

## SOME ASPECTS OF ECOLOGY AT THE PRESENT STAGE

**Madraim Khasanovich Sarikulov**

*Senior Lecturer, Of the Almalik branch of the Tashkent State Technical University named after  
Islam Karimov, Almalyk, Uzbekistan  
(sarikulov.madraim4@gmail.com)*

**Ikromjon Esanboyevich Uzohkov**

*Doktoral student, Of the Tashkent Institute of the Chemical Technology, Tashkent, Uzbekistan*

**Khashim Artikbaevich Riskulov**

*Associate Professor, Of the Almalyk Branch of the Tashkent State Technical University named after Islam  
Karimov, Almalyk, Uzbekistan  
University, Tashkent, Uzbekistan*

**Khikoyat Musakulovna Israilova**

*Senior Lecturer, Of the Almalik branch of the Tashkent State Technical University named after  
Islam Karimov, Almalyk, Uzbekistan*

### ABSTRACT

This problem is common for all humankind, because all countries and populations living in all countries of the world are involved in the environmental drama. The article examines climate change because of greenhouse gas emissions, lack of fresh water and its pollution, deforestation and desertification, loss of biodiversity, the need for waste disposal, air pollution, deforestation, ocean pollution, chemical pollution and ozone depletion. Almost every one of these environmental problems can lead to the death of humanity and the biosphere. The article also discusses methods for analyzing the problem of ecology, taking into account a deep understanding of the interdependence of man and the biosphere.

**Key words:** *Global ecological disaster, UN conferences, air pollution, deforestation and desertification, biodiversity loss, waste problems, chemical pollution, ozone layer and natural resource depletion;*

### INTRODUCTION

As you know, humanity is faced with ever-sharpening contradictions between its growing needs and the inability of the biosphere to provide them without collapsing. As a result, socio-economic development has taken on the character of an accelerated movement towards a global ecological catastrophe, while not only the satisfaction of the vital needs and interests of future generations of people, but also the very possibility of their existence is threatened. The idea arose to resolve this contradiction on the path of transition to such a civilizational development, which does not destroy its natural basis, guaranteeing humanity the possibility of survival and further unceasing, i.e. managed and sustainable development.

In order to study environmental safety and solve this problem, the United Nations Conference on Environment and Development (UNCED) was held in June 1992 in Rio de Janeiro, at which a historic decision was made to change the course of development of the entire world community. This unprecedented decision by the heads of government and leaders of the 179 countries gathered at UNCED was due to the rapidly deteriorating global environmental situation and a global catastrophe predicted based on an analysis of its dynamics, which could break out in the future and lead to the death of all life on the planet.

It should be noted that the term “sustainable development” became widespread after the publication of a report prepared for the UN in 1987 by the International Commission on Environment and Development specially created in 1983 (Our Common Future: Translated from English - M.: Progress, 1989). At UNCED, the definition found in Our Common Future was widely used: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

### LITERARY RESEARCH

Among the environmental problems that, according to the report “Global Environment Outlook 2000” (GEO2000), published by the United Nations Environment Program (UNEP), will be the main ones in the 21st century, are named climate change as a result of greenhouse gas emissions, lack of fresh water and its pollution, deforestation and desertification, loss of biodiversity, population growth (and displacement), the need for waste disposal, air pollution, degradation of soil 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 death of humanity and the biosphere.

Climatologists have repeatedly pointed out the need to limit the temperature rise on Earth to within one and a half to two degrees Celsius in order to mitigate the negative effects of global warming. To this end, more than 190 states signed the Paris Agreement in 2015, which provides a specific action plan to achieve this goal. The document does not imply a complete phase-out of fossil fuels, but countries must take measures to reduce greenhouse gas emissions and switch to renewable energy sources.

As noted above, one of the most tangible consequences of climate warming, most likely, will be the melting of glaciers and the rise in the level of the World Ocean. Millions of people on the coast will die from frequent flooding or be forced to relocate, UN analysts predict. According to the expert community, the sea level rise in the XXI century will be up to 1 m (in the XX century - 0.1-0.2 m). In this case, the most vulnerable will be lowlands, coastal areas and small islands. The first at risk are the Netherlands, Bangladesh and small island states such as the Bahamas and Maldives. Significant areas can be flooded in countries such as Russia, USA, UK, Italy, Germany, Denmark, Belgium, Iraq, Thailand and Vietnam. Serious damage threatens China, where about 140 million people could lose their homes, and Japan, where more than 30 million people - a quarter of the country's population - could flood their homes.

We see the effects of this phenomenon (climate change) everywhere - from drought and famine in Africa and searing heat waves in South Asia to wildfires in North America, devastating hurricanes and floods in New York. We must act together because climate change affects every country

According to scientists, humanity is unlikely to be able to completely prevent climate change. However, the international community is able to contain the rise in temperature in order to avoid irreversible environmental consequences. To do this, it is necessary to limit greenhouse gas emissions, develop alternative energy and develop a strategy to reduce risks due to warming.

