Presentation on

SOLID WASTE MANAGAMEN

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INTRODUCTION

- Solid waste refers to any disposed unwanted or discarded materials by communities that are not liquid or gaseous they are solid in nature which have no longer useful in its original form.
- Can originate from ,household industrial, hospitals agricultural, laboratories ,institutes.
- It is very necessary to treat them and make them useful and to make them environment Friendly by the process of solid waste treatment.

SOURCES OF SOLID WASTE

TYPES	SOURCES	EXAMPLE
Municipal Solid Waste	Household and offices(mixed waste)	food scraps, paper, plastics, glass, and yard clippings.
Biomedical Waste	Hospitals and clinics	used syringes, bandages, and expired medicines.
Industrial Waste	Factories	chemicals and heavy metals
E waste	Electronic	computers, mobile phones, and batteries.
Agricultural Waste	Farms	crop residues, animal manure, and pesticides

CLASSIFICATION OF SOLID WASTE

- 1.Domestic waste: waste generated by every living activities
- 2. Commercial waste :Waste generated by business, offices and restaurants
- 3. Industrial waste :solid waste generated by industries
- 4. Agriculture waste :due to agricultural waste crops residue and dead plants
- 5. Biomedical waste: Waste from hospitals, nursing homes ,clinics and laboratory
- 6. Institutional waste: Solid waste by schools ,hospitals& governments
- 7. Hazardous waste: Any waste which create very harmful effect on human health and also in animals and plants life
- 8. E-waste: Spoiled electrical waste or electronic devices waste Radioactive substance (power plants) explosive (factories) *chemical waste (industries)

EFFECTS OF SOLID WASTE

- A: HEALTH HAZARDOUS:
  - if solid waste are not collected and accumulate , they may be create unsanitary condition .
  - This may lead to epidemic outbreaks .
  - Many diseases cholera ,diarrhea ,plague jaundice or gastro intestinal disease may spread and cause human lives .
- B: ENVIROMENTAL IMPACT:
  - If the solid waste not treated properly decomposition and putrefaction (decay) may take place.
  - THE ORGANIC SOLID WASTE during decomposition may generate obnozious (intolerable odour).

OBJECTIVES AND GOALS TO DO SOLID WASTE MANAGEMENT

- OBJECTIVES AND GOAL:
  - Protect public health by reducing environmental pollution and its transmission.
  - Minimis environmental impact .
  - Promote resources recovery (reuse ,recycle ,composting and energy recovery).
  - Supporting economic development through creating job in recycling and waste processing sector.
  - Conserve natural resources.
  - Generate energy from Waste (biogas).
  - Prevent spread of diseases.

