

## **A Study On Solid Waste Management**

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### **ABSTRACT**

Waste is a byproduct of life. High standards of living and ever increasing population have resulted in an increase in the quantity of wastes generated. Municipal Solid Waste (MSW) is generally a combination of household and commercial refuse which is generated from the living community. Among the multitude of the environmental problem existing in the urbanizing cities of developing countries, MSW management and its impact on groundwater quality have become the most prominent in the recent years. In the developing countries the municipal solid wastes (MSW) are mainly disposed to the open landfills. Since it is the simplest, cheapest and most cost-effective method of waste disposal, this practice is also adopted in the developed countries to some extent. The increasing production of municipal solid waste world over is an important source of groundwater contamination for the unforeseeable future. This is due to an unscientific way of the dumping the solid wastes in an open area leading to the leachates which emerge out and percolate down to the aquifer. Characterization of the leachates is necessary in the assessment of ground water pollution near such disposal sites.

### **INTRODUCTION**

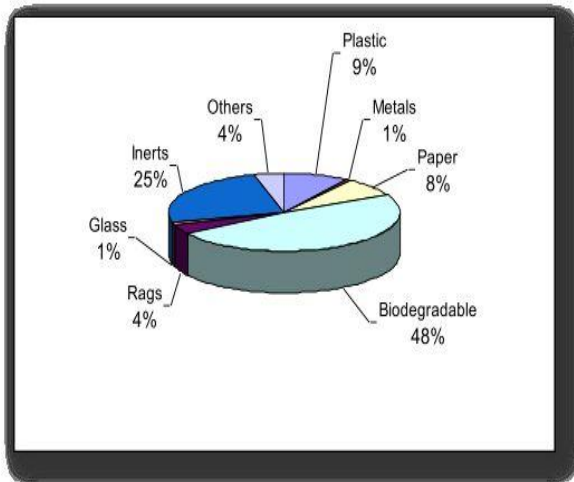
Garbage is generally referred to “Waste” and is also termed as rubbish, trash, junk, unwanted or undesired material. As per the Municipal Solid Waste (Management & Handling) Rule, 2000 garbage is defined as Municipal Solid Waste which includes commercial and residential wastes generated in a municipal or notified areas in either solid or semi-solid form excluding industrial hazardous wastes but including treated bio-medical wastes. Municipal solid waste consists of household waste, construction and demolition debris, sanitation residue, and waste from streets. This garbage is generated mainly from residential and commercial complexes.

### **MAIN SOURCES OF MUNICIPAL WASTE**

- House hold waste
- Commercial:
- Street sweeping
- Hotels and restaurants
- Clinics and dispensaries
- Construction and demolition
- Horticulture
- Sludge

### **COMPOSITION OF MUNICIPAL SOLID WASTE IN INDIA**

In India the biodegradable portion dominates the bulk of Municipal Solid Waste. Generally the biodegradable portion is mainly due to food and yard waste



With rising urbanization and change in lifestyle and food habits, the amount of municipal solid waste has been increasing rapidly and its composition changing. There are different categories of waste generated, each take their own time to degenerate (as illustrated in the table below).

The type of litter we generate and the time it takes to degenerate	
Type of litter	Approximate time to degenerate
Organic waste such as vegetable and fruit peels, leftover foodstuff, etc.	A week or two
Paper	10–30 days
Cotton cloth	2–5 months
Wood	10–15 years
Woolen items	1 year
Tin, aluminium, and other metal items such as cans	100–500 years
Plastic bags	One million years
Glass bottles	undetermined

### MUNICIPAL SOLID WASTE MANAGEMENT PRACTICES IN INDIA

The term municipal solid waste refers to solid waste from houses, streets and public places, shops, offices, and hospitals.

Management of these types of waste is most often the responsibility of Municipal or other Governmental authorities. Except in the metropolitan cities, SWM is the responsibility of a health officer who is assisted by the engineering department in the transportation work. The activity is mostly labour intensive, and 2-3 workers are provided per 1000 residents served. The municipal agencies spend 5-25% of their budget on SWM.

