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ECOLOGICAL ISSUES AT THE PRESENT TIME

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Abstract

This article examines environmental issues at the present stage as one of the negative factors in the context of socio-economic development, energy and food production, healthy ecosystems, and human survival. It also considers environmental issues related to environmental pollution due to anthropogenic activities. Furthermore, the article focuses on the problem of clean air shortage, which is the most serious environmental problem in modern cities, causing significant damage to the health of citizens and green spaces.

Keywords

UN Conference, air pollution, depletion of natural resources, environmental disaster, black snow, man-made disaster, acid rain, water resource pollution, gas balance of the planet

INTRODUCTION

It should be noted that humanity, through its activities, undoubtedly impacts various ecological systems. Examples of such, often dangerous, impacts include draining swamps, clearing forests, depleting the ozone layer, reversing river flows, and dumping waste into the environment. In this way, humans disrupt the established connections within a stable system, which can lead to its destabilization, that is, to an environmental catastrophe.

Social factors such as the arms race, local and regional conflicts, and the persistent threat of war play a significant role in the worsening environmental situation globally. In today's world, military spending is two to four times higher than environmental protection. Three days' worth of military spending would be sufficient to implement the first stage of desertification control measures. The greatest danger comes from the accumulated stockpiles of nuclear weapons. They are sufficient to destroy modern civilization in the event of a nuclear catastrophe. Experts warn that not only nuclear war, but any war is dangerous. There are over 200 nuclear power plants operating worldwide, thousands of large chemical plants, and a vast number of oil storage facilities and pipelines, the destruction of which threatens a global environmental catastrophe. The conflict in the Persian Gulf, amid the Israeli-Iranian military standoff, and its environmental consequences are eloquent proof of this.

LITERARY RESEARCH

To study environmental safety and address this issue, the United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro in June 1992. At the conference, a historic decision was made to change the course of development for the entire global community. This unprecedented decision by the heads of government and leaders of the 179 countries gathered at UNCED was prompted by the rapidly deteriorating global environmental situation and the predicted global catastrophe, based on an analysis of its dynamics, that could erupt in the future and lead to the destruction of all life on the planet.

Among the environmental problems that, according to the report “Global Environment Outlook 2000” (GEO-2000) published by the United Nations Environment Programme (UNEP), will be the main ones in the 21st century, are named climate change as a result of greenhouse

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gas emissions, shortage of fresh water and its pollution, deforestation and desertification, reduction of biodiversity, population growth and its migration, the need for waste disposal, air pollution, degradation of soils and ecosystems, chemical pollution, depletion of the ozone layer, urbanization, depletion of natural resources, disruption of biogeochemical cycles, the spread of diseases (including the emergence of new ones), etc. Almost each of these environmental problems can, if the spontaneous development of civilization continues, lead to the destruction of humanity and the biosphere.

The website [1] indicates that by the 1970s, the world recognized the need to urgently address the planet's ecological balance. This issue was first raised at a high political level in 1972 in Stockholm, at the UN Conference on the Human Environment. It was recognized that environmental problems had reached alarming proportions and that their solution required the combined efforts of the entire global community. The Stockholm Conference significantly intensified environmental action at all levels. However, it soon became clear that the degradation of the global biosphere was proceeding at a faster rate than the efforts being undertaken. To analyze the causes of this situation, in 1987 the World Commission on Environment and Development prepared the Report "Our Common Future," also known as the Brundtland Report, which first coined the term "sustainable development"—that is, development that preserves resources for future generations while meeting the needs of current generations. The Report identified overconsumption in developed countries and poverty in developing countries as key causes of environmental degradation and highlighted the need for the global community to join forces and help the developing world to preserve our planet.

According to the authors [2], desertification is defined as a sustained decline in the biological and economic productivity of dryland ecosystems. This is accompanied by a degradation of the quality of the natural environment across many indicators, worsening the already unfavorable living conditions of people in arid lands. The causes and processes of desertification and its development include both natural factors, the main one being climate aridization, and a range of social, economic, and even political causes and processes.

