

# Unit 11: Management of Natural Resources

## Concepts of Natural Resource Use

**Natural Resources and Their Limits** Natural resources are materials and elements found in nature that humans use for various needs. Some resources, like coal, natural gas, and minerals, are non-renewable, meaning they exist in limited quantities and cannot be replenished once used up. Misusing these resources can lead to their depletion, impacting future generations. Proper management is crucial to ensure these resources are available for the long term.

**Carrying Capacity** Carrying capacity is the maximum number of organisms an environment can support without degrading the habitat. For instance, if a piece of land can support 100 sheep, keeping more than this number would exceed its carrying capacity and lead to environmental harm. Overpopulation can cause shortages of food and resources, leading to disease and population decline.

**Sustainable Use** Sustainable use involves managing natural resources in a way that meets current needs without compromising future availability. This means using resources wisely to ensure that future generations can also meet their needs. For example, sustainable farming practices aim to maintain soil health and productivity for the long term.

## Soil Management

**Importance of Soil Management** Proper soil management prevents soil degradation and maintains its productivity. Key issues include soil erosion, compaction, and nutrient depletion. Erosion can reduce soil fertility and productivity, making effective soil management essential.

### Soil Management Practices

- **Mulching:** Covering soil with organic or inorganic materials to protect it from erosion and moisture loss.
- **Mixed Cropping:** Growing different crops together to enhance soil coverage and reduce erosion.
- **Contour Cropping:** Planting crops along the contours of a slope to slow water runoff and reduce erosion.
- **Organic Matter Addition:** Using compost or manure to improve soil fertility and structure.
- **Liming:** Adding lime to acidic soils to improve pH and nutrient availability.

- **Managing Saline Soils:** Washing away excess salts and using salt-tolerant crops to manage soil salinity.

## Agricultural Water Management

**Importance of Water Management** Water is essential for agriculture, especially in regions with unpredictable rainfall. Effective water management helps in conserving water and ensuring it is available for plant growth.

### Water Management Practices

- **Rainwater Harvesting:** Collecting and storing rainwater for use during dry periods.
- **Reducing Evaporation:** Using mulch to cover soil and reduce water loss.
- **Soil Conservation:** Implementing practices like contour farming to reduce water runoff and enhance soil water retention.
- **Selecting Drought-Tolerant Crops:** Choosing crops that require less water and can thrive in dry conditions.

## Forest and Wildlife Management

### Forest Management

- **Afforestation:** Planting trees in deforested areas.
- **Sustainable Timber Harvesting:** Planning and managing timber extraction to avoid overharvesting.
- **Preventing Wildfires:** Implementing strategies to reduce the risk of forest fires.

**Wildlife Management** Protecting wildlife involves preserving their natural habitats from destruction and reducing human encroachment. Effective management practices include creating buffer zones and controlling invasive species.

## Environmental Management

**Understanding Environmental Management** Environmental management involves practices to protect and sustain the environment. It aims to prevent pollution and ensure that natural resources are used responsibly.

### Key Practices

- **Preventing Air and Water Pollution:** Reducing emissions and managing agricultural runoff.

- **Waste Management:** Proper disposal and reduction of waste to minimize environmental impact.
- **Regulation Compliance:** Ensuring practices meet environmental standards and regulations.

## Indigenous Knowledge

**Role of Indigenous Knowledge** Indigenous knowledge includes traditional practices and beliefs that help manage natural resources sustainably. This knowledge often reflects a deep understanding of local environments and is crucial for effective resource management.

### Examples in Ethiopia

- **Soil and Water Conservation:** Traditional methods include creating water channels and planting vegetation to control runoff and soil erosion.
- **Cultural Beliefs:** Indigenous practices often view natural resources as sacred and emphasize communal ownership and management.

These concepts and practices highlight the importance of managing natural resources wisely to ensure their availability and sustainability for future generations.