A typical waste management system in a low- or middle-income country like India includes the following elements:

- Waste generation and storage
- Segregation, reuse, and recycling at the household level
- Primary waste collection and transport to a transfer station or community bin
- Street sweeping and cleansing of public places
- Management of the transfer station or community bin
- Secondary collection and transport to the waste disposal site
- Waste disposal in landfills

But in most of the Indian cities open dumping is the Common Practices which is adversely affecting on environment and Public health.

### ADVERSE EFFECT OF OPEN DUMP

An open dumping is defined as a land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, are susceptible to open burning, and are exposed to the elements, vectors, and scavengers.

Open dumping can include solid waste disposal facilities or practices that pose a

reasonable probability of adverse effects on health or the environment.

### **Health Effect**

- The health risks associated with illegal dumping are significant. Areas used for open dumping may be easily accessible to people, especially children, who are vulnerable to the physical (protruding nails or sharp edges) and chemical (harmful fluids or dust) hazards posed by wastes.
- Rodents, insects, and other vermin attracted to open dump sites may also pose health risks. Dump sites with scrap tires provide an ideal breeding ground for mosquitoes, which can multiply 100 times faster than normal in the warm stagnant water standing in scrap tire causing several illnesses.
- Poisoning and chemical burns resulting from contact with small amounts of hazardous, chemical waste mixed with general waste during collection & transportation.
- Burns and other injuries can occur resulting from occupational accidents and methane gas exposure at waste disposal sites.

### **ENVIRONMENT POLLUTION**

#### **Air pollution**

Dust generated from on-site vehicle movements, and placement of waste and materials

#### **Water pollution**

Runoff from open dump sites containing chemicals may contaminate wells and surface water used as sources of drinking water open dumping can also impact proper

drainage of runoff, making areas more susceptible to flooding when wastes block ravines, creeks, culverts, and drainage basins & also contamination of groundwater resources and surface water from leachate emissions.

#### **Soil Contamination**

Permanent or temporary loss of productive land

#### **Global Warming and Climate Change**

In most of the cities & towns the municipal solid waste is being dumped & burnt in open spaces without understanding the adverse impacts on the environment. The waste in the dumping ground undergoes various anaerobic reactions produces offensive Green House gases such as CO<sub>2</sub>, CH<sub>4</sub> etc. These gases are contributing potentially to Global Warming & Climate Change phenomenon.

### **INTEGRATED SOLID WASTE MANAGEMENT**

Integrated Solid Waste Management (ISWM) is a tool to determine the most energy-efficient, least-polluting ways to deal with the various components & items of a community's Solid Waste stream.

*The twin goals of ISWM are to:*

- Retain as much as possible of that energy & those materials in a useful state.
- Avoid releasing that energy or matter into the environment as a pollutant.

The concept of ISWM plan derives from the necessity to look at alternative sources of collection, transportation and most importantly, disposal to ensure a healthy living environment in urban cities.

Local and regional economies benefit by the continued exchange value of the reclaimed

materials and products and the jobs created in reprocessing and reselling them.

National and global resource natural depletion is reduced, contributing to a more sustainable long-term economy.

Pollution from landfills is reduced because many toxic or otherwise polluting materials are diverted from the landfills, and because the overall volume of land filled material is reduced.

### **CONCLUSION**

Water covers 70% of the Earth's surface and makes up over 60% of the human body. Water pollution affects marine ecosystems, wildlife health, and human well-being. The answer to solving pollution is to make changes in our daily habits and pay more attention to the types of products we consume. Water pollution has been extensively documented as a contributor to health problems in humans and marine animal ecosystems. It has a huge impact on our lives, and if we do our part by not throwing trash or chemicals into our water supplies and drains, we can contribute to the improvement of aquatic life and of our health in general.

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