



**SOLID (SOIL) WASTE MANAGEMENT
(OR)
WASTE SHED MANAGEMENT
(OR)
MUNICIPAL WASTE MANGEMENT (MSW)**



Types of solid wastes:

- **Urban wastes**

Sources:

- Domestic wastes – Food waste, Cloth, Waste paper.
- Commercial wastes – Packing material, cans, bottles, polythene.
- Construction Wastes – Wood, concrete debris.
- Bio medical wastes – Anatomical wastes, infectious wastes.

- **Industrial wastes**

Sources:

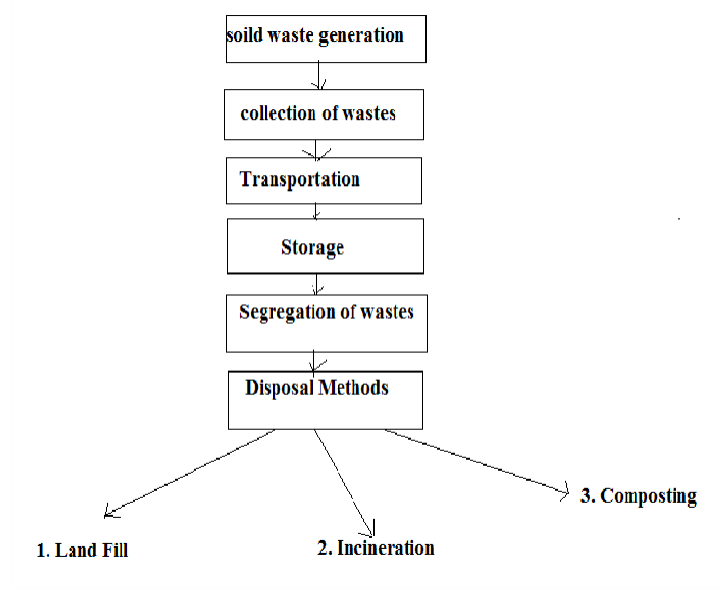
- Nuclear power plants – generates radioactive wastes
- Thermal power plants – produces fly ash in large quantities

- **Chemical industries**

- Produces large quantities of hazardous and toxic materials

Process of Solid Waste Management (or) waste shed management:

Flow chart



Steps Involved

- **Reduce, Reuse, Recycling (3R)**
 - Reduce the usage of raw materials: Usage of raw materials is reduced.
 - Reuse: refillable container which is discarded after using can be reused.
 - Throwing rubber ring from cycle tubes can be used again in the manufacture of rubber bands.
 - Recycling of discarded materials into new products.
 - **Eg:** Preparation of new cans and bottles from old aluminum cans and glass bottles. Preparation of fuel pellets from kitchen waste.
- **Discarding wastes**
 - Methods: a) Land fill b) Incineration c) Composting

Land fill:

- Solid wastes are placed in sanitary landfill system in alternate layers of 80 cm thickness of refuse
- Covered with selected earth fill of 20 cm thickness
- After 2 or 3 days solid wastes volume shrinks by 25-30%
- Then the land is used for parks, roads, small buildings etc.

Advantages

- Simple and economical
- Segregation is not required
- Landfill areas can be used for other purposes
- Natural resources are retained to the soil.

Disadvantages

- Large area is required
- Transportations cost is heavy.
- Bad odors, if landfill is not properly managed
- Insecticides, pesticides should be applied at regular intervals
- Causes of fire hazards due to formation of methane

Incineration (or) Thermal process:

- In this method combustible substances (rubbish, garbage, dead organisms) & non-combustible substances (glass, porcelain, metals) are separated first.
- The combustible waste substances are first dried in a preheater
- Then it is taken in a large incinerating furnace which incinerate about 100 to 150 tonnes per hour
- The temperature is maintained between 700°C to 1000°C
- The left out ashes & clinkers from the furnace is further disposed by landfill method

- The heat produced in the incinerator is used for generating electricity through turbines
- The non combustible substances are left out for recycling

Advantages

- Require little space
- Cost of transportation is not high
- Safest and hygienic
- Capacity 300 tonnes per day and can generate 3MV of power.

Disadvantage

- Operating cost is high
- Need skilled personnel
- Formation of smoke, dust & ashes

Composting:

- In this method the bulk organic waste is converted into fertilizer by biological action.
- The separated compostable waste is dumped in underground trenches(1.5m)
- Covered with earth of 20 cm and left over for decomposition.
- Micro organism (actinomycetes) is introduced to start decomposition.
- After 2 or 3 days the organic waste are destroyed by micro organism and produce heat.
- Composting will happen at 75°C.
- Finally the refuse can convert to powdery brown colored odorless mass called Humus(fertilizer).
- It contains lots of nitrogen, plants growth phosphates and other minerals.

Advantage

- Manure
- Industrial solid wastes can be treated
- Manure can be sold reducing the cost of disposing of wastes.
- Recycling.

Disadvantage

- Non-consumables disposed separately
- Not yet caught up with farmers