[AHL] 7.1.3Management strategies and natural capital

7.1.3 [AHL] Objectives

- Summarise management strategies at various levels
- Describe the roles EIAs
- Outline SDG food production losses
- Outline the relationship between globalisation and resources (materials, food, water and energy)

Management Strategies and Natural Capital

- Natural capital = resources and services nature provides for free.
- Management strategies guide how societies use and protect natural capital at various levels:
  - individual,
  - local,
  - national, and
  - international.

Government-level strategies

- National action plans for the Sustainable Development Goals (SDGs).
- Pollution taxes, fines, and environmental legislation.
- Compensation for environmental damage.
- Subsidies for renewable energy; higher taxes on fossil fuels.
- Research investment in sustainability technologies.
- Public campaigns on energy saving, food waste reduction.
- Sustainability education programs.

Local/individual strategies

- Reduce waste, recycle, conserve water, save energy.
- Businesses adopt circular/doughnut economy models.
- Use renewable or carbon-capturing materials (e.g., concrete storing CO_2).
- NGOs promote community action through campaigns and social media.

Local Movements

- Local strategies target specific natural resources.
- Success depends on community participation and education.
- **Examples:**
  - Ban single-use bottles; promote reusable ones.
  - Install refillable water fountains.
  - Use digital communication instead of printed materials.
  - Print double-sided to reduce paper use.
  - Provide waste and recycling bins in every classroom.
  - Reuse single-sided paper.
  - Operate second-hand uniform shops.

Environmental Impact Assessments (EIAs)

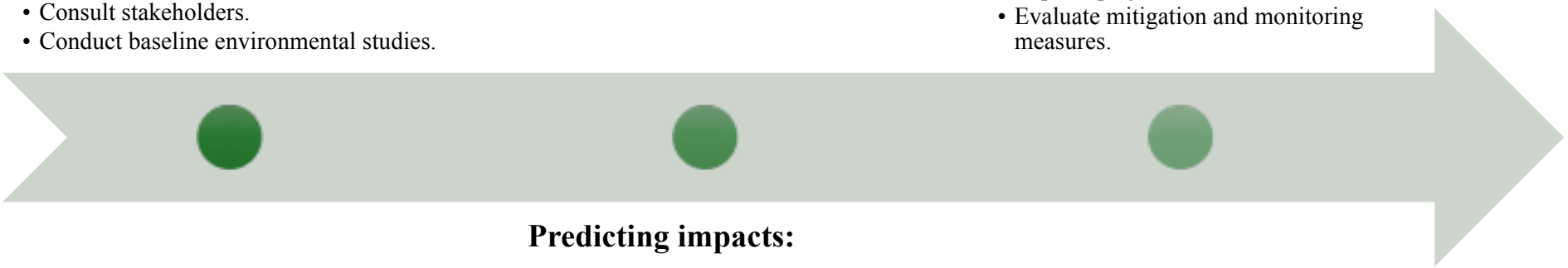
About EIAs

- Developed in the USA (National Environmental Policy Act, 1969).
  - Spread globally within 20 years.
- EIAs identify potential environmental, social, and economic impacts of developments.
- Used for projects like roads, airports, power stations, dams, and housing.
- Reports are public to allow citizen participation.

Key stages in EIAs

Identifying impacts (scoping):

- Assess possible effects on environment, economy, and society.
- Consult stakeholders.
- Conduct baseline environmental studies.



Predicting impacts:

- Estimate changes in microclimate, biodiversity, and landscape value.

Mitigation:

- Explore project alternatives.
- Evaluate mitigation and monitoring measures.

Weaknesses of EIAs

- Variability in standards across countries complicates comparison and consistency.
- Decision-makers are not always required to prioritize environmental protection.
- Defining appropriate spatial and temporal boundaries for assessments is challenging.
- Indirect or cumulative impacts are often difficult to predict and may be overlooked.

