

SOLID WASTE MANAGEMENT

- The primary goal of solid waste management is reducing and eliminating adverse impacts of waste materials on human health and environment development and superior quality of life.
- The main objective of solid waste management is to minimize these adverse effects before it becomes too difficult to rectify in the future.

SOLID WASTE MANAGEMENT

➤ Solid waste management is a task involving many activities like:

1. Collection of solid wastes
2. Disposal of solid wastes
3. Waste utilization

COLLECTION OF SOLID WASTES

- It is the transfer of solid waste from the point of use and disposal to the point of treatment or landfill.
- Collection includes all the activities associated with the gathering of solid wastes and the hauling of the wastes collected to transport it to the site of disposal.

COLLECTION OF SOLID WASTES

➤ There are following methods of collection:

a) Curbside Collection / House to House

Waste collector visit each individual house to collect garbage. Users leave their garbage directly outside their home at pick up schedule set by authorities.

b) Community bins / Community Storage point:

Users brings their garbage to community bins that are placed at fixed point in a locality. Collection agency collect it daily for disposal.

COLLECTION OF SOLID WASTES

c) Self delivered:

Generators deliver their waste directly to the disposal sites or transfer stations.

COLLECTION OF SOLID WASTES



DISPOSAL OF SOLID WASTE

- Solid waste disposal is disposal of solid materials resulting from human and animal activities that are useless, unwanted or hazardous.
- Before the disposal of solid waste, it is processed to increase the efficiency of solid waste disposal system and to recover usable resources out of solid waste.

METHOD OF DISPOSAL OF SOLID WASTE

➤ There are following methods of disposal of solid waste:

1. Manual Component Separation/ Salvage
2. Compaction or Mechanical Volume reduction
3. Incineration or thermal volume reduction
4. Open Dumping
5. Sanitary Landfilling
6. Land Farming
7. Composting or biodegradation

MANUAL COMPONENT SEPARATION / SALVAGE

- Before disposal, the manual separation of solid waste components is accomplished to achieve the recovery and reuse of materials.
- Cardboard, high quality paper, glass, metals, wood and aluminium cans etc. are manually separated or salvaged either for recycling or for resale.

MANUAL COMPONENT SEPARATION / SALVAGE



COMPACTING / MECHANICAL VOLUME REDUCTION

- After separation of reusable or disposable articles, compacters are used to compress the waste materials directly into large containers.
- Compaction increases the useful life of landfills.

COMPACTING / MECHANICAL VOLUME REDUCTION

Mechanical Volume Reduction



INCINERATION / THERMAL VOLUME REDUCTION

- Incineration is a waste treatment process that involves the combustion of organic substances contained in waste materials.
- Incineration of waste materials converts the waste into ash, flue gas and heat.
- The flue gases must be cleaned of gaseous and particulate pollutants before they are dispersed into the atmosphere.
- In some cases, the heat that is generated by incineration can be used to generate electric power.

INCINERATION / THERMAL VOLUME REDUCTION

- It is popular among smaller countries like Japan, whose scarcity of land make incineration a convenient way to dispose of waste.



OPEN DUMPING

- Open dumping of solid waste is done in low lying areas and outskirts the town and cities.
- Being comparatively cheaper, this method of disposal is used extensively in India.
- There are some disadvantages like public health hazards are caused by the breeding of flies, mosquitoes, rats etc.
- Gases and particulates matter are produced by burning of the combustible solid wastes, resulting air pollution.

OPEN DUMPING



SANITARY LANDFILLING

- Sanitary landfilling involves the disposal of municipal wastes on or in the upper layers of the earth's mantle.
- In landfilling solid wastes are compacted and spread in thin layers, each layer being uniformly covered by a layer of soil.
- The final layer is covered by a final cover of about one meter of soil.
- This method does not cause environmental damages by creating health hazards as the waste is covered and prevent breeding of pests and disease vectors.

SANITARY LANDFILLING



LANDFARMING

- Land farming is the waste disposal method in which the biodegradable industrial waste are treated by biological, chemical and physical processes occurring in the surface of the soil.
- During land farming, the waste materials are typically placed as a layer on the ground surface with variable thickness where they undergo bacterial and chemical decomposition.
- Land farming is suitable for the wastes that contain organic constituents that are biodegradable.

LANDFARMING



COMPOSTING

- Bacterial decomposition of the organic components of solid wastes result in formation of compost and the process is known as composting.
- In this method, organic waste is converted into fertilizer.
- In this process, a compost pile is constructed by making alternate layers of organic matter and soil.
- Water is periodically added to the compost pile.

COMPOSTING

- It takes nearly a month for composting to be complete.



WASTE UTILISATION

- A developing country cannot afford waste.
- By proper utilisation of solid waste a developing country like India can avail many advantages:
 1. It directly or indirectly contributes to economic development.
 2. Generates employment opportunities.
 3. Reduces environment pollution

WASTE UTILISATION

- Waste utilisation is achieved by three techniques (3R):
 1. Reduce
 2. Reuse
 3. Recycle

WASTE UTILISATION

REDUCE

- Reducing is the best way to manage solid waste.
- It's quite simple really, the less you use the less waste you will produce.
- 30% of the waste in our landfills comes from product packaging.
Buying products with less packaging.

WASTE UTILISATION

REDUCE

- Buying products in bulk. By buying more of the same item all at once you reduce the overall amount of packaging you will encounter.
- Try to stay away from disposable goods. In particular, paper plates, cups, and plastic utensils.

WASTE UTILISATION

REUSE

- To use again or more than once.
- Reuse materials and items so that they have longer life spans and don't get thrown away after the first use.
- Many items found around the home can be used for different purpose.
- Example – Shopping bags, Envelops, Jars, Old cloths, used wood, newspapers etc.

WASTE UTILISATION

RECYCLE

- To convert waste into reusable items.
- Recycling put them objects through a process that allows them to be used again.
- Along with paper, plastic, glass, and cardboard there are tons of items which can be recycled.

Most favoured option

Reduce

lowering the amount
of waste produced

Reuse

using materials repeatedly

Recycle

using materials to make
new products

Recovery

recovering energy
from waste

Landfill

safe disposal of waste
to landfill

Least favoured option

EXAMPLES OF WASTE UTILISATION

- Refilling of used cold drink bottles.
- Fly ash is used as a cement substitute to make bricks.
- Scrap glass is used in production of new glass.
- Garbage is used for making compost.
- Animal waste is used in gobar gas plants for making cooking gas.
- Waste paper is recycled to form paper, cardboard, paper bags etc.
- Plastic is recycled to make soot waxes, greases and adhesive.

DISASTEROUS MANAGEMENT

COVERED IN 2ND UNIT.

ALTHOUGH PDF SHARED.