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SOLID WASTE MANAGEMENT

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Abstract – In this paper the study is done for solid waste management with one case study. Solid waste can be defined in terms of unwanted residues, solid or semi-solid that are thrown by domestic, industrial and commercial sectors. Solid waste is the unwanted and discarded material resulting from day to day activities in community. Because of solid waste has emerged as one of the serious problems being faced by urban centers all over the world. The waste generated has to be taken anway from the city and treated in a way, which does nat cause environmental problems. Therefore the need of solid waste management arises. This paper includes all the information problems occurring due to solid waste, characteristics of solid waste any types of solid waste, disposal of waste. One of the main tasks of any **MUNCIPAL AUTHORITY** is the daily collection and disposal of solid waste generated in the city. Today this problem has assumed massive proportion leading to serious groundwater contamination. Also the paper includes the case study of Bangalore's M.S.W management, which contents all the information about land filling method adopted, amount of waste produced and its management.

Keywords- Solid Waste

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INTRODUCTION

Solid waste can be defined in terms of unwanted residues, solid or semi-solid that are thrown by domestic, industrial and commercial sectors. Solid waste is the unwanted and discarded material resulting from day to day activities in community.

Solid waste management has emerged as one of the most serious problem being faced by urban centers all over the world. One of the main tasks of any Municipal Authority is the daily collection and disposal of solid waste generated in the city. The waste generated has to be taken away from the city and treated in way, which does not cause environmental problems. Today this problem has assumed massive proportions leading to serious groundwater contamination. This groundwater contamination due to leachate has biological and metallic characteristics, causing severe health hazard. India the second largest populated country in the world with population of 1,027,015,247 as n 31st march 2002 with an urban population of 27.78% faces a formidable challenge on issue related to solid waste management. In India every year 36.5millions tone of solid waste is generated. A sum of about Rs.500 to Rs1500 is spent on each tone of solid waste. About 10-40% of municipal budget is utilized for solid waste management. Yet only about 5% of solid waste are composted and 95% of waste is disposed on land. It is estimated that about 30% of the waste is uncollected.

With no legislation for the waste in this country, waste collected by municipalities was thrown at any suitable site or along main roads leaving the city with no concern about the health hazard to persons residing near such dumping sites.

2. SOLID WASTE GENERATION:-

An indication how and where solid wastes are generated is depicted in simplified form.Both technological processes and consumptive processes result in the formation of solid wastes. Solid waste is generated, in the beginning, with the recovery of raw materials and thereafter at every step in technological processes as the raw material is converted to a product for consumption. A society receives energy and raw material as inputs from the environment and gives solid waste as output to the environment. In the long term perspective such as input output imbalance degrades to the environment.

3. **PRINCIPLES OF MUNCIPAL SOLID WASTE MANAGEMENT:-**

Municipal solid waste management involves the application of principle of Integrated Solid Waste Management (ISWM) to municipal waste. ISWM is the application of suitable techniques, technologies and management programs covering all types of solid wastes from sources to achieve the twin objective of (a) waste reduction and (b) effective management of waste still produced after waste reduction.

4. WASTE REDUCTION:-

It is now well recognised tat sustainable development can only be acin general, and industery in particular, produces 'more with less' i.e. more goods and services with less use of the world's resourses (raw materials and energy) and less pollution and waste. Production as well as product changes have been introduced in many countries, using internal recycling of materials or on-ite energy recovery, as part of solid waste minimization schemes.

5. EFFECTIVE MANAGEMENT OF SOLID WASTE :-

Effective solid management systems are needed to ensure better human health and safety. They must be safe for workers and safeguard public health by preventing the spread of disease. In addition to these preequisites, an effective system of solid waste management must be both environmentally and economically and economically sustainable.

- **Environmentally sustainable:** It must reduce, as much as possible, the environmental impacts of waste management.

- **Economically sustainable:** It must operate at a cost acceptable to community.

6. PROBLEMS:-

As indians, we generate almost 208 million tons of solid wwaste each year. By the year 2020, that number is expected to increase by 40%. Today, each one of us generates about 4.3 pounds of waste per day. As a country, we generate more garbage than any other country by fargms?.

MUNICIPAL SOLID WASTE MANAGEMENT AND HANDLING RULES 2000

A landmark, M.S.W Rule 2000 was enacted by parliament which makes emphasis on

- Estimation and analysis of waste
- Waste minimization
- Segregation and storage and waste reduction at source
- Primary and secondary collection of waste
- Transformation of solid waste
- Public awareness and enforcement resource management

7. CHARACTERSTICS:-

In addition to the variations in the quantity, wide differences in waste composition can also occur. Factors influencing the composition of municipal solid waste include:

- **Climate:** In wet areas, the moisture content of solid waste goes as high as 45%
- **Frequency of collection:** More frequent collections tend to increase the annual amount collected.
- **Prevalence of Home Garbage Grinders:** Grinders reduce the net quantity of food wastes.
- **Social customs:** Some social customs always tend to increase the amount of solid wastes considerably.
- **Per Capita Income:** Low-income areas produce less total waste.
- **Acceptability of Packaged Goods:** wide use of packaged goods has increased the paper content of solid waste.

- **Degree of Urbanization And Industraialization Of The Area:** The industrialized metropolitan areas tend to produce a more harmful and huge quantity of waste when compared to that of the rural areas.

- **Density:** The density of municipal solid waste varies with waste compostion and the degree of compaction.

- **Energy Content:** Municipal solid waste contains about 50% volatile matter, the balance being roughly equal proportions of moisture and inert solids. Because of the volatile content, the waste is often burned as a means of disposal and occasionally utilized as a source of energy.

Collection is the fundamental function of solid waste management. This refers to the collection of solid wastes from places such as residential, commercial, institutional and industrial areas, as well as public parks. There are, generally, two methods of collection:

1) Hauled-container system

2) stationary-container system

8. SOLID WASTE PROCESSING AND RECOVERY:-

Processing is a second fundamental function of solid waste management. It improves the efficiency of solid waste disposal and prepares it for subsequent recovery of materials and energy. This method includes processing for recovery of materials for recycling, for direct manufacture of solid waste products and processing for recovery of energy and incineration.

Incineration

The municipal incinerators are continuously burning type and have water wall construction in the combustion chamber rather than refractory lining.

Composting

Composting is an aerobic decomposition of organic matter by micro organisms generally by bacteria and fungi into a nutrient rich, stable humus material known as compost. This product is used as a soil conditioner as wel as daily indfill cover material.

9. CONCLUSION:-

In light of the M S W (management and handling) Rules 2000 of govermment of india, improving solid waste management system is need of the hour for allurban local bodies in india. In order to improve collection and transportation system for handling solid waste or design a new system, the following steps are necessary

1. Overall information of the city should be gathered.

2. ward wise/ Node wise summary of the population, waste generation in terms of bioderadable, recyclable, debris and silt and green waste should be prepared.

3. A model of change over will be selected for primary collection, storage, secondary collection, and transportation and buld haulage to the processing and disposal sites.

4. Requirement of bins, containers, equipment and veicles should be worked out section wise in terms of type, capacity, number, locations, area depending upon generation of waste, layout of roads/streets, traffic conditons type of locality.

5. Landfills are a must of any alternative used for the processing of waste.

6. Landfills should be located after poper site secection, designing and through implemenation of the all stages-construction, operation and maintenance and post-closure.

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