



**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:**

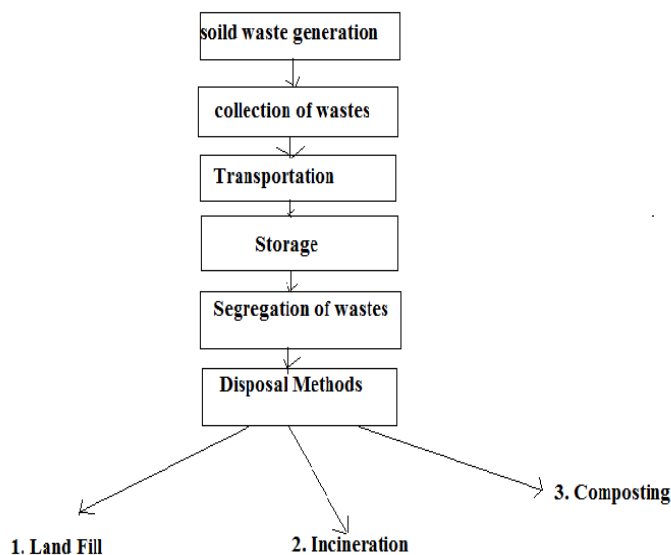
- Nuclear power plants – generates radioactive wastes
- Thermal power plants – produces fly ash in large quantities

- **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 700oC to 1000oC
- 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