and REUSE. Improper solid waste management causes a hazardous inhabitant. The study of solid waste management has been carried out to evaluate the current status and identify the major problem. Solid waste is treated and dispose by a various method-Incineration, Composting, Landfill, Recycling and Windrow composting. Solid waste is used as a waste energy. Study of solid waste management is modified the present system of solid waste disposal and further use as energy.

Keywords- Solid Waste, Types, Method Of Disposal, Problem, Scope

I. INTRODUCTION

At present the most serious problem of pollution is the direct result of human activity. As soon as large settlement and towns become common, the problem of disposal of solid waste arose. India is also experiencing tremendous growth in urban areas. Urban centers of India produce 120,000 tons of solid waste per day. Some metropolitan cities like Bombay, Calcutta, Bangalore, and Pune showing typical urban pollution.

Solid waste comprises unwanted and discarded materials from houses, street sweeping, and commercial and industrial operations. Increase in urban population and changing life styles lead to the generation of solid waste. Generally, solid waste is heterogeneous in nature such as mixture of vegetables, food items, paper, plastics, rags, glass etc. If solid waste is disposed of on land in open areas, then it causes a negative impact on the environment, ground water and on health. In India over the years from 100 gm. per person per day in small towns to 500 grams per persons per day in

large towns. Currently most of the municipal waste in India is being disposed unscientifically.

For adopting any efficient method or process to collecting domestic waste in proper way, there may require study of the present situation and such areas which we can remedy take in this area. In this seminar we just study the weak area which create problem for collecting the domestic waste.

A. Problem statement

Since the waste collection system is not well managed in Talegaon, people dispose the waste wherever possible mostly in the drainages or the river banks. This has led to huge environmental pollution deteriorating the health of mankind and the other living beings. Due to the lack of knowledge of disposing the wastages, people trash the waste in a way they want. We can see waste all around Talegaon city including in the roads, play grounds, parks and even in hospitals. People throw the waste without realizing that it is affecting their own health and will deteriorate the future generation's living standard.

B. Need of the Project

As per the Municipal Solid Waste (Management and Handling) Rules, 2000, every Urban Local Body (ULB) shall finalize the MSW processing method before the year 2003. Pune has been rated as second city in India having highest per capita income next to New Delhi. Thus per capita waste generation is also proportionally higher than the national average. It has been estimated that per capita waste generation in Pune is 500gm. and nearly 500 Tons of MSW is being generated currently. With the projected population as 800,186 in the year 2020, it is estimated that 16000 tons of MSW would be generated in the year 2020.

II. OBJECTIVES

The city like Pune and Talegaon Dabhade, generates large amount of domestic solid waste. There is absence of efficient method of collecting domestic waste and people

tendency to spread everywhere like household waste, market waste, construction waste, etc.

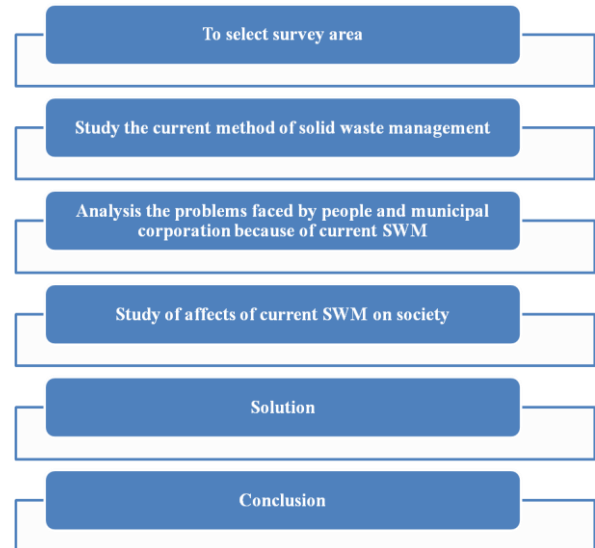
The total amount of waste generated has gradually increased, but municipal solid waste disposed per person has decreased from 1.3kg per day in 1994 to 1.02kg per day in 2007. In particular, the amount of landfill and incinerated wastes has greatly decreased since 1995 due to the continuous increase in recycling caused by the implementation the Volume-Based Waste Fee System. However, the amount Construction waste has increased annually.

MNC Authority design the process and considerations to control the pollution which caused by the domestic waste. For effective collecting the domestic waste, they have placed number of dustbin and waste container, but people don't proper approach to the containers and sometime due to people habit they prefer dispose the waste near the area which they have feasible.

