
UNIT – IV

LANDFILLS

1. Introduction to Landfills

Landfill is a scientifically designed site for final disposal of solid waste.

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2. Evolution of Landfills

Open Dumping

Uncontrolled disposal method.

Sanitary Landfill

Engineered landfill with environmental safeguards.

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3. Types of Landfills

(a) Area Method

Waste spread over land surface.

(b) Trench Method

Waste placed in excavated trenches.

(c) Depression Method

Natural depressions used.

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4. Construction of Landfills

Main Components

- Bottom liner
- Leachate collection system
- Gas venting system
- Cover system

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5. Design Considerations

- Site selection
- Soil type
- Groundwater level
- Rainfall
- Waste quantity

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6. Life of Landfill

Depends on:

- Waste quantity
- Compaction
- Landfill area

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7. Landfill Problems

- Leachate formation
- Methane gas production
- Odor problems
- Fire hazards

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8. Lining of Landfills

Liners prevent contamination of soil and groundwater.

Types of Liners

Natural Liners

Clay layers

Synthetic Liners

HDPE sheets

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9. Leachate Pollution and Control

Leachate is contaminated liquid formed due to water percolation through waste.

Control Methods

- Drainage systems
- Treatment plants
- Impermeable liners

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10. Monitoring of Landfills

Monitoring includes:

- Groundwater quality
- Gas emissions
- Settlement measurements

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11. Landfill Reclamation

Reuse of closed landfill sites.

Possible Uses

- Parks
- Parking areas
- Solar farms
