

MODULE 2

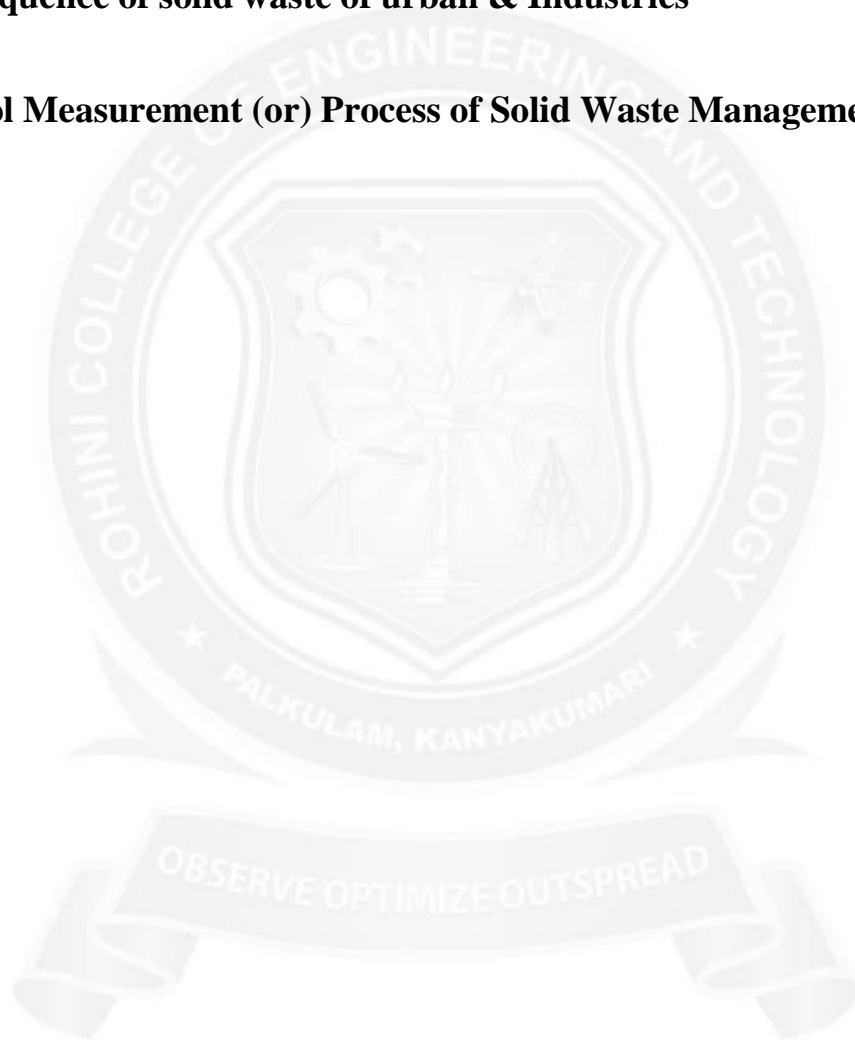
ENVIRONMENTAL POLLUTION

2.5 Solid Waste Management of Urban & Industrial Waste (or) Wasteshed Management

2.5.1 Sources of urban waste

2.5.2 Consequence of solid waste of urban & Industries

2.5.3 Control Measurement (or) Process of Solid Waste Management



2.5 SOLID WASTE MANAGEMENT OF URBAN & INDUSTRIAL WASTE (OR) WASTESHED MANAGEMENT

Depends upon the nature, solid wastes are classified into 3 types.

1. Urban (or) Municipal waste
2. Industrial waste
3. Hazardous waste

2.5.1 Sources of urban waste:

Urban waste (or) municipal waste include the following wastes.

1) **Domestic wastes:** The wastages coming out from the houses.

Ex. Food waste, cloth, paper, polythene bags, glass bottles.

2) **Commercial wastes:** Wastes coming out from the shops, markets, hotels, office, industrials etc.

Ex. Packing materials, cans, bottles, polythene bags etc.

3) **Construction wastes:** Wastages of constructing materials.

Ex. Wood, concrete, debris.

4) **Biomedical wastes:** Wastages of organic materials.

Ex. Anatomical wastes, infection wastes.

Sources of industrial waste:

Industrial waste include the following wastes.

- i) Nuclear power plants: It generates radio active wastes.
- ii) Thermal power plants: Produces fly ash
- iii) Chemical industries: Produces hazardous and toxic materials.
- iv) Other industries: Produce, packing materials, rubbish,

Organic wastes, acids, alkalis, plastic, paper, wood,oil,paints,dyes etc.

Sources of Hazardous waste:

Chemical manufacturing company, petroleum refineries, paper mills,smelters, radio active substances, biological wastes and other industries.

