

GreenVETAfrica

Waste Disposal and Treatment



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OBJECTIVES

This module will review the various waste disposal and treatment techniques and how they impacts environmental quality and control

WASTE TREATMENT AND DISPOSAL

OUTLINE

- What is waste?
- Sources of waste generation
- What is waste disposal
- Waste disposal/treatment techniques
 - Thermal treatment -(a)Incineration (b) Pyrolysis
 - Landfill
 - Biological treatment
- Impact of Improper waste disposal on the environment



Waste

Waste refers to materials that are discarded after outliving its usefulness. Waste could be liquid, solid or gaseous any of which could be hazardous.



Sources of waste generation

Mining

- waste rock
- tailings
- mine water
- chemicals
- and others



Agriculture Forestry

- obsolete pesticides
and fertilizers
- organics
- plastics and
containers
- manure
- slaughter waste
- and others



Industry

- textiles
- plastics
- chemicals
- ash
- nuclear waste
- and others



Household, commercial and government bodies

- municipal solid waste
- electronics
- medical waste
- tyres
- and others



Construction Demolition

- concrete
- plastic
- wood
- metal
- glass
- and others



Wastewater treatment

- sewage sludge
- solid waste
- chemicals
- and others



Waste Disposal

Proper waste disposal begins with waste segregation which involves sorting waste into reusable, recyclable, organic or inorganic.

Waste disposal is simply the process of discarding, destroying or throwing away materials we refer to as waste. Waste treatment are important as it reduces the impact of waste in the environment. These processes can be Thermal, Biological or Mechanical



Waste Disposal/Treatment Technique

Thermal Treatment

Incineration

This is a waste treatment process which involves heating solid wastes at high temperatures in the presence of oxygen into ash, fuel and heat under controlled conditions. This process reduces volume of waste by 95%

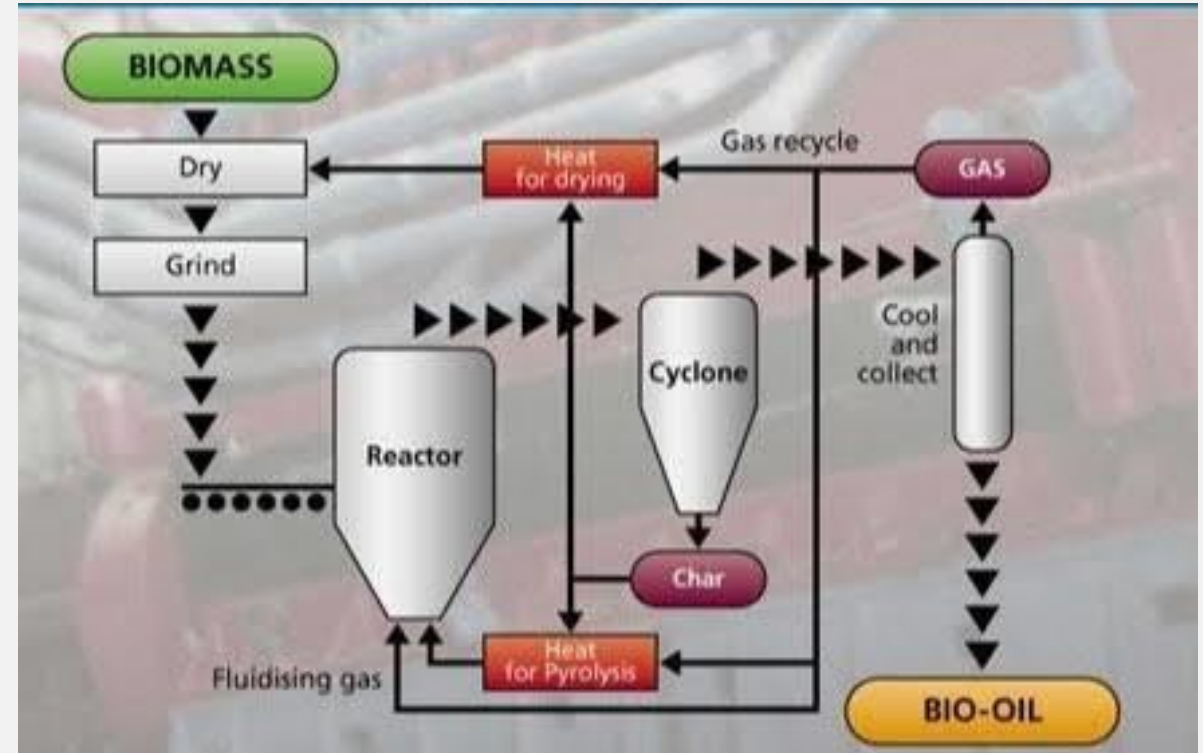


Waste Disposal/Treatment Technique

Thermal Treatment

Pyrolysis/Gasification

These methods involve subjecting waste to high temperatures in the presence of little or no oxygen. Gasification process allows a very low oxygen while pyrolysis requires no oxygen at all



Waste Disposal/Treatment Technique

Landfills

Sanitary Landfills

This is the most common waste disposal method. It is a system of waste disposal made in low lying areas where layers of waste are stuffed into pits, compacted and covered.

