

**STUDY OF THE IMPACT OF ENVIRONMENTAL PROBLEMS ON THE  
BIOSPHERE**

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**Annotation:** This article provides a comprehensive analysis of current environmental problems and their impact on the biosphere. At the national and global levels, there are such important environmental problems as atmospheric pollution, water and soil contamination, biodiversity loss, and climate change. The article highlights the connection of these problems with human activity, their impact on the biosphere, and the measures being taken to maintain ecological balance. This article focuses on highlighting important issues related to environmental problems and proposing solutions.

**Keywords:** Ultraviolet rays, atmosphere, environment, global warming, nuclear war in the biosphere, gases, coal

**Аннотация:** Данная статья содержит обширный анализ современных экологических проблем окружающей среды и их влияния на биосферу. В нашей стране и во всем мире существуют такие важные экологические проблемы, как загрязнение атмосферы, отравление воды и почвы, сокращение биоразнообразия и изменение климата. В статье освещается связь этих проблем с деятельностью человека, их влияние на биосферу и принимаемые меры по поддержанию экологического баланса. Эта статья посвящена освещению важных вопросов, связанных с экологическими проблемами, и предложению решений.

**Ключевые слова:** Ультрафиолетовые лучи атмосфера, окружающая среда, глобальное потепление, ядерная война

Atmospheric air is invisible and full of elements and is important as an abiotic factor of the environment. Air contains 78% nitrogen, 21% oxygen, 0.94% argon, 0.03% carbon dioxide, and other gases. Carbon dioxide participates in the process of photosynthesis. Photosynthesis occurs under the influence of carbon dioxide, water, and sunlight, and its products consist of glucose, oxygen, and water vapor. Human activity is increasing carbon dioxide emissions into the atmosphere.

Gas, coal, and other heating oil products are the remains of organisms that lived millions of years ago, and their reserves are dwindling. When these fuels are released into the atmosphere as a result of their use, the amount of CO<sub>2</sub> gas increases, and this gas leads to a number of problems. An increase in the amount of CO<sub>2</sub> in the atmosphere primarily leads to

global warming on Earth. The hottest climate in the United States Observed in California's Dead Valley in July 1913. The highest temperature was 570 C. The record lowest temperature was observed in Antarctica, reaching -89°C. The composition of ozone molecules from oxygen atoms. They are formed as a result of chemical processes between sunlight and oxygen.

Global warming: From 1895 to 1995, the average daily temperature on Earth increased by 10C over a 100-year period. No one can definitively say whether this is the result of human activity or the natural weather of the Earth. What changes could global warming lead to? The number of storms may increase. The melting of the ice poles began, which raised the sea level and submerged coastal areas. The warming of the weather is causing tropical diseases, for example, a high prevalence of malaria is observed.

Deterioration of the ozone layer: The 20 km high part of the Earth's surface is a piece of the atmosphere, which is considered the Ozone layer. The ozone layer traps harmful ultraviolet rays from the sun. Because, Ultraviolet rays damage living cells. Every spring, a periodic thinning of the ozone layer is observed. The thinning of the ozone layer is called ozone layer depletion. Polluted gases are the main cause of this problem, especially CFC (chlorofluorocarbon) is used in the cooling system of glaciers and cold regions. After CFC is released into the air, it continues to rise in the atmosphere until it reaches the ozone layer. CFC acts chemically on the ozone layer and breaks down ozone molecules.

Ultraviolet rays: Due to the destruction of the ozone layer, the amount of ultraviolet rays reaching the Earth's surface is increasing. Ultraviolet rays are also contributing to an increase in skin cancer in humans. This can also harm other organisms. The ozone layer is crucial for sustaining life on Earth, so countries around the world should stop using CFC in their industries. Protects the earth from danger.

Recycling: This is a form of reuse that involves the transformation of natural resources or goods. Recyclable materials include glass, metals, paper, plastic, yard and kitchen appliances.

What's the difference between recycling and reuse?Plastics are a bit more difficult to recycle than other materials. Because many types of plastic are used. On each plastic container, the type of plastic used for processing is indicated and a processing code is established. Many plastic bags are made from 2 or 4 types of plastic. Types 6 and 7 are not always recycled, as they are made from a mixture of various plastics. Before processing, each type of plastic must be carefully separated.

From the obtained results, it can be seen that the solar radiation flux, the magnetic field strength, is high and varies on the Earth. It causes the widespread transmission of diseases, including cholera epidemics.

Diseases, various disasters, and ecological changes on Earth depend on the activity of thermonuclear reactions occurring in the sun and space, changing the strength of the Earth's magnetic field and affecting human mood, that is, human ecology. The task of modern natural science, ecology, and environmental protection is not only to rationally use and study nature,

but also to prevent the negative consequences that may arise in the future. For this, it is necessary to comprehensively study the processes occurring in the biosphere.

The part of the Earth inhabited by living organisms is called the biosphere. The biosphere, as the geographic shell of the Earth, includes the lithosphere, hydrosphere, and the lower part of the atmosphere. The boundary of the biosphere is in the hydrosphere up to a depth of 12 km, and in the atmosphere up to an altitude of 15 km. In the Earth's crust, mainly living organisms live.