The Earth Summit [1] was created in response to UN member states' response to international development cooperation after the Cold War. Because the sustainability challenges were too serious for individual Member States, they could be a reason for cooperation. The Earth Summits are meetings of world leaders every 10 years, organized since 1972 with the support of the United Nations, to identify ways to promote sustainable development at the global level. These meetings resulted in development programs for 2000–2015 and global goals for 2015–2030.

Summits [2] like these are extremely important as they develop a global culture of respect for the environment. Together with the UN, they aim to demonstrate a collective ability to govern and highlight humanitarian themes and pressing issues.

In the materials [3] it is noted that it is not the first generation in a row that humanity has lived with a constant and obsessive fear of environmental disasters. Deforestation, ocean pollution, ozone layer depletion - we have heard these phrases in our lives hundreds, if not thousands of times. Man interacted and influenced his environment from the very moment of his appearance. However, this influence reached a truly tangible scale only in the eighteenth century, with the beginning of the industrial revolution. At this moment, a person left the natural circulation of living nature and began to dictate his own rules to the planet. The planet began to change, but we noticed it far away at once - our civilization was busy with other things: the extraction of fuel (coal, gas, shale and oil), metal and other minerals.

All these substances, excreted naturally by nature and withdrawn by man, returned to nature, but in a different form. This turned into global pollution of soil, water and air and caused an environmental crisis. In addition, the intensity of this process continues to grow at a catastrophic pace, and humankind will have to eliminate the serious consequences of the ecological crisis in the near future.

The site [4] indicates that in the seventies of the last century, the world realized the need for an urgent solution to the problems of ecological balance on the planet. For the first time at a high political level, this topic was raised in 1972 in Stockholm, at the UN Conference on the Human Environment. It was recognized that environmental problems have assumed an alarming scale and for their solution, it is necessary to unite the efforts of the entire world community. The Stockholm Conference has significantly intensified environmental action at all levels. However, it soon became clear that the degradation of the global biosphere is proceeding at a faster pace than the efforts being made. To analyze the reasons for this situation in 1987, the World Commission on Environment and Development prepared the Report "Our Common Future", also known as the Brundtland Report, in which the term "sustainable development" first appeared - that is, such development that conserves resources for future generations while meeting the needs of present generations. The Report identified overconsumption in developed countries and poverty in developing countries as key causes of environmental degradation and highlighted the need to join the global community and help the developing world to save our planet.

In 2016, representatives of 175 countries signed a climate treaty [5]. The main goal of the new treaty, which was confirmed by all participating countries, is to achieve a significant reduction in greenhouse gas emissions and thereby keep the average temperature rise on the planet within 1.5-2 ° C. At present, the efforts of the world community are not enough to curb warming, the document says. Thus, the level of total emissions is at risk of reaching 55 gigatons in 2030, while, according to UN experts, this maximum mark should be no more than 40 gigatons. "In this regard, the countries participating in the Paris Agreement need to take more intensive measures," the document emphasizes. The agreement has a framework nature, its participants have yet to determine the volumes of greenhouse gas emissions, measures to prevent climate change, as well as the rules for the implementation of this document. However, the key provisions have already been agreed.

In the materials [6], scientists warn that many species of animals and plants are disappearing. Our way of life and the way of life of animals depends on a complex ecosystem, and if species begin to disappear, then it becomes a catalyst for irreversible processes that will negatively affect us in the future and already in the present. Even ecological catastrophes limited by the territory have planetary consequences. In nature, everything is interconnected. The existing variety of species of living beings on the planet is not a whim of nature, but an urgent need. The disappearance of one species disrupts the functioning of the entire ecosystem.

According to the source [7], in June 2012, 20 years after the conference on environment and development in Rio de Janeiro, the countries met again at the Rio + 20 summit, where they discussed the emerging problems of a green economy, sustainable development and poverty eradication. Rio + 20 also gave people the opportunity to imagine what we would like to see the world in 20 years from now. At the Rio + 20 Conference, leaders from countries, together with thousands of representatives from the private sector, NGOs and other groups, worked together to develop a strategy on how to reduce poverty, promote social equity and ensure all-inclusive environmental protection. Rio + 20 is an important milestone in a series of major UN conferences, the central of which was the "Earth Summit" - the UN Conference on Environment and Development in 1992, which put sustainable development at the top of the agenda of the United Nations and the international community

Based on the UN official website [8], it can be stated that the methods for solving many problems in the field of sustainable development, including the challenges associated with urban development, energy, water, food and ecosystems, are known. At Rio + 20, countries tried to find ways to make them a reality through the following measures:

- Moving towards a more environmentally friendly economy with a focus on poverty eradication.
- Protecting the oceans from fishing, destruction of marine ecosystems and the negative impacts of climate change.
- Rational arrangement of cities and the creation of more favorable living conditions in them.
- Increased use of renewable energy sources, which will significantly reduce carbon emissions and indoor and outdoor pollution, while contributing to economic growth.