According to the authors [3], an example of an environmental disaster caused by a military conflict is the events that occurred in Kuwait and nearby areas of the Persian Gulf after Operation Desert Storm in early 1991. While retreating from Kuwait, Iraqi occupiers detonated over 500 oil wells with explosives. A significant number of them caught fire and burned for six months, poisoning a large area with harmful gases and soot. Oil gushed from the wells that had not caught fire, forming large lakes and flowing into the Persian Gulf. Large quantities of oil also spilled from blown-up terminals and tankers. As a result, approximately 1,554 square kilometers of sea surface and 450 kilometers of coastline were covered in oil, killing most of the birds, sea turtles, dugongs, and other animals. The flares burned 7.3 million liters of oil daily, equivalent to the volume of oil imported daily by the United States. Clouds of soot from the fires rose up to 3 km high and were carried by winds far beyond Kuwait's borders – black rain fell in Saudi Arabia and Iran, and black snow in Kashmir (2,000 km from Kuwait). Air polluted by oil soot had a detrimental effect on human health, as the soot contained many carcinogens.

According to M.K. Guseykhanov [4], a distinctive feature of the way environmental and demographic issues are addressed in modern science is their recognition in terms of uniqueness and individuality, the non-reproducibility of both national and historical cultures, as well as the biosphere and many resources. Even in the past, such a global awareness was absent, although the toll had been taken much earlier. Some ecosystems have disappeared forever, and future generations will not see many of the earth's landscapes and vistas. A catastrophic narrowing of

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diversity is underway, the colossal standardization of production as a moment of indirect human interaction with the environment, and a mass culture in which humans are lost is thriving. In a society where the individual's right to individuality is not recognized, it is hardly worth counting on a broad movement to preserve the unique image of nature. In general, uniqueness as a problem is recognized only in the face of destruction. And the severity of the demographic and environmental problem forces a new look at the relationship between "nature and society."

The work [5] notes that the course of human history changed dramatically and suddenly in the 20th century. The renowned Italian scientist and public figure, founder of the international non-governmental environmental organization, the Club of Rome, A. Peccei, wrote: “The essence of these changes is that in just a few decades, a period of slow human development that lasted for many millennia has ended, and a new dynamic era has begun... all these changes, in essence, concern the changed position of man himself on Earth. If previously he was no more than one of many living beings inhabiting the planet, now man has transformed it into his undivided empire.”

According to A.A. Gorelov [6], the modern environmental crisis is the flip side of scientific and technological progress. It was precisely its greatest achievements that triggered the crisis and led to catastrophic environmental consequences on the planet. In 1945, the atomic bomb was created. In 1954, the world's first nuclear power plant was built in Obninsk. In 1986, the worst man-made disaster in Earth's history occurred at the Chernobyl Nuclear Power Plant, the result of an attempt to harness the power of the atom. This accident produced more radioactive substances than the bombings of Hiroshima and Nagasaki. The release of long-lived radionuclides into the biosphere was 66 times greater than that from the Hiroshima explosion. The Chernobyl accident affected over 7 million people and will affect more – the descendants of those who survived the radioactive contamination.

According to experts, air pollution has currently exceeded all permissible limits. Concentrations of harmful substances in the air exceed medical standards by dozens of times in many cities. Acid rain containing sulfur dioxide and nitrogen oxide, resulting from the operation of thermal power plants and factories, is devastating lakes and forests. The Chernobyl nuclear power plant accident highlighted the environmental threat posed by accidents at nuclear power plants, especially since these plants operate in 26 countries worldwide.

Methodology

Air pollution caused by anthropogenic factors is becoming a global environmental problem in the modern world, the consequences of which negatively impact the health of people worldwide. This problem is relevant today for all regions where the energy, mining, metallurgy, chemical, and other economic sectors are rapidly developing. Increasing air pollution is the main cause of various diseases worldwide. Air pollution from fine particles of aerosols, ash and dust has a negative impact on human life, animals, plants, soil and water bodies.

