

## PRESSING ISSUES OF ECOLOGY AND ENVIRONMENTAL PROTECTION

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**Abstract:** This article discusses the essence of ecology as a science, the current importance of environmental protection, and contemporary ecological problems. Issues such as climate change, air and water pollution, and the decline of biodiversity are analyzed, and their impact on human health and societal development is revealed. In addition, ways to address environmental problems, as well as the role of environmental education and ecological culture, are highlighted. The article has both theoretical and practical significance for students and learners.

**Keywords:** Ecology, environment, climate change, global warming, biodiversity, air pollution, water resources, green economy, environmental culture.

### Introduction

Today, environmental issues are considered one of the most important problems facing humanity. As a result of human activity, the damage caused to nature is increasing year by year. Industrial development, the growth of transportation, urbanization processes, and the improper use of natural resources are leading to the disruption of ecological balance.

Environmental pollution negatively affects not only nature but also human health and economic development. Therefore, studying environmental problems, analyzing their causes and consequences, and developing effective solutions are of great importance.

The Essence and Objectives of Ecology

Ecology is the science that studies the interaction between living organisms and their environment. It is one of the important branches of biology and has now developed into an independent scientific discipline. The main objective of ecology is to maintain balance in nature and reduce the negative impact of human activity.

Although humans are a part of nature, their activities often damage ecological balance. Ecology scientifically studies these problems and proposes ways to protect the environment.

Modern Environmental Problems

#### 1. Climate Change (Global Warming)

Climate change is one of the largest environmental problems on a global scale. This process mainly occurs due to the emission of carbon dioxide and other greenhouse gases into the atmosphere. Oceans, air, land, and the entire biosphere are undergoing changes. Deforestation, industrial activities, and carbon emissions from transportation intensify this process.

Additional information:

Global warming: Since the late 20th century, the Earth's average surface temperature has increased by approximately 1.1°C. If this trend continues, temperatures may rise by another 3–4°C by the end of the century.

Consequences:

The oxygen level in oceans is decreasing, sea levels are rising, agriculture and fisheries are being damaged, and natural disasters are becoming more frequent.

#### 2. Decline in Biodiversity

The reduction of biodiversity, meaning the decline in the variety of plant and animal species, is one of the most urgent ecological issues today. Many species are at risk of extinction.

Additional information:

Species extinction: Dozens of species disappear every year due to deforestation, agricultural expansion, and various forms of environmental pollution.

Ecosystems:

Many ecosystems, including tropical forests and coral reefs, are under threat. This disrupts the interactions between plants and animals.

### 3. Environmental Pollution

Environmental pollution includes air, water, and soil contamination. Such pollution has harmful effects on both humans and nature. Industrial waste, transportation, and agricultural activities are the main causes.

Additional information:

Air pollution: Air pollution is harmful to human health and leads to lung and cardiovascular diseases. It also contributes to the increase of greenhouse gases.

Plastic pollution: Plastic materials do not decompose for thousands of years in nature, posing a threat to plants, animals, and humans. The amount of plastic waste in oceans is steadily increasing.

### 4. Overexploitation of Natural Resources

Natural resources, especially water, forests, land, and energy sources, are being excessively exploited by humans. This is caused by agriculture, industrial production, and overconsumption.

Additional information:

Water scarcity: More than 2 billion people worldwide suffer from a lack of clean drinking water.

Land degradation: Soil cover is gradually being lost, which hinders agriculture and plant growth.

### 5. Deforestation

Every year, millions of hectares of forests are cut down worldwide and replaced by agricultural land or urban areas. This leads to biodiversity loss and contributes to the release of carbon dioxide (CO<sub>2</sub>) into the atmosphere.

Additional information:

Amazon forests: The Amazon is called the “lungs of the Earth” because it absorbs a large portion of global carbon. However, deforestation in this region has increased in recent years.

### 6. Urban Growth and Its Environmental Impact

As cities grow, environmental problems intensify. Many cities place significant pressure on the environment in terms of pollution, energy consumption, and resource use.

Additional information:

Urbanization: The construction of new cities and settlements leads to deforestation, land transformation, and water shortages.

Transportation and pollution: Increased use of vehicles in cities results in higher air pollution.

### 7. Increase of Polymers in Oceans

The growing amount of plastic waste in oceans is another major environmental problem, causing harm to marine plants and animals. Oceans have become the largest dumping sites for human waste.

Additional information:

Microplastics: Although plastics do not fully decompose, they break down into microplastics that enter marine organisms and the human body.

Climate Change and Global Warming

Climate change has become a global issue. Greenhouse gas emissions into the atmosphere cause an increase in Earth's temperature. As a result, glaciers are melting, sea levels are rising, and the number of natural disasters is increasing.

Global warming poses serious threats to agriculture, water resources, and human health. In some regions, droughts are intensifying and water scarcity is emerging.

#### Air Pollution

Air pollution is mainly associated with industrial enterprises and transportation. Harmful gases negatively affect human health, causing respiratory and cardiovascular diseases.

Air quality is particularly deteriorating in large cities, making the ecological situation more complex.

#### Water Pollution

Water resources are the source of life. However, industrial waste, chemical fertilizers, and household waste contaminate water bodies. As a result, drinking water quality declines and aquatic organisms perish.

#### Biodiversity and the Importance of Forests

Biodiversity is a key factor in ensuring environmental stability. Due to deforestation and illegal hunting, many species are at risk of extinction.

Forests purify the air, prevent soil erosion, and regulate the climate. Their reduction intensifies environmental problems.

#### Socio-Economic Impact of Environmental Problems

Environmental problems directly affect social development. Natural disasters cause economic damage, increase healthcare costs, and lower living standards.

Today, the concept of a "green economy" plays an important role in ensuring environmental sustainability.

#### Ways to Protect the Environment

The following measures are important in environmental protection:

Using renewable energy sources

Sorting and recycling waste

Conserving water and energy resources

Strengthening environmental legislation

Developing environmental education and awareness

Every individual is responsible for protecting nature.

#### Conclusion

In conclusion, environmental protection is one of the most urgent and important tasks of our time. Environmental degradation directly affects human health, economic development, and social stability. Rational use of natural resources, waste reduction and recycling, and saving water and energy can significantly reduce environmental problems.

At the same time, strengthening environmental legislation and raising environmental awareness among the population are crucial. In particular, fostering a responsible attitude toward nature in the younger generation will help ensure environmental sustainability in the future. If every individual follows environmental principles in daily life, it will greatly contribute to improving the overall ecological environment.

Thus, environmental protection is not only the responsibility of governments and organizations but also the sacred duty of every member of society. By protecting nature, we improve our quality of life and leave a healthy and clean environment for future generations.



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