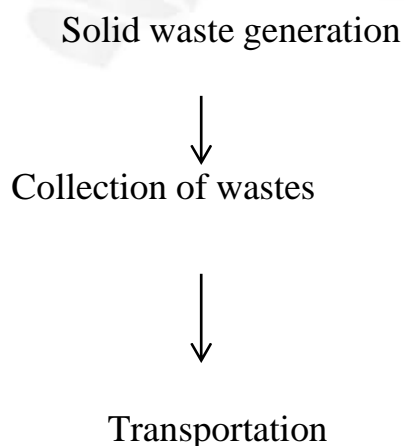
2.5.2 Consciquence of solid waste of urban & industries:

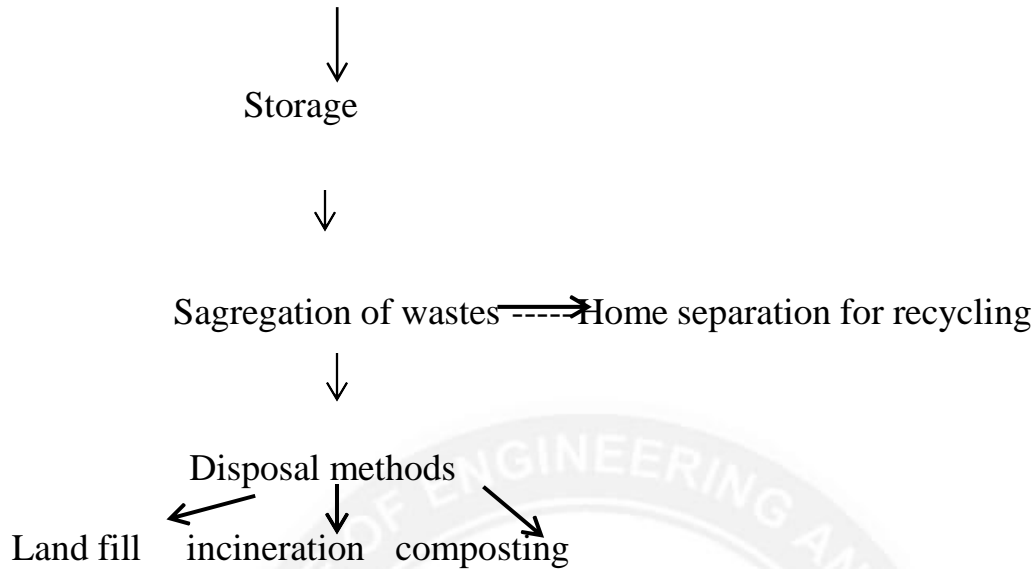
- 1) Due to improper disposal of municipal solid wastes on the road side,it produces fuel smell
- 2) Breeding of vector insects.
- 3) Breeding of disease producing gems.
- 4) Degradation of soil.
- 5) Contamination of ground water.
- 6) Burning releases smoke which cause cancer.
- 7) Burning releases furans, dioxins and poly chlorinated biphenyis Which are harmful to human beings.

2.5.3 Control measurement (or) process of solid waste management:

Sollid waste management includes the waste generation, mode ofcollection, transportation, segregation of wastes and disposal techniques.

Flow chart:





1) Land fill

- i) Land fill is a solid waste management disposal site where solid wastes are allowed to decompose in a safe way.
- ii) Municipal solid wastes, hospital, animal, plant wastes sludge, soil, powders, dusts are deposited and covered & disposal off in land fills.
- iii) The land fill may be made above ground (or) below ground (or) above-below ground.
- iv) Before filling, the site is lined with liners to prevent seepage and contamination of ground water.
- v) When the filling reaches a thickness of 1.5m, it is covered with earth of 6 inches.
- vi) The wastes are decomposed by bacteria in 2-4 months.

Bio gas produced during decomposition, it can be used for the generation of electricity.

Advantages

- i) Simple & economical method
- ii) Segregation is not required
- iii) Land fill areas are used for other purpose
- iv) Waste is returned to the soil as manure.

Dis advantage

- i) Bad odour
- ii) Mosquitoes & flies breed
- iii) Large area is required
- iv) Chances for fire.

2. Incineration

- i) Incineration is the burning (or) combustion of wastes. The plant used for incineration is called incinerator.
- ii) Enormous amount of heat is produced and the heat is used to produce steam from H₂O, steam generates electricity.
- iii) The temp normally maintained in a combustion chamber is about 700⁰c-1000⁰.

Advantage

- 1. It is a safe method from by hygienic point of view.
- 2. Requires little space .
- 3. It produces 3 MW of electricity per day by incinerating wastage 300 tonnes.

Dis advantage

- 1. Operating cost is high
- 2. Needs – skilled person
- 3. Formation of smoke , dust, ash need further disposal method due to which airpollution may be caused.

3. Composting

- i. Composting is an aerobic microbial process which degrades organic matter into manure called composte.
- ii. Bulk organic waste is converted into a manure by biologicalaction.
- iii. The combustable wastage are dumped in ground earthtrenches in

layers of 1.5m and it is covered.

- iv. Actinomycetes micro organisms are introduced for active decomposition.
- v. Finally the decomposed products converted into powdery brown coloured odour less mass known as humus (or) manure.
- vi. It is used in the agricultural field.

Advantages

- i. It increases the water retention, & ion-exchange capacity of soil.
- ii. Low cost.

Disadvantage

- i. Non combustable substances are disposed separately
- ii. Use of compost has not yet caught up with farmers & hence no assured in market.

4. The Solid waste management stresses three R's type

They are

- Reduction in use
- Reuse
- Re cycling

This will reduce pollution.