

UDK: 9'433'91'910,2

CONSERVATION OF NATURAL RESOURCES

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This article examines the theoretical foundations and practical significance of the conservation of natural resources within the framework of sustainable development. It analyzes the classification of natural resources into renewable, non-renewable, and inexhaustible categories, and evaluates the environmental, economic, and social consequences of their irrational exploitation. Particular attention is given to the principles of rational use, ecosystem-based management, pollution prevention, and resource efficiency. The study emphasizes the necessity of balancing resource consumption with natural regeneration rates and highlights the role of environmental policy, technological innovation, and public awareness in ensuring long-term ecological stability. The findings underline that effective conservation strategies are essential for maintaining biodiversity, mitigating climate change, and safeguarding resources for future generations.

Key Words

Natural resources, conservation, sustainable development, renewable resources, non-renewable resources, inexhaustible resources, environmental protection, resource management, ecological balance, biodiversity, climate change mitigation, rational use of resources.

Natural Resources: Concept and Classification:

Before defining the concept of *natural resources*, it is important to note that this term has been interpreted differently by various scholars. Academician I. P. Gerasimov and Professor D. A. Armand provide one of the most comprehensive definitions:

“Natural resources are the diverse means that people directly obtain from nature and that are necessary for their existence.”

Economic geographer Professor Y. G. Saushkin includes within natural resources those components that can be used to generate electricity, produce food products, and supply raw materials for industry.

Another geographer, A. A. Mints, expresses a somewhat different view. He emphasizes the economic classification of natural resources according to the forms and directions of their utilization. In this classification, natural resources are grouped based on their use in the primary sectors of material production and in the non-production sphere. A similar classification of natural resources is also found in the works of Karl Marx.

Accordingly, natural resources are divided into sources essential for human survival and sources serving as means of labor. In a more detailed classification, natural resources are categorized as follows:

a) Resources of material production:**

These include fuel, metals, water, timber, fish for industry; irrigation water and game animals for agriculture.

b) Resources of the non-production sphere:**

These comprise drinking water, forests, and climatic resources used for health and recreation, among others.



Natural objects and types of energy utilized by humans are called *resources*. The term *resource* originates from the French word meaning “means of subsistence.” Natural resources are the means necessary for human life; however, they influence society not directly, but through the productive forces and means of production.

Natural resources include wild plants and animals used for food, water consumed and used for various purposes, ores from which metals are extracted, timber used for construction, and energy and fuel sources such as coal, oil, and natural gas.

For the rational use and conservation of natural resources, proper classification is essential. Natural resources are generally divided into two major types: exhaustible and inexhaustible resources.

Exhaustible natural resources are subdivided into two groups: **renewable** and **non-renewable** resources.

Non-renewable Natural Resources

Non-renewable natural resources are those that either do not regenerate at all or regenerate at a rate hundreds of thousands or even millions of times slower than the rate of their current exploitation. This category includes underground mineral wealth and other extractive resources that may become completely depleted or significantly reduced over time.

Such resources cannot be restored within a human timescale; therefore, rational utilization of mineral resources requires their efficient and economical use. During extraction processes, it is also essential to prevent damage to other sectors of the economy, particularly land resources.

Non-renewable resources include underground minerals such as coal, oil, natural gas, and metallic ores, as well as certain other mineral deposits.

Renewable Natural Resources

Renewable natural resources do not disappear entirely and possess the capacity for natural regeneration. These include living organisms—plants and animals—as well as soil.

For example, soil does not vanish completely; however, it may lose its primary property—fertility. When utilizing such resources, it is important to consider that disruption of specific natural conditions may hinder or even prevent their regeneration. For instance, many species of plants and animals that have been completely exterminated cannot be restored. Likewise, soils severely degraded by erosion may not recover.

It must also be remembered that renewable resources regenerate at a specific rate. For example, the restoration of animal populations may require one or several years. A forest that has been cut down may take at least 60 years to regenerate. The improvement of soil whose composition has been altered may require several thousand years.

Therefore, the rate of natural resource exploitation must correspond to the rate of their natural regeneration to ensure sustainable use and long-term environmental stability.

Inexhaustible Natural Resources

If appropriate conditions are created, renewable natural resources can serve humanity indefinitely.

Inexhaustible natural resources include **water, climatic, and cosmic resources**.

Water Resources

Water is one of the most remarkable substances in nature. It exists in three physical states: solid, liquid, and gaseous. Approximately 92–94% of the world’s water is contained in the oceans. However, water directly suitable for human use accounts for less than 1% of total global water reserves.



Although seawater is considered practically inexhaustible, it is increasingly threatened by severe pollution. Freshwater, in quantitative terms, is regarded as an exhaustible resource because only water suitable for human consumption and use is valuable. In many regions of the Earth, irrational water use, river shallowing, and other environmental problems are leading to a sharp decline in freshwater availability. At the same time, demand for water in irrigation, industry, and municipal services is steadily increasing each year.

Climatic and Cosmic Resources

Climatic and cosmic resources include solar radiation (light and heat), atmospheric air, and wind energy. More than half of the solar radiation reaching our planet is transformed into other forms of energy. A portion of solar energy is used to heat soil, water, and air, gradually dispersing into the atmosphere, while another portion is absorbed by plants during photosynthesis.

The Sun's radiant energy is expected to last for billions of years; therefore, solar energy is considered inexhaustible.

Atmospheric Air

Atmospheric air is essential for the respiration of humans, animals, and plants. Although air is regarded as an inexhaustible resource, its composition can change. Air pollution is primarily caused by industrial enterprises and emissions from vehicles, which release harmful gases into the atmosphere. Such contamination poses serious risks to human health and environmental stability.

FOYDALANILGAN ADABIYOTLAR

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