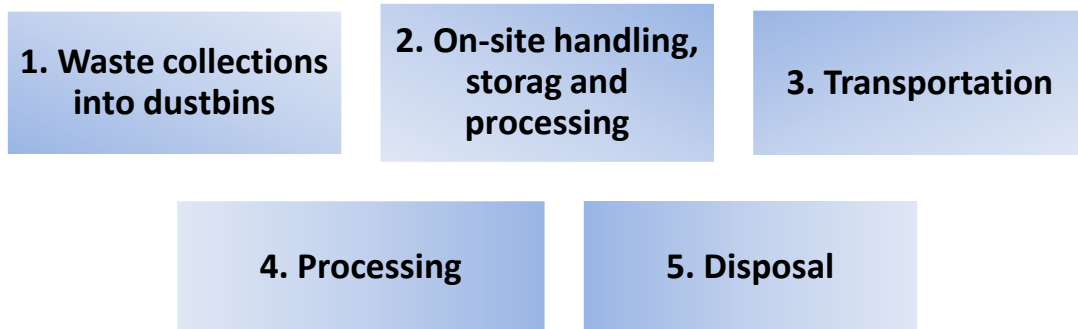


SOLID WASTE MANAGEMENT

- Solid waste is the unwanted or useless solid materials generated from combined residential, commercial activities in a given area.
- Solid waste management collection, transportation and dispose of solid waste in a systemic, economic and hygienic manner.
- Solid waste are classified as based on their origin

Based on their sources of origin	Based on physical nature
➤ Residential wastes	✓ Garbage
➤ Commercial wastes	✓ Ashes
➤ Institutional wastes	✓ Combustible and non-combustible waste
➤ Municipal wastes	✓ Demolition and construction waste
➤ Industrial wastes	✓ Hazardous waste
➤ Agricultural wastes	

SOLID WASTE PROCESSING



TREATMENT OF SOLID WASTE

- **OPEN DUMPS**
Open dumps refers to uncovered areas that are used to dump solid waste of all kinds. The waste is untreated and not segregated.
- **LANDFILLS**
A landfill may also refer to the ground that has been filled in with soils and rocks instead of waste materials, so that it can be used for a specific purpose.
Poorly designed or managed landfills can create a number of adverse environmental impacts.
Sanitary landfills are designed to greatly reduce or eliminate the risks that waste disposal may pose to the public health and environmental quality.
- **ANAEROBIC DIGESTION**

It is carried out in large fermented tanks. It is regulated version of the natural events of landfills, in that it results in the controlled release of methane rich biogas, which offers the potential for a very form of energy from waste.

Solid waste is taken inside the tank in the absence of oxygen and the bacteria convert the large organic molecules mainly into methane and carbon dioxide.

➤ **COMPOSTING**

Composting is the biological decomposition of organic waste under controlled aerobic condition. Compost is the end product obtained after subjecting the organic fraction of solid waste to aerobic or anaerobic decomposition to yield humus.

Composting is a very complex process involving the participation of several micro-organisms like bacteria, actinomycetes and fungi.

Different stages of composting

1. Segregation of solid waste
2. Processing the compostable matter
3. Preparation for compost
4. Digestion
5. Curing
6. Screening

➤ **VERMICOMPOSTING**

Vermicomposting is a simple biotechnological process of composting, in which certain species of earthworms are used to enhance the process of waste conversion and produce a better end product.

➤ **ENCAPSULATION**

Solid particulate waste materials are coated with a thermosetting resin which is compressed and cured to form a rigid core. The rigid core is coated with a flexible thermoplastic resin to provide sealed encapsulated waste agglomerate which can withstand moderate compressive loads.

➤ **INCINERATION**

Incineration is the most common thermal treatment process. It is burning of the waste at a very high temperature in the presence of the oxygen so as to eliminate all odours and to ensure good combustion.

After incineration, the wastes are converted to carbon dioxide, water vapour and ash. It also converts hazardous organic substances into less hazardous components.

MANAGEMENT OF SOLID WASTE

The fundamental objective of waste objective is to reduce the amount of wastes through recycling and disposal of waste in a way not to impair environmental conservation.



The management of solid waste is done according to its nature:

- ✓ **Management of medical solid waste**
Treatment options- incineration, sanitary landfills
- ✓ **Management of non-degradable solid waste**
Examples - Metals, Glass, plastics, textiles etc.
Treatment options – Recycling, Sanitary landfills, incineration
- ✓ **Management of hazardous waste**
Treatment options – thermal treatment.
- ✓ **Management of non-hazardous and biodegradable solid waste**
Examples – municipal waste, industrial waste, agricultural waste and sewage sludge
Treatment options – open dumps, landfills, anaerobic digestion, composting, vermicomposting.
- ✓ **Management of E-waste**
E-waste contains toxic substances and carcinogenic materials and special care is to taken to avoid soil contamination.
Treatment options – encapsulation, incineration and sanitary landfills.

Conclusion

Solid waste management is the process of removal of solid waste in such a manner that it does not cause any problem to environment and he living organism as well. It is done through different methods as per the category of the solid waste.