

# Eco-Friendly Environment by Managing Waste Disposal

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## ABSTRACT

Waste dumps are health and environmental hazards for the millions of people. It involves all the activities and actions required to manage waste from its inception to its final disposal i.e. collecting, transporting, disposing, re-cycling and monitoring waste generated through human activities. Different types of waste viz. hospital wastes, non- biodegradable wastes, biodegradable mass and toxic chemical wastes affects our health and environment. The objectives of this paper are to study the current practices related to the various waste management initiatives taken in India for human wellbeing. It offers deep knowledge about the various waste management initiatives in India and find out the scope for improvement in the management of waste for the welfare of the society.

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**KEYWORDS:** eco-friendly environment, waste management.

## INTRODUCTION

Generally, waste is defined as at the end of the product life cycle and is disposed of in landfills. Anything that is unwanted or not useful is garbage or waste. Scientifically speaking there is no waste as such in the world. Almost all the components of solid waste have some potential if it is converted or treated in a scientific manner. Some primitive and basic waste management methods and techniques have been practiced since thousands of years ago who dug holes in sands manually to bury their faecal matter and waste products which helped to prevent the spread of disease in human by rodents, rats and other animals. As days developed and flew, the practices we followed too started getting modernized and enhanced. Bio-degradation started developing rapidly and many of the wastes became non biodegradable for which an alternative method needs to be followed. These practices were modified according to every country's needs and values, thereby developing unique frameworks for each. For example, take the aspect of composting. Right from the food scraps that are left out of our everyday's food like eggshells, bread crumbs, etc., a compost pile is formed and these wastes are collected in an aggregate manner. When residents start understanding garbage management, the two separate bins are used i.e. green bin for biodegradable garbage and yellow bin for non-biodegradable garbage. If people become more responsible about the amount of garbage they produce and about segregating it perhaps we can avoid creating new generations of ragpickers. If the children could be freed from

such activity, NGO's could focus more on education and other alternatives.

## CLASSIFICATION OF WASTE

Waste can be classified as follows:

- Solid waste- vegetable waste, kitchen waste, household waste etc.
- E-waste- discarded devices such as computer, TV, music systems etc.
- Liquid waste- water used in industries, tanneries, distilleries, thermal power plants
- Plastic waste- plastic bags, bottles, bucket, etc.
- Metal waste- unused metal sheet, metal scraps etc.
- Nuclear waste- unused nuclear power plants materials
- Further, waste can be classified into

**A. Biodegradable waste or wet waste** includes the following:

- Kitchen waste- food waste of all kinds, cooked and uncooked
- Flower and fruit waste- juice peels and house-plant waste
- Garden sweeping or yard waste- green/dry leaves
- Sanitary wastes
- Green waste- vegetable & fruit vendors/shops

**B. Non-biodegradable or dry waste** includes the following:

- Paper and plastic, all kinds
- Cardboard and cartons
- Packaging and container 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)
- Discarded electronic items viz. cassettes, computer disks, printer cartridges and other electronic parts.
- Discarded clothings, furnitures and equipments

#### BASIC PRINCIPLES OF SOLID WASTE MANAGEMENT

##### 1. 4Rs: Refuse, Reduce, Reuse & Recycle

- Refuse: Do not buy anything which we do not need.
- Reduce - Reduce the amount of garbage generated.
- Reuse - Reuse everything to its maximum.
- Recycle - Recycled things can be given to rag pickers or waste pickers. Recyclable garbage should be converted into manures or other useful products.

##### 2. Segregation at source:

Store organic or biodegradable and inorganic or non biodegradable solid waste should be segregated at source into different coloured dust bins which can further be recycled with minimum labor and cost.

##### 3. Different treatments for different types of solid wastes:

Suitable techniques must be applied for a given type of garbage.

##### 4. Treatment at nearest possible point:

The solid waste should be treated in decentralized manner. The garbage generated should be treated at the site of generation.

#### WASTE MANAGEMENT INITIATIVES IN INDIA

The solid waste management has received considerable attention from the Central and State Governments and local authorities in India. Some public-private, community-public and private-private arrangements help to manage the waste. It is hence necessary to identify the people working in the field of waste management. These people can be grouped as under:

- Public sector: Comprises of local authority and local public departments at city level
- Private-formal sector: Constitutes registered enterprises help in, transport, treatment, disposal and recycling.
- Private-informal sector: Constitutes the small-scale, nonrecognized private sector and comprises of waste-pickers, waste buyers, traders.
- Community representatives in the form of NGOs, etc.