There must require aware about the proper way to dispose the waste container. MNC Authority adopted new method placed the dustbin and container for easy to people approach. Selection of place which waste container place it must assessable where it can be easily transported to dispose land which located outside the city.

- 1) To devise a system for effective and efficient method of MSW disposal.
- 2) To assess Project feasibility
- 3) To assess Environment Impact Assessment of the Project
- 4) Cost Estimate
- 5) To prepare operational plan
- 6) Organizational and Financial Studies
- 7) Training and Capacity Building.

III. METHODOLOGY

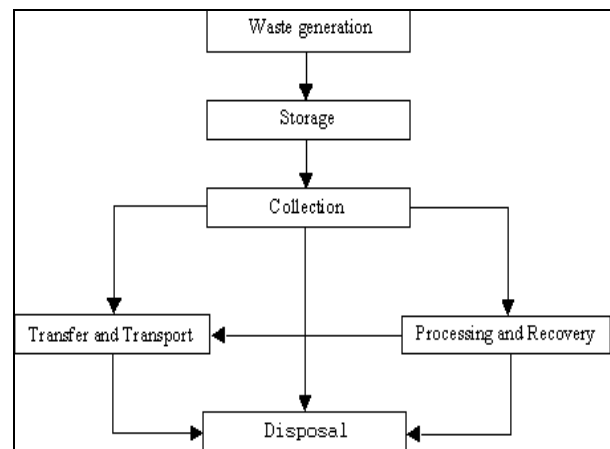


A. Sources of Waste:

- 1) Household Waste
- 2) Commercial Waste
- 3) Industrial Waste
- 4) Market Waste
- 5) Hotels and restaurants
- 6) Vegetables

B. Methods of Waste Disposal

- 1) Landfills
- 2) Incineration
- 3) Source reduction
- 4) Composting
- 5) Recycling



IV. DATA ANALYSIS

A. MSW Previous Year Data Collection

Table 1 MSW Previous Year Data Collection

Sr.No	Name of ULB	YEAR	MSW Generation Qty./Day
1	Talegaon Dabhade M. Council	2010/11	10
2	Talegaon Dabhade M. Council	2011/12	10
3	Talegaon Dabhade M. Council	2012/13	10
4	Talegaon Dabhade M. Council	2013/14	8
5	Talegaon Dabhade M. Council	2014/15	12
6	Talegaon Dabhade M. Council	2015/16	8

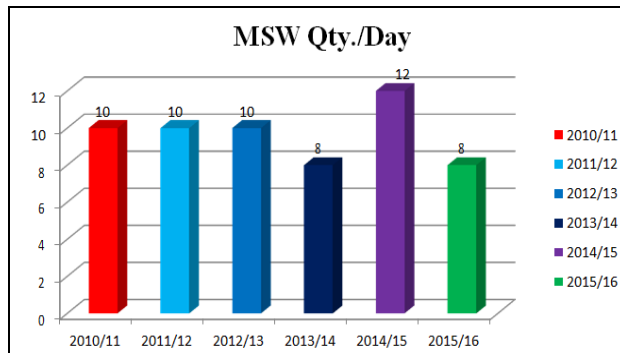


Fig 1 MSW Previous Year Data Collection

B. NAME OF SITE: Dumping yard, Urli Devachi, Hadapsar, Pune

- Visit Summary**

In that visit we know the current status of dumping yard, Urli Devachi and get actual idea about the solid waste collection and disposal at site and method of collecting and method of disposal, we know actual quantity of waste collected and method of dispose.

In that visit we are thankful to Ms. S.R. Shikalgar mam for her guidance and also thanks to Prof. Patil sir for giving permission for that visit



Fig 2 Dumping Yard

C. NAME OF SITE: Kondhwa Budruk

- Visit Summary**

In that visit we know the current status of Kondhwa and get actual idea about the solid waste collection and disposal at site and method of collecting and method of disposal, we know actual quantity of waste collected and method of dispose.

In that visit we are thankful to prof. Sana Shikalgar for her guidance and also thanks to prof. Patil sir to give us a permission for that visit.



Fig 3: Site Visit at Kondhwa

V. RESULT AND DISCUSSION

The questionnaire is divided into two kinds of partitions such as commentary questionnaire and likert scale designed to assess the views of respondents on solid waste management. Respondents were asked to rate their perceptions regarding the level of importance of these strategies on a five point Likert ordinal scale where 5 = Strongly Disagree, 4 = Agree, 3=undecided, 2 = Agree and 1 = Strongly Agree. The study was carried out in Talegaon region. The questionnaires were administered to project manager of construction sites. A total of 48 different houses were visited.