Environmental pollution is a pressing issue today, as anthropogenic activity affects all spheres of the Earth: the atmosphere, hydrosphere, and lithosphere. Humans, while being the primary culprit in the current environmental situation, are also its primary victims: according to some estimates, approximately 40% of people worldwide die from pollution of water resources, atmospheric air, and soil. If you want to help nature, start with yourself! Humans are a brilliant creation of nature and an integral part of it. However, with the advent of new technologies and the increasing rate of population growth, the planet is suffering increasingly, and we need to pay more attention to energy conservation. It is we, humans, who are destroying non-renewable

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resources, destroying flora and fauna, disrupting natural cycles—in short, causing harm. Everything is changing around us: animals are starting to die out, islands are sinking, entire cities are being destroyed by cataclysms, but only people continue to treat the planet rudely and enthusiastically pump out of it those last grains of life that it so desperately needs.

As we know, everything in nature is interconnected. The existing diversity of living species on the planet is not a whim of nature, but a vital necessity. The disappearance of one species disrupts the functioning of the entire ecosystem. A clear example is the sparrow extermination campaign in China in the late 1950s. As a result, the ecological balance was disrupted, and the proliferation of insects destroyed not only crops but also tree foliage. This led to a massive famine in the country and the deaths of over 30 million people.

It's especially noteworthy that clean air around populated areas is almost completely disappearing, rivers are turning into sewers, garbage piles, landfills, and a devastated natural environment are everywhere—this is the stark picture of the relentless industrialization of the modern world. Air pollution is the most serious environmental problem facing modern cities, causing significant damage to the health of residents and green spaces. The atmosphere above large cities contains 10 times more aerosols and 25 times more gases. 60-70% of this gas pollution comes from motor vehicles. Overall, vehicle emissions are significantly more toxic than those from stationary sources. Along with carbon monoxide, nitrogen oxides, and soot (in diesel vehicles), a running car releases more than 200 toxic substances and compounds into the environment. Among these, heavy metal compounds and certain hydrocarbons, particularly benzopyrene, which has a pronounced carcinogenic effect, are particularly noteworthy.

Water is essential for human and ecosystem well-being, agriculture, energy, and healthcare. No one can deny that water is essential for life, and access to it is becoming increasingly difficult, especially for the poor and communities that survive on the margins of society, with meager resources and little political influence. Urbanization is known to be the main cause of the worsening water crisis for humanity. To adapt the Earth to its needs, humanity disrupts and pollutes ecosystems, worsening the situation. Population growth, particularly in regions with the most challenging conditions, also contributes to the problem. The greenhouse effect also contributes, as water evaporates without a trace from the planet's surface. Furthermore, each person wastes water thoughtlessly, in much greater quantities than they need.

Specialized studies have convincingly demonstrated that air pollution causes acute and chronic respiratory diseases in children and adults, and premature death in the elderly. Some major cities around the world are now even forced to temporarily close traffic on highways where air pollution reaches extreme levels. In Tokyo, traffic police have been equipped with oxygen masks, as it's impossible to stand at a city intersection for even an hour without suffering serious airborne poisoning. In Beijing, local weather forecasts, in addition to temperature, humidity, and other data, always include information on the current level of certain PM2.5 microparticles, which enter the city's airspace through vehicle exhaust and heating systems (in Beijing, these are primarily coal-fired) and characterize the smog situation in the capital.

One of the most serious environmental disruptions is the change in our planet's gas balance. On the one hand, oxygen consumption and combustion have increased dramatically due to the development of industrial production and transportation. On the other hand, humanity simultaneously produces incomparably more carbon dioxide than plants can assimilate. To some extent, green plants and algae, which absorb carbon dioxide and release

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oxygen, restore the gas balance. However, the restorative capacity of our planet's plant life is limited.

CONCLUSIONS

Currently, the entire world is treading water, unsure how to address the dangers that arise, as if by magic, one after another. The global problems facing humanity, which remain unresolved, pose significant threats to the security of civilization and humanity, and collectively constitute a systemic crisis facing states and the global community in the 21st century.

In conclusion, we would like to note that the growing severity of the threats posed to human civilization by various global problems, including environmental catastrophes, is undeniable. At the same time, no single state, no matter how powerful, nor group of states, is capable of addressing these problems on their own. Only the cooperation of all countries in a peaceful environment, only an awareness of universal interdependence and the prioritization of universal human challenges will enable nations to gain confidence in the future, prevent social and environmental disasters, and ultimately, simply survive.

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