# Sewage management

It is a process of managing waste in order to preserve and protect the people and the surrounding area from various health and other problems. The term waste refers to useless material generated by different sources such as industries, household, commercial construction site and other public places. The ever-increasing population, urbanization and its industrialization are contributing to generation of waste. Waste can be classified into -

Municipal waste

Industrial waste

Agricultural waste

Bio medical waste

Hazardous waste

Hazardous waste can be toxic, non-toxic, reactive, ignitable and corrosive.

## Municipal waste

Municipal waste also called municipal solid waste is non-hazardous, solid waste disposed from cities, towns or villages.

It contains various materials like food waste, glass bottles, metal items, plastic waste etc.

Solid waste is regularly collected from communities or houses and is then dispersed as landfill material in dumping sites. Proper management of this, is still required.

## Industrial and mining waste

It consists of organic waste, acid packaging material, general waste etc.

Mining waste contains compounds which arise as a byproduct due to extraction, for e.g. rocks, dirt etc. It may be highly dangerous and may require extra precaution during treatment and disposal.

## Agricultural Waste

Agricultural waste mainly consists of spoiled food grains, vegetables, animal slurries, packaging bags, pesticide sprays and their end residues.

## Bio medical waste

Any waste that is generated during treatment, diagnosis, immunization or research activity in hospitals, laboratories and specific pathological labs.

## Hazardous waste

Heavy metal is a toxic waste. Acids and bases cause corrosion of surfaces when in contact...

Gun powder, such as gasoline (ignitable) are all hazardous waste.

### Waste Management

Management of these wastes requires certain principles to be followed -

Waste reduction

Waste collection and transportation

Resource recovery through waste processing either biologically or thermally.

Waste transformation i.e., Reduction of volume, toxicity to make it suitable for final disposal.

## Control measures of urban and industrial waste.

Solid waste management involves five steps -

1. control over waste generation

2. Storage of waste

3. Proper collection of waste

4. Safe transfer i.e., transfer of waste

5. Proper disposing off of waste

We need to reduce, recycle and if waste still remains, this needs to be collected and transported to disposal sites. They can be processed by methods such as composting, incineration or bio gasification. Therefore, waste management mainly includes three components -

1. source reduction

2. Recycling

3. Proper disposal

The four 'Rs' of waste management are -

## Reduce, reuse, reuse and recycle.

Recycling refers to the removal of items from the waste stream to be used as raw material in the manufacture of new product. Recycling occurs in three phases. Firstly, the waste is sorted out, recyclable material is collected and is used to create raw material. This raw material is then used for production of new product. Aluminum and steel can be recycled many times. Paper recycling helps conserving plants such as bamboo from which we get 66% of the paper. However, value of recyclable material is reduced since it is being mixed with other waste materials. Recycling, however, is useful because it conserved resources, prevents emission of toxic gases, stimulates development of greener technologies and reduces the need for new landfills and incinerators. Crushed glass is called cullet, it reduces the energy required to manufacture new glass by 50%. It lowers the temperature requirement of glass making process, conserving energy and reducing air pollution.

##### Disposal is done through landfills.

The three main characteristics of a sanitary landfill that distinguishes from an open dump are -

1. the solid waste is placed in a suitably selected and prepared landfill site in a prescribed manner

2. The waste material is spread out and compacted with heavy machinery

3. The waste is covered each day with a layer of... Pata ni kya

A modern sanitary landfill is a depression in layered soil the disposal of waste in such sites should not be done in an unscientific manner. The municipalities generally do not bother to spread and cover the waste with proper material thus the foul smell and breeding ground for various insects’ rodents etc. This may be linked to groundwater pollution in which case liquid seeps out from the bottom of landfill down to the groundwater no matter how thick is the soil layer. The organic material in the buried solid waste decomposes, methane is produced which is highly explosive and poisonous when mixed with air. The movement of the gas can be controlled by providing impermeable barriers in the landfill. However, landfills have their disadvantages too such as difficult in finding a suitable site and the danger of some environmental damage in the form of leakage