Table 2: Relative Importance Index

SR.NO	QUESTIONS	RII
1	Do you separate solid waste which you are collecting from your house?	0.225
2	Are you using plastic bag for collecting the waste?	0.5675
3	Are you separate wet and dry waste which you are collected?	0.5833
4	Have you seen any bad hazards waste could it be thrown in residential waste?	0.4021
5	Are you checking well proper disposal which you are collected?	0.5291
6	Will the container come regularly for collecting waste?	0.8167
7	Do you have any solid waste problem in your residency?	0.4
8	Do you have any idea about solid waste?	0.475
9	Will you collect waste 2 time in a day?	0.408
10	Are you satisfy current system which is available now?	0.758

The data collected from 48 number of houses for likert scale based ten questionnaires. The responses for first question have relative importance index lower i.e. 0.23 indicates that respondents are strongly Disagree for carry solid waste management. There responses for second question have relative importance index is 0.51 indicates that, respondents are Undecided for satisfaction of their current solid waste management process. There responses for third have relative importance index is 0.58 indicates that respondents are Undecided for there is benefits of current solid waste management process.

There should be public awareness about importance of separation of dry and solid waste at household level. and hazards impact on health of the community, cleanness of the residency.

A. Solid Waste Management

• **Fly ash**

In India, fly ash bricks are used for construction. Leading manufacturers use an industrial standard known as "Pulverized fuel ash for lime- Pozzolana mixture" using over 75% post-industrial recycled waste, and a compression process. This produces a strong product with good insulation properties and environmental benefit.



Fig 4 Bricks making

• **Composting**

It is defined as an organic matter that has been decomposed and recycled as a fertilizer and soil amendment. Compost is a key ingredient in organic farming. At the simplest level, the process of composting requires making a heap of wet organic matter known as green waste (leaves, food waste) and waiting for the materials to break down into humus after a period of weeks or months.

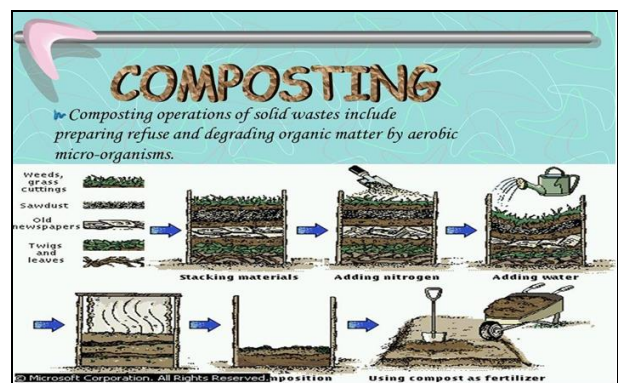


Fig 5 Composting Method

• **Recycling**

Over the past decade, there have been widespread efforts to recover postconsumer glass. Bottle bill legislation, which provides for deposits during purchase of containers and deposit bottle returns at retail outlets, has been introduced in some states, but more often glass recovery and recycling have been attempted

VI. CONCLUSION

- The rapid increase in the quantities of MSW and the inability to provide day- to-day solid waste collection services may cause an irritation and health hazard. Segregation of waste is essential component of solid waste management which is comparatively very poor. Open dumping of solid waste affects the surrounding area of the dumping site, produces very bad odor at the time of decomposition. In PMC area such situation rarely arises

because of efficient and scientific MSW and its collection practices designed by using modern technology.

- For adopting every new methods and considerations in case of Solid Waste Management (SWM) current states study is very important, this gives preliminary idea. In this study we concluded that current system of collecting domestic waste is not in people favorer, users don't follow the rules which laid by MNC Authority that's make main problem in various city. Above methods and some new considerations gives effective result.
- With this method we are providing waste bins at the exactly where source of domestic waste, we can eliminate over dispose of waste on open land. In market, hospitals, small industry and construction industry produce waste and dispose any open place in a city resulting pollution increase day by day, hence there is need to apply new regulations and methods to overcome
- To be a leader in the development, implementation, and maintenance of innovative and sustainable waste reduction, recycling and collection services within an engaged community.
- Awareness in the public about solid waste
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- In this study we concluded that current system of collecting domestic waste is not in people favorer, users don't follow the rules which laid by MNC Authority that's make main problem in various city. Above methods and some new considerations gives effective result

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