SDG and Management

Sustainable Development Goals (SDGs) and Resources

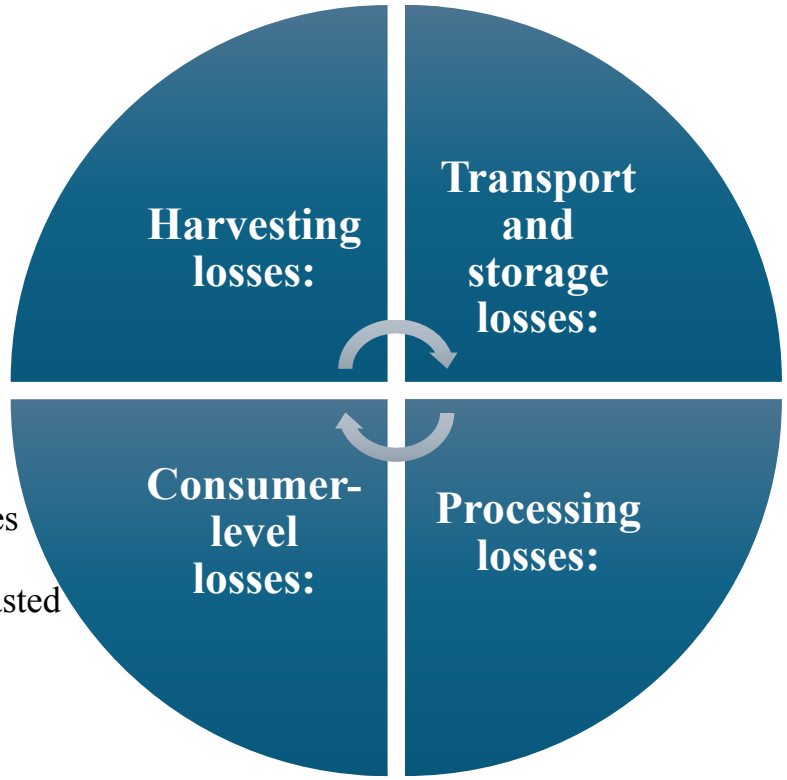
- SDGs link economic, social, and environmental goals.
- Only **renewable** resources can be managed sustainably.
- Non-renewable (e.g., fossil fuels) cannot be used sustainably.
- Even renewables can be used unsustainably due to poor extraction or transport practices.

Sustainability in Food Production

- Nearly **one-third** of global food is wasted.
- Where, in the food production and supply systems, is not efficient?

Sustainability in Food Production

- Crop damage (pests, disease, weather).
- Poor harvesting technology.
- Inadequate storage → spoilage.
- Market oversupply → crops left unharvested.
- "Ugly" produce discarded.
- Overproduction to meet demand contracts.



- Lack of refrigeration.
- Open trucks or poor packaging.
- Rough handling or overloading.
- Weather exposure or pest damage.

- Large proportion of waste occurs in homes and restaurants.
- Example (USA): 54 billion kg of food wasted annually, worth USD 408 billion.
- Main causes:
  - Retail cosmetic standards.
  - Large packaging and portions.
  - Overbuying promotions.
  - Misunderstanding "best before" dates.
  - Poor food storage knowledge.

- Damage during washing or sorting.
- Excessive trimming and peeling.
- Juice and canning processes discard much of the product.

Environmental Costs of Lithium Extraction

- 500,000 litres of water required per tonne of lithium.
- Alters local water cycles; pollutes nearby ecosystems.
- Extraction in deserts (e.g., Atacama) depletes scarce freshwater.
- Battery production = high carbon emissions (~70% more than entire car manufacturing).
- Generates significant waste by-products

Globalisation and Resources

Globalisation and Resource Security

- The increasing interconnectedness of economies, cultures, and societies.
- Although it facilitates technological exchange and economic growth, it also contributes to
  - environmental degradation and
  - social inequality.

Globalization and Food Systems

- Globalization reshapes diets and food culture.
- Increases food variety and global access.
- Threatens local traditions and small producers.
- Multinational supermarkets and fast-food chains dominate.
- **Effects:**
  - Higher food safety and quality standards.
  - Competitive prices and convenience.
  - Broader selection of food products.
  - (-) Traditional markets and small vendors struggle to compete.

Globalization and Food Security

- Food security = consistent access to sufficient, safe, nutritious food.
- In low-income countries:
  - Global trade shifts farming from self-sufficiency to export crops.
  - Local food insecurity increases.
  - Cheap imports from wealthier nations undermine local farmers.
  - Staple foods must be imported at higher prices.

Globalization and Water Security

- Water insecurity linked to both globalization and climate change.
- Water is now commodified—subject to market pricing and trading.
- Cross-basin transfers (pipes, canals) redistribute water resources.
- Urbanization and industrialization increase water demand.
- Privatization raises prices; low-income groups are most affected.

Globalization and Energy Security

- Global energy markets connect producers and consumers.
- Energy transported via tankers and pipelines.
- Shared grids reduce carbon emissions and increase efficiency.
- Technology exchange lowers costs and boosts renewable energy use.
- Global investment supports renewable projects in developing countries (e.g., solar and wind farms).