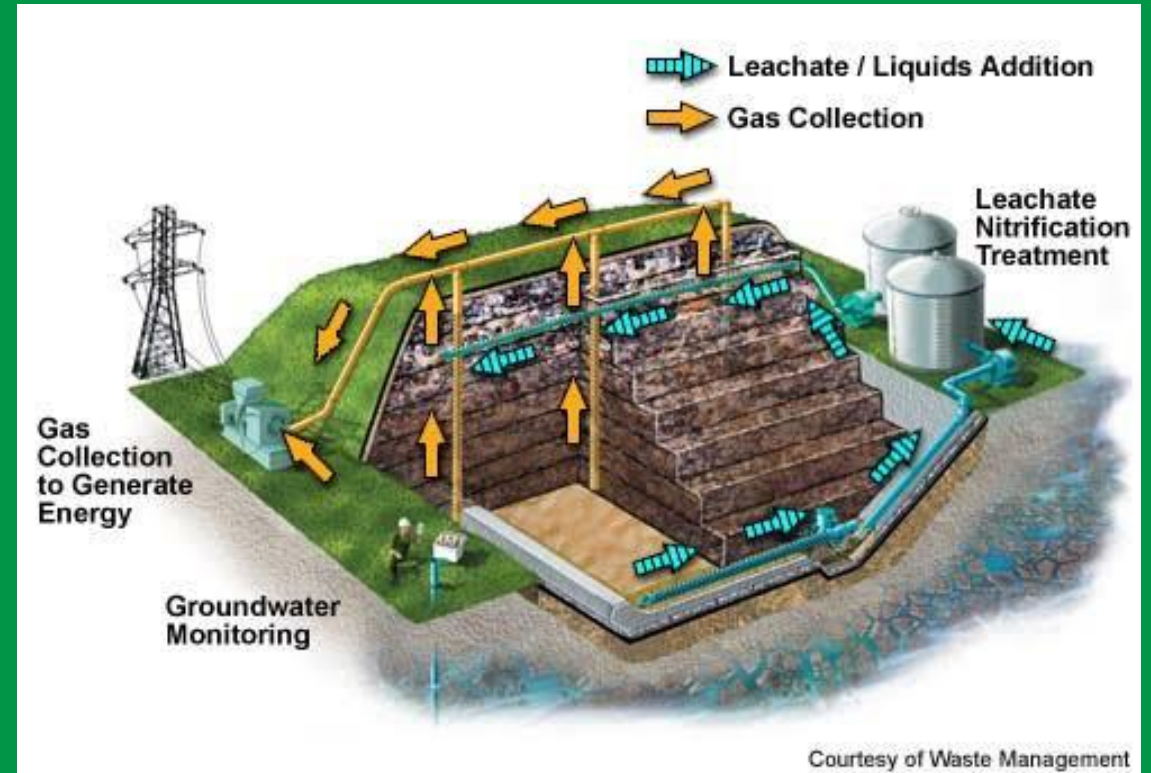


Waste Disposal/Treatment Technique

Landfills

Bioreactor Landfill

This type of landfill is a more technological one. It makes use of superior microbiological processes to speed up waste decomposition. Additional moisture is continuously added in a to sustain optimal moisture for microbial digestion in a controlled environment



Waste Disposal/Treatment Technique

Biological Waste Treatment

Composting

This is a form of waste disposal involves processing and recycling organic matter. Biodegradable wastes are dumped into pits, allowed to decompose and used as manure

