#### WASTE MANAGEMENT IN CIVIL ENGINERING

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#### INTRODUCTION

In Civil Engineering ,Waste management refers to process of handling ,reducing and property disposing of waste materials generated during construction ,renovation etc.

It involves strategies like recycling ,reusing and safe disposal of construction waste to minimize environmental impact ,reduce costs and promote sustainable building practices.

## TYPES OF WASTE IN CONSTRUCTION

- Construction and <u>Demolition Waste</u>: concrete,wood,metals etc.
- Hazardous Waste : Chemicals etc.
- Organic Waste: Landscaping and vegetation debris.



## IMPACT OF WASTE IN CE

- Environmental Impact: landfill overflow, pollution etc.
- Economic Impact : cost implications of waste disposal.
- Social Impact : health hazards and community concerns.



## WASTE MANAGEMENT HIERARCHY



# WASTE REDUCTION STRATEGIES

- 1. Efficient material use through efficient design .
- 2. Use pre-made components to reduce on-sites waste and improve material efficiency.
- 3. Reuse materials like steel ,bricks and wood from other projects.
- 4. Accurately estimate material needs to avoid excess supply and waste.
- 5. Improve overall efficiency by lean construction.

# CASE STUDY- LONDON 2012 OLYMPIC PARK

In the construction of London 2012 Olympic park, recycled materials were extensively used to promote sustainability. Over 90% of demolition waste from old buildings on site such as concrete and steel was recycled and reused in the new construction.



#### GOVERNMENT REGULATION AND POLICIES

- Laws requiring construction projects to minimize waste generation and encourage recycling and reuse of material.
- Guidelines on the safe use of recycled materials in construction projects is necessary.
- Restrictions on sending construction waste to landfills etc.



# CHALLENGES IN WASTE MANAGEMENT

- 1. High costs
- 2. Lack of awareness about sustainable practices
- 3. Space constraints
- 4. Inconsistent regulation
- 5. Limited recycling facilities
- 6. Time constraints











Recycle
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# FUTURE TRENDS IN WASTE MANAGEMENT

- Advanced Recycling Technologies
- Circular Economy Practices
- Smart Waste
   Management
- Using Sustainable Materials
- 3D Printing
- Government Incentives



