

What is the primary goal of waste management systems?

- Protect public health, environment
- and ensure sustained economic growth.

Identify two main types of waste generated from industrial processes.

- Construction and demolition waste
- Hazardous waste (e.g., chemical synthesis, radioactive waste)

How has urbanization impacted waste production?

Increased population and industrialization lead to higher waste generation

Define common-pool resources and provide two examples.

Nonexcludable (or non-exclusive) but rival in use.

Examples:

- Water in rivers, anyone can use it but it is limited
- Ocean fisheries, anyone can fish but it is limited

Explain the “tragedy of the commons” concept.

- Individuals acting in self-interest deplete a shared resource.
- Results in overconsumption and resource depletion

What are the challenges in managing common-pool resources?

- Overexploitation. (focus on own benefit)
- Lack of cooperation among users

What is negative externality?

A negative externality is a cost of an action that affects others but not the person doing it.

What is positive externality?

A positive externality is a benefit of an action that affects others but not the person doing it.

Discuss public policy solutions for addressing negative externalities.

- Imposing taxes or implementing regulations.
- Aims to align private costs with social costs

LCA

Define Life Cycle Assessment (LCA) in your own words

- Systematic evaluation of environmental impacts.
- Analyzes inputs/outputs throughout a product's life.
- Includes stages from resource extraction to disposal.

What are the four stages of LCA?

- Goal & Scope Definition
- Inventory Analysis (LCI)
- Impact Assessment (LCIA)
- Interpretation

List the four general stages of LCI.

- Raw material acquisition
- Production

- Usage
- End-of-life disposal

What are the four main components of an LCA Scoping

- Goal and Scope Definition
- Functional Unit
- System Boundaries
- Assumptions and Limitations
- Allocation Methods
- Impact Categories

What is Ecological Footprint?

An ecological footprint (EF) shows how much land is needed to support a person, city, or country's:

- Resource use (land and water)
- Waste disposal

What is equivalence factor in ecological footprint calculations?

- measure of productivity of different types of land
- reported as gha (global hectares) per unit of land

Three scope of carbon footprint

- Scope 1: Direct emissions (from sources owned or controlled by the organization)
- Scope 2: Indirect emissions (from purchased electricity, heat, or steam)
- Scope 3: Indirect emissions (from sources not owned or controlled by the organization)

Sustainability Entrepreneurship

Describe the characteristics of the first wave in the three-wave typology of business response to sustainability issues.

- Focuses on risk management.
- Aims to avoid noncompliance consequences.
- Identifies cost-reduction opportunities through process efficiency

Describe the characteristics of the second wave in the three-wave typology of business response to sustainability issues.

- Recognizes sustainability as a **strategic necessity**.
- Awareness of **long-term implications** of environmental issues.
- **Opportunities** for market differentiation and innovation.

Explain the ultimate goals of the third wave in the typology.

- Reinterprets corporations as integral to societal and ecological systems.

A journey of five stages on the path to becoming sustainable

- Viewing compliance as opportunity
- Making value chains sustainable
- Designing sustainable products and services
- Developing new business models
- Creating next-practice platforms