

Unit 10: Introduction to Natural Resources

10.1. Definition and Importance of Natural Resources

Definition: Natural resources are materials and substances that come from nature and are used by humans. They can be living (like plants and animals) or non-living (like minerals and water). These resources are classified into two main types:

- **Renewable Resources:** These can regenerate over time, such as forests, water, and soil.
- **Non-renewable Resources:** These cannot be replenished once used, like coal, oil, and minerals.

Importance: Natural resources are crucial for human survival and development. They provide:

- **Direct Benefits:** Such as food, water, and materials for clothing and shelter.
- **Indirect Benefits:** Like contributing to economic growth and quality of life.

Our well-being and the economy rely heavily on how well we manage these resources. For example, the availability of water and fertile soil supports agriculture, which in turn supports our food supply.

10.2. Major Types of Natural Resources

1. Forests:

- **Role:** Provide timber, firewood, fruits, and medicines. They also help in soil fertility and prevent erosion.
- **Impact:** Forests reduce carbon dioxide levels and support biodiversity.

2. Soils:

- **Role:** Support plant growth by providing nutrients and water. They also host various organisms and store carbon.
- **Impact:** Healthy soils are essential for high crop yields and environmental balance.

3. Water:

- **Role:** Used for drinking, agriculture, industry, and recreation. Water bodies also support ecosystems.
- **Impact:** Essential for life and economic activities. The distribution of water affects agriculture and energy production.

10.3. Degradation of Natural Resources

Definition: Degradation occurs when natural resources are damaged or depleted, leading to a decline in their quality and availability.

1. Soil Degradation:

- **Causes:** Erosion (water and wind), chemical degradation (acidification and salinization), and physical degradation (compaction).
- **Effects:** Reduced soil productivity, lower crop yields, and increased erosion.

2. Water Pollution:

- **Causes:** Industrial discharge, agricultural runoff, and improper waste disposal.
- **Effects:** Contaminated water affects health, aquatic life, and increases treatment costs.

3. Forest and Wildlife Degradation:

- **Causes:** Deforestation, logging, and habitat destruction.
- **Effects:** Loss of biodiversity, increased carbon emissions, and disrupted ecosystems.

Understanding and managing natural resources effectively is vital for sustaining the environment and supporting human needs.

Natural Resources and Their Management

Definition and Importance of Natural Resources

- **Definition:** Natural resources are materials or substances that occur in nature and are used by humans. They include living things, minerals, and energy sources. They are classified into:
 - **Renewable Resources:** These can regenerate after use, like forests, water, and air.
 - **Non-Renewable Resources:** These cannot be replaced once used, such as oil, coal, and minerals.
- **Importance:** Natural resources are crucial for human survival. They provide us with food, clothing, shelter, and energy. The management and quality of these resources greatly influence a nation's economic growth and development.

Major Types of Natural Resources

1. Forests:

- **Characteristics:** Dense areas with many trees that form a canopy, affecting light and climate within the forest.
- **Importance:** Forests supply wood, fruits, medicines, and help prevent soil erosion. They also absorb carbon dioxide and release oxygen.

2. Soils:

- **Characteristics:** A mix of minerals and organic matter formed from rock weathering. It supports plant growth by providing nutrients and water.
- **Importance:** Fertile soils are essential for growing crops. They also store carbon, which helps combat climate change.

3. Water:

- **Characteristics:** Covers 70% of Earth, with most in oceans and a small fraction as freshwater in rivers, lakes, and ice caps.
- **Importance:** Vital for drinking, agriculture, industry, and recreation. Ethiopia, known as 'the water tower of Africa,' has significant water resources.

Degradation of Natural Resources

1. Soil Degradation:

- **Causes:** Erosion, chemical degradation (e.g., acidification), and physical degradation (e.g., compaction).
- **Consequences:** Reduced crop yields, increased erosion, and soil pollution.

2. Water Pollution:

- **Causes:** Industrial chemicals, organic waste, and heavy metals.
- **Consequences:** Harmful effects on aquatic life, reduced water quality for drinking and agriculture.

3. Air Pollution:

- **Causes:** Emissions from vehicles and industries, dust, and pollen.
- **Consequences:** Health problems like respiratory issues and reduced life expectancy.

4. Forest and Wildlife Degradation:

- **Causes:** Deforestation, logging, and habitat destruction.
- **Consequences:** Loss of biodiversity, disruption of ecosystems, and reduced resources like timber and medicine.

5. Mineral Exploitation:

- **Causes:** Mining processes that release dust and chemicals.
- **Consequences:** Air, soil, and water pollution affecting health and ecosystems.

Summary Natural resources are essential for life and economic development. Their careful management is crucial to ensure sustainability and to prevent degradation, which can have severe environmental and health impacts.