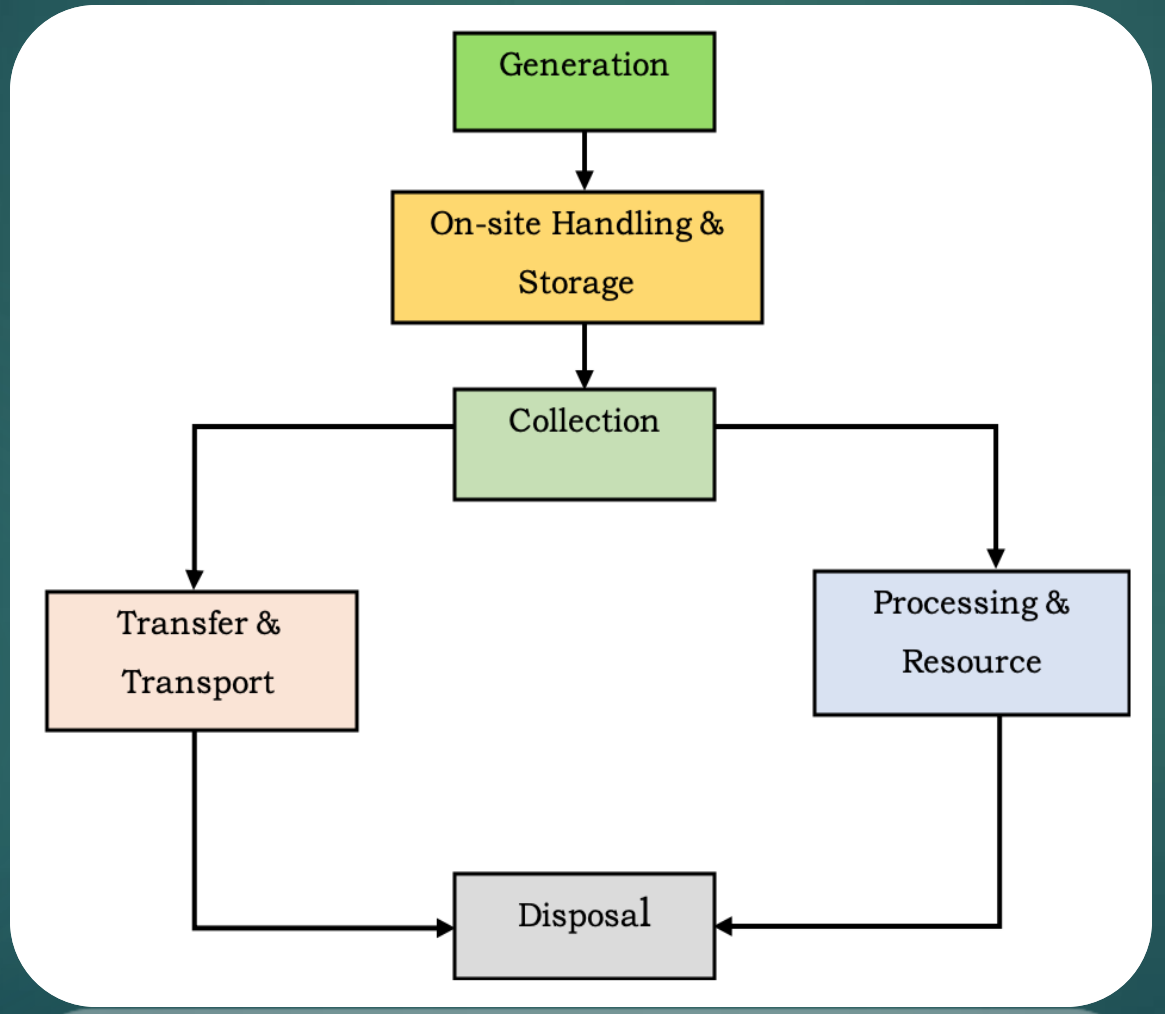
KEY COMPONENT OF SOLID WASTE MANAGEMENT

- waste generation: occurs at the sources from household, industries, institutions , proper plan should be create for management.
- Storage and Collection: Temporary storage in bins and containers ,collection of garbage by municipal or private waste collector or door to door.
- Transportation: Transfer of waste from local collection points to treatment disposal facilities ,involves transfer stations for effective routing .
- Segregation: Separation of biodegradable ,recyclable, hazardous and inert components at the sources or at material recovery facilities (MRFs) *separating biodegradable and non-biodegradable.

STEPS

- 1. Planning -Proper planning should create for management of solid waste.
- 2. Design- After planning required purpose instrument or a story should be decided.
- 3. Financing -for transportation and storage money is required for handling labors.
- 4. Construction-Create the solid waste handling system(all system, construction labors etc.

PROCESS


Generation
On-site Handling & Storage
Collection
Transfer & Transport
Processing & Resource
Disposal

SOLID WASTE TREATMENT

- Refers to the systematic process of collecting ,treating and disposing of solid waste in a way that is environmentally friendly ,economically viable and socially acceptable.
- Important process to keep the environment disease free and to keep it clean.
- The processing methods available for management of solid
- waste includes: Segregation, Reduction, Reuse and Recycling, Chemical, Biological And Thermal Conversion, etc.

1. SEGREGATION

- Segregation or Waste sorting is the process by which waste is separated into different elements.
- Waste segregation means dividing waste into dry and wet.
- Waste can also be segregated as
  - Biodegradable

2. REDUCE, REUSE AND RECYCLE

Reduction is the most important strategy of the three Rs. It focus on the source of the waste, or where the waste is originally coming from. Source reduction is carried out when products are designed, manufactured, packaged, and used in a way that limits the amount or toxicity of waste created.

- The second most important strategy of the three Rs is to Reuse, which is when an item is cleaned and the materials are used again.

- Advantages of reuse :
  - Reduced disposal needs and costs.
  - Energy and raw material savings.

- The third R in the hierarchy is Recycle, which mea sing of disposed material into new and useful products.

- Advantages of recycling:
  - Saves energy
  - Conserves resources

3. CHEMICAL PROCESSING

- Chemical processing involves the chemical transformation or conversion of organic fraction of wastes into various useful compounds such as glucose, synthetic oils, gases, etc.
- e.g. glucose is recovered from wastes containing cellulose (paper).

4. BIOLOGICAL PROCESSING

- It involves processes like composting, anaerobic conversion, anaerobic fermentation and digestion.
- The products formed by these processes include compost, methane, various proteins, alcohols, and a wide variety of intermediate organic products.

METHODS OF DISPOSAL

- METHOD OF DISPOSAL
  - Dumping
  - Controlled Tipping or Sanitary Landfill
  - Incineration
  - Composting
  - Manure pits
  - Open Dumping (Uncontrolled)
    - Definition: Waste is dumped in open areas without treatment.
    - Problems: Causes foul smell, groundwater contamination, air pollution, and disease spread (flies, rodents, etc.).

- Sanitary Landfilling
- Modern form of dumping with scientific design.
- Waste is spread, compacted, and covered with soil daily.
- Leachate collection and methane gas management systems included.
- Advantage: More hygienic and less harmful than open dumping.
- Disadvantage: Requires land, may still produce greenhouse gases.

- Incineration (Thermal Treatment)
- Waste burned at high temperature (800–1200°C).
- Reduces waste volume by up to 90%.
- Generates energy ("waste-to-energy").
- Problems: Expensive, produces air pollution if not well-managed

- Composting (Biological Treatment)
- Biodegradable waste (food, garden waste, etc.) is decomposed by microorganisms.
- Produces compost/manure for soil enrichment.
- Eco-friendly, low cost

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THANKYOU