
UNIT – II

ENGINEERING SYSTEMS FOR SOLID WASTE MANAGEMENT

1. Solid Waste Generation

Waste generation depends on:

- Population
- Lifestyle
- Economic status
- Urbanization

Factors Affecting Generation

- Seasonal variations
- Cultural habits
- Industrial growth

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2. On-Site Handling of Solid Waste

Activities performed before collection.

Includes

- Segregation
- Storage
- Processing

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3. Storage of Solid Waste

Temporary holding of waste before collection.

Types of Storage Containers

- Plastic bins

- Metallic bins
- Community containers

Color Coding

- Green – Wet waste
- Blue – Dry waste
- Red – Hazardous waste

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4. Collection of Solid Waste

Collection is the process of removing waste from storage locations.

Methods

(a) Door-to-Door Collection

Waste collected directly from homes.

(b) Community Bin Collection

Common bins used by public.

(c) Block Collection

Residents bring waste to collection vehicle.

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5. Stationary Container System (SCS)

Containers remain fixed while collection vehicles empty them.

Advantages

- Economical
- Simple operation

Disadvantages

- Overflow problems

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6. Hauled Container System (HCS)

Entire container is hauled to disposal site.

Advantages

- Suitable for bulky waste

Disadvantages

- Expensive transportation

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7. Route Planning

Optimizing collection routes for efficiency.

Objectives

- Reduce fuel consumption
- Minimize travel time
- Improve service quality

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8. Transfer and Transport

Transfer Station

Intermediate station where waste is transferred to larger vehicles.

Advantages

- Reduces transport cost
- Saves time

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9. Processing Techniques

Mechanical Processing

- Shredding
- Compaction
- Screening

Biological Processing

- Composting
- Anaerobic digestion

Thermal Processing

- Incineration
- Pyrolysis