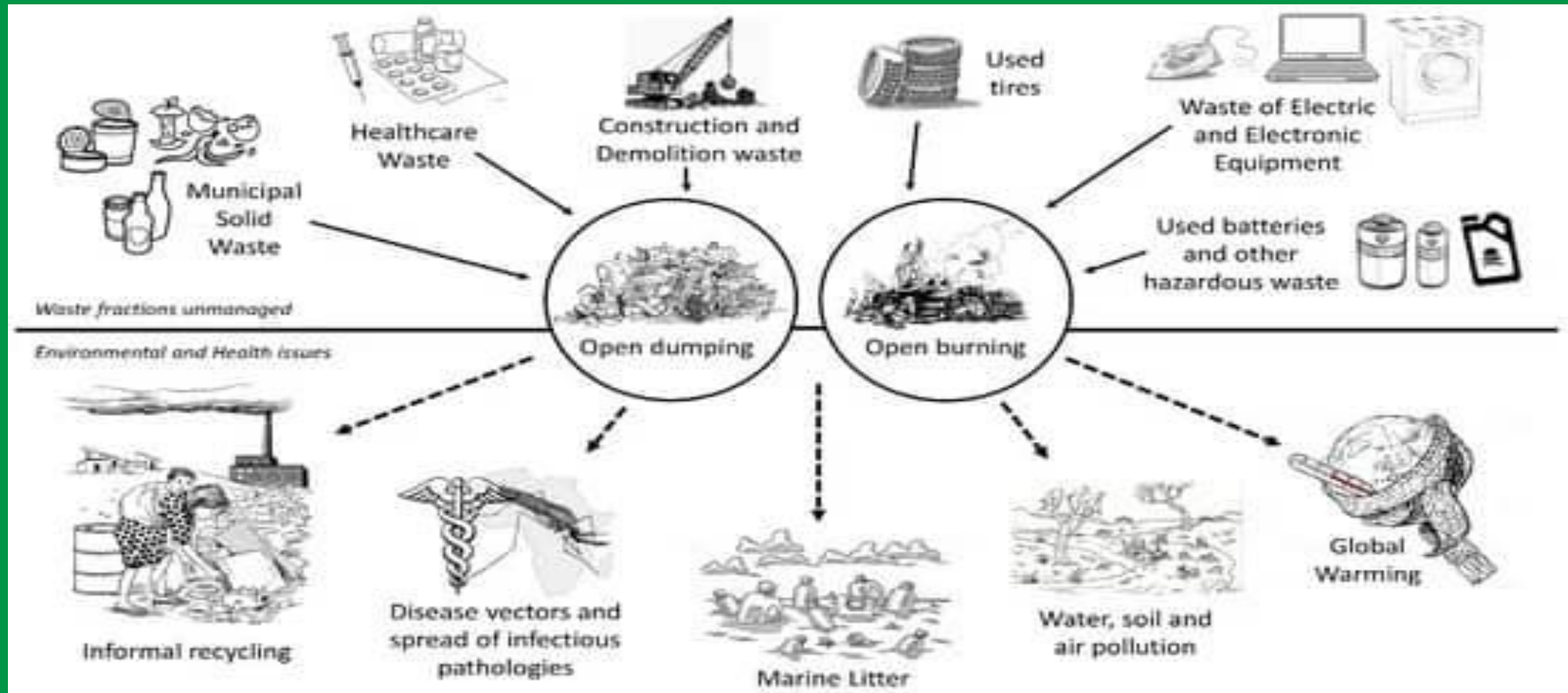


Environmental impacts of Improper Waste Disposal

Humans create a lot of waste most of which is toxic to other forms of life, it is therefore important to understand and embrace proper and effective waste disposal practices. Improper solid waste disposal causes air, soil and water pollution. These wastes clog drains, create breeding spaces for insects and flood during rainy seasons. Uncontrolled refuse burning causes air pollution. Improper disposal of medical wastes can pose serious health hazards. Illegal refuse sites around homes breeds insects and rodents vectors that can spread diseases.



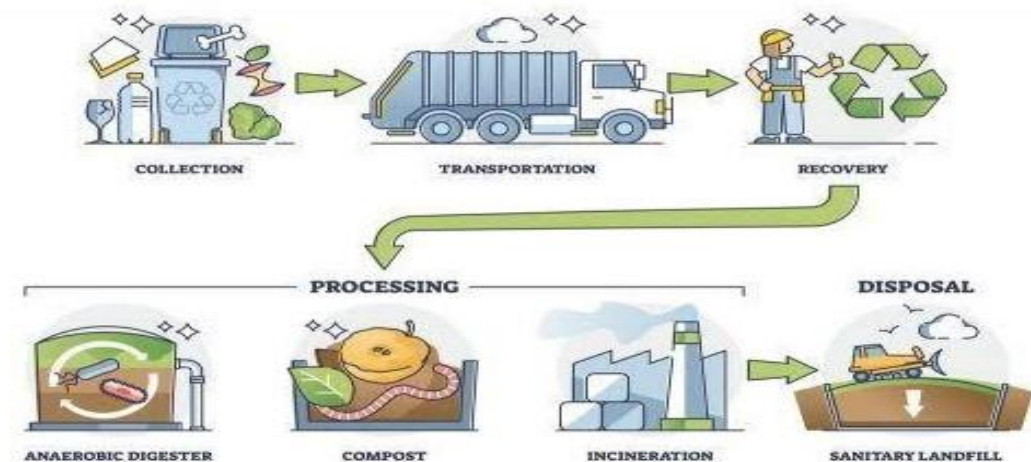
Environmental impacts of Improper Waste Disposal



What can we do?

Humans create a lot of waste most of which is toxic to other forms of life. It is therefore incumbent upon us to make sure the environment stays healthy and sustainable. There are things we can do to help the environment.

- Segregation of waste into plastic waste, organic waste, inorganic waste is essential
- Recycling materials whenever we can to reduce quantity of trash going to the landfills
- Composting organic waste
- Bagging inorganic wastes for pickup by the right authorities to avoid littering and wash off into drains.
- Proper awareness and educational campaign should be conducted to make people aware of a safe waste disposal system



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