Unit 1.1 — Application in Conservation of Natural Resources

Definition

Conservation of natural resources refers to the wise use, protection, and management of natural resources such as forests, water, soil, wildlife, air, and minerals to ensure their availability for present and future generations.

Natural resources are very important for life because humans and other living organisms depend on them for survival, food, shelter, energy, and economic development.

Importance of Conservation

Conservation of natural resources is important because it protects biodiversity and ecosystems. It prevents environmental degradation, reduces pollution, and maintains ecological balance.

Conservation also supports sustainable development, ensures food and water security, and helps reduce the effects of climate change and global warming.

Types of Natural Resources

Natural resources are classified into two major groups:

1. Renewable Resources – Resources that can be replaced naturally within a short period of time.
Examples:
• Water
• Forests
• Wind
• Sunlight

2. Non-Renewable Resources – Resources that cannot be replaced quickly after use.
Examples:
• Coal
• Petroleum
• Natural gas
• Minerals

Applications of Biology in Conservation

Biology plays an important role in conserving natural resources through scientific methods and environmental protection activities.

Biologists study living organisms and ecosystems to understand how natural resources can be protected and used sustainably. Biology helps in forest conservation, wildlife protection, soil conservation, water management, and biodiversity preservation.

Forest Conservation

Biology helps conserve forests through afforestation and reforestation programs. Forest conservation protects plants and animals, prevents soil erosion, and maintains oxygen and carbon dioxide balance in the atmosphere.

Forests also help regulate climate and provide habitat for wildlife.

Wildlife Conservation

Wildlife conservation involves protecting endangered animals and preserving their natural habitats.

Methods of wildlife conservation include:
• National parks
• Wildlife reserves
• Breeding programs
• Anti-poaching activities

Examples include the conservation of Ethiopian wolves and mountain gorillas.

Soil and Water Conservation

Biology contributes to soil conservation through crop rotation, terracing, planting cover crops, and preventing overgrazing.

Water conservation methods include wastewater treatment, protection of rivers and lakes, and efficient use of water resources.

Conservation of Biodiversity

Biodiversity refers to the variety of living organisms in an ecosystem.

Methods of biodiversity conservation include:
• In-situ conservation – protecting organisms in their natural habitats
• Ex-situ conservation – protecting organisms outside their natural habitats such as zoos and seed banks

Conservation of biodiversity helps maintain ecological stability.

Environmental Problems Due to Poor Conservation

Poor conservation of natural resources can lead to:
• Deforestation
• Desertification
• Climate change
• Loss of biodiversity
• Soil erosion
• Pollution

These environmental problems negatively affect human life and ecosystems.

Sustainable Development

Sustainable development means using natural resources wisely without damaging the environment or affecting future generations.

Important principles include:
• Reducing waste
• Recycling materials
• Reusing resources
• Protecting ecosystems

Sustainable development ensures long-term environmental and economic benefits.

Chapter Summary

Biology plays a major role in conserving natural resources by protecting forests, wildlife, water, soil, and biodiversity. Conservation is important for maintaining ecological balance, supporting sustainable development, and ensuring the survival of future generations.

Review Questions

1. Define conservation of natural resources.

2. Explain the importance of conserving natural resources.

3. Differentiate renewable and non-renewable resources.

4. Explain the role of biology in conservation.

5. What are the methods of wildlife conservation?

6. Define biodiversity.

7. What is sustainable development?

8. Mention environmental problems caused by poor conservation.

Key Term	Meaning
Conservation	Wise use and protection of resources
Biodiversity	Variety of living organisms
Afforestation	Planting new forests
Deforestation	Cutting down forests
Sustainable Development	Using resources without harming future generations