These people enter into partnerships for providing various activities related to solid waste management. These partnerships can be as follows:

- public-private (Local Authority and private enterprises);
- public-community (Local Authority and NGOs); etc
- private-private (waste-pickers, itinerant-waste buyers, waste traders and dealers, wholesalers, small scale and large scale recycling enterprises); and
- Public-private-community (Local Authority, private enterprises and NGOs).

The list of chemicals present and their probable effects on health and environment is presented below:

S. No.	Chemical in Garbage	Effects on health and environment
1.	Ammonia	Light headedness
2.	Chromium	Carcinogenic
3.	Cadmium	Hair loss, Osteoporosis, affect liver and kidney
4.	Caustic Soda	Skin rashes
5.	Lead	Deposited in bone marrow and numerous harmful effects
6.	Sulphur dichloride	Pungent smell
7.	Amyl acetone	Eye, nose and throat irritation
8.	Benzene	Carcinogenic
9.	Carbon tetrachloride	Damages optic and cranial nerves
10.	Formaldehyde	Irritant to mucus membrane
11.	Formic acid	Eye irritant, allergen
12.	Napthalene	Excessive perspiration
13.	Trichloro ethane	Heart attack, miscarriage
14.	Toluene	affects central nervous system

#### SIX EFFECTIVE WASTE DISPOSAL METHODS

##### 1. Preventing or reducing waste generation:

Extensive use of new or unnecessary products is the root cause of unchecked waste formation. A conscious decision should be made at the personal and professional level to judiciously curb the menacing growth of wastes.

##### 2. Recycling:

Recycling serves to transform the wastes into useful products. Paper, glass, aluminum, and plastics are commonly

recycled. It is environmentally friendly to reuse the wastes instead of adding them to nature.

##### 3. Incineration:

Incineration means combustion of wastes to transform them into base components, with the generated heat being trapped for deriving energy. Assorted gases and inert ash are common by-products. Pollution is caused by varied degrees dependent on nature of waste combusted and incinerator design. Filters can check pollution.

#### 4. Composting:

It involves decomposition of organic wastes by microbes by allowing the waste to stay accumulated in a pit for a long period of time. The nutrient rich compost can be used as plant manure. This process is slow and consumes a significant amount of land. Biological reprocessing tremendously improves the fertility of the soil.

#### 5. Sanitary Landfill:

This involves the dumping of wastes into a landfill in which a base is prepared of a protective lining, serving as a barrier between wastes and ground water, and prevents the separation of toxic chemicals into the water zone. Landfills should be created in places with low groundwater level and far from sources of flooding. A sufficient number of skilled manpower is required to maintain sanitary landfills.

#### 6. Disposal in large water bodies:

Radioactive wastes are dumped in the oceans far from active human habitats. However, environmentalists find this method challenging for aquatic life by depriving the ocean waters of its inherent nutrients.

### TWO COMMON WAYS OF MANAGING WASTES

#### A. Incineration method of waste management:

This method simply means burning waste. Incineration chambers can be small for domestic use and large ones for municipal use. It is great for treating waste with contamination (like those from hospitals) and hazardous waste from factories, but the method produces too much carbon dioxide. Modern incineration processes are more efficient and release less dioxin than home fireplace. This method is effective, but expensive.

#### B. Sanitary Landfills as waste disposal:

This term means a large piece of land away from living places where all the waste from a city is deposited. Proper landfill management involves sorting out all the waste (waste separation), and sending only the waste that cannot be recycled and composted to the site.

### CONCLUSION

In order to make each city an economically and environmentally healthy city, there is an urgent need for a well-defined strategic waste management plan and its implementation in India. To live in a garbage free city, community participation and co-operation of the public are vital for efficient waste management. Garbage should be collected from door-to-door and taken to the community bin. Sorting of recyclable matter should be undertaken by the

employees of the contractor. The contractor should provide his workers with a uniform, gloves and boots for segregation of garbage. Biodegradable matter should be converted into compost by vermicasting. To attain 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 municipal corporation, based on which an effective waste management system can be evolved with the participation of various stakeholders in India.

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