Autotrophic plants play a major role in the formation of the biosphere. Chlorophyll plants, absorbing sunlight, lead to the formation of photosynthetic organic substances. As a result of photosynthesis, the Earth annually absorbs 100 billion tons of organic matter, 200 billion tons of CO<sub>2</sub>, and releases 145 billion tons of free oxygen. Thanks to plants, life develops mainly on Earth, and there is a sufficient ecological environment for living beings. The stability of the atmosphere is maintained by living beings, especially the plant world, which eliminates the disagreement between nature and society.

However, if science and technology develop rapidly at the beginning of the 20th and 21st centuries, and if humanity does not rationally use underground and surface mineral resources to meet its needs, a discrepancy will arise between nature and society. Academician V.I. Vernadsky, speaking about the way to eliminate the discrepancy between the biosphere and man, says that this is resolved by the "noosphere." Academician Yu.A. Kasygin also explains the discrepancy between nature and society. Of course, if we continue to pollute the environment by using technologies that are not embodied in the process of using mineral resources, a disproportionate situation will arise between nature and society, leading to global (large) environmental problems.

In order to solve and prevent major problems between nature and society, namely crises, conflicts, conditions of war and peace in the "noosphere," work is being carried out on long-term modeling between "mathematical models of nature conservation," "war and peace." The accumulation of modern missile-nuclear weapons, this catastrophe leads to the destruction of not only people, but also the biosphere. Currently, the capacity of nuclear weapons is 12,000 mt, which is a millionth of the bomb dropped on Hiroshima. The bomb dropped on Hiroshima (August 6, 1945) had a power of 5 mega tons.

Nuclear war is a catastrophe for all living things in the biosphere. This is because a large amount of nitrogen oxides is produced during nuclear explosions. These nitrogen oxides react with the ozone layer at an altitude of 22-30 km and destroy the ozone. As a result, an increase in the amount of ultraviolet radiation coming from the Sun and space on Earth can lead to the death of living organisms from radiation sickness. Including humans, because the ozone layer transmits a small amount of ultraviolet radiation to us, preserving the biosphere and ecological system on Earth. In addition, in environmental pollution, various gases, heavy metal ions, phenol, hydrocarbons, benzene, pyrene, and other substances accumulate in the lower part of the atmosphere, forming a film called "smog." As a result of the formation of this layer, sunlight increases the temperature on the ground, which leads to a catastrophe called the

"greenhouse effect," just as it increases the heat under a closed film in a greenhouse. As a result of rising temperatures on Earth, glaciers melt and lead to disasters such as floods.

If nuclear weapons are used in conflicts between states, one of the problems called "nuclear winter," which will completely change the biosphere and human conditions, is the "nuclear winter" arising from nuclear war.

Powerful atomic and hydrogen bombs were detonated, and as a result of wars, fires broke out over large areas, releasing 100-200 million tons of smoke into the environment. Additionally, atomic and hydrogen bombs lifted thousands of tons of dust to a height of 20 km, circling the Earth's surface once for 29 days before reaching the Sun reduces the intensity of radiation reaching the ground by 10-100 times. As a result, the temperature drops to 15-200°C, the ripening of agricultural crops is delayed, and most of the northern regions are covered with ice, becoming like winter.

If 5000 mt bombs are used, the "nuclear winter" will last for 100 days. When 10,000 mT bombs are used, it lasts up to 300 days, and the average temperature drops from 10°C to 20°C. Therefore, this catastrophe is called "nuclear winter," and it is emphasized that humanity must rationally use nature's blessings, resources, and riches.

From Russian chronicles, the consequences of forest fires from 1092 onwards are widely documented. In the fire of 1371, even during the day, only the disk of the Sun was visible - wild animals roamed among people during the day. In 1915, when a fire broke out in Siberia covering an area of 120 thousand km, the wheat ripened half a month late, and the yield sharply decreased. Fire in Alberta, Canada in 1950 smoke was observed in the Atlantic Ocean, in military Europe at an altitude of 8-10 km.



The 1972 fire spread from the White Sea to the Black Sea, stretching 200-400 km in width to 6000 km, rising to a height of 5 km, causing a decrease in temperature and solar radiation

intensity. If global nuclear conflicts occur on Earth, in addition to "nuclear winter" disasters, conditions in the atmosphere and biosphere will completely change as a result of severe fires, winds, and temperature changes. From the explosions of atomic and nuclear weapons, radioactive contamination, aerosols, warming of the atmosphere, thermal radiation, explosions of dust volcanoes from the earth's surface, hot radiation from the earth's surface, such important processes arise, which lead to the complete disappearance of some species of living beings.

### **Conclusion**

Environmental problems are disrupting the stability of the biosphere and posing serious threats to humanity. To solve these problems, it is important to increase the responsibility of each individual and society, develop environmental culture, and take decisive measures by states. Maintaining ecological balance, creating a healthy and sustainable environment for future generations is our most important task.

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