• Better forest management offers a range of benefits - halving deforestation by 2030 will avoid the estimated \$ 3.7 trillion of climate change damage from greenhouse gas emissions, even if the cost of jobs and income is not included, biodiversity, clean water and medicines provided by forests.

Improving ways of conserving and managing water resources to promote development and protect against desertification.

Despite the importance of the Earth Summits [9], critics point out that many of the agreements reached in Rio de Janeiro have not been implemented on fundamental issues such as fighting poverty and cleaning the environment. The fifth UNEP Global Environment Outlook report concludes that only 4 of the 90 most important goals for sustainable development (out of 500 internationally recognized agreements) have been achieved. Over the past 20 years, emissions of climatic gases have increased dramatically, huge areas of tropical forests have disappeared and hundreds of animal species have become extinct. There is also no proper control over what is happening in the world's oceans and there is still no agreement on the protection of forests. Of course, all the important issues facing humanity are reflected in the document, but no significant efforts to resolve them have been observed.

Adverse health effects of air include particulate matter, ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>) and sulfur dioxide (SO<sub>2</sub>). Particularly hazardous to health are considered solid particles with a diameter of less than 10 (pm<sub>10</sub>) and 2.5 (pm<sub>2.5</sub>) microns [10]. It has been established that the penetration of the smallest particles of polluted air deep into the respiratory tract, and then into the bloodstream, leads to irregular work of the heart, cerebral vessels and respiratory tract.

In 2013, the International Agency for Research on Cancer (IARC) [11] classified particulate pollutants as one of the causes of lung cancer. Their concentration is the most widely used indicator for assessing the health effects of air pollution.

Perhaps the greatest medical threat to civilization and humanity at the present stage should be called COVID-19 - a pandemic spreading around the world with the speed, if not an explosive, then a fiery wave. A fire called COVID-19 is raging over our planet, and each individual person and the human population as a whole are a combustible material for it. Can a fire be extinguished? Will civilization not perish - now not in the all-consuming fire of a nuclear war, but from a small, but vicious virus, so far uncontrollable? Before COVID-19, humanity felt completely defenseless, as in the face of an unfamiliar and amazingly insidious enemy. For this reason, another pandemic has spread on Earth - the pandemic of fear. The spread of the COVID-19 virus began in the Chinese city of Wuhan. In December 2019, there was a powerful outbreak of this disease. Today, 115,173,954 cases of COVID-19 coronavirus in 193 countries have been officially recorded in the world. Now, 47,505,050 people are sick with coronavirus infection in the active phase. The total number of deaths from the coronavirus is 2,559,254. The mortality rate of coronavirus in the world now is 2.22%. It is possible that in the near future new, currently unknown diseases will appear. Protecting health and combating the most dangerous diseases is one of the global tasks of humankind, since it is central to the preservation of life on Earth [12].

An analysis of the study of the problems associated with the shortage of drinking water shows that for a long historical period in regions with natural reserves of fresh water, a person fully satisfied his needs for water, without feeling a shortage of it. However, due to the intensive growth of the population and its production activities, the need for water has steadily increased. At present, it has reached such proportions that in many regions of the planet, and especially in

developed industrial regions, there is an acute problem of lack of drinking water. There is also another problem: pollution by runoff and industrial emissions, washing off of fertilizers from fields and the penetration of salt water in coastal zones into aquifers due to pumping of groundwater. This also significantly reduces the supply of drinking water. There are reports that 1.5 billion of the world's population do not have access to clean water [13].

It should be noted that in 2005 the World Health Organization established standards for the limits and maximum permissible levels of the main air pollutants that pose a threat to public health.

According to WHO guidelines, air pollution-related mortality can be reduced by about 15% by reducing particulate matter pollution (pm10) from 70 to 20 micrograms per m<sup>3</sup>. Therefore, to ensure the environmental safety and health of the population, it is necessary to comply with the environmental standards and principles of the WHO

Everyone knows which country is the cleanest in the world (Switzerland), where the happiest people live the longest, where the government is introducing the most innovative and relevant environmental initiatives. However, there is also a negative rating, which every year covers more and more countries. Today, such countries with the worst ecology include Afghanistan, Nigeria, Vietnam, Bangladesh, Nepal, India and China. In these countries, in addition to problems with waste disposal, lack of quality drinking water, the population suffers from drought and sand storms that harm both rural residents and urban residents.

Almost all of these countries suffer from high population densities, and most of the population in these countries lives below the poverty line. The environmental situation in these countries has long gone out of control. Predictions about the ecological future of these countries are extremely negative.

From this perspective, I would like to focus on air pollution in a country like India. Every year, autumn in the Indian capital is marked by a sharp deterioration in air quality. To determine the degree of air pollution, the average air quality index (AQI) is used. If the AQI values are in the range from 0 to 50, then the air is considered good, and if the values are from 51 to 100, it is satisfactory. If the AQI fluctuates between 151-200, the air is considered moderately polluted, with values of 201-300, it is highly polluted, and with AQI more than 300, it is dangerously polluted. If the AQI is more than 400, as experts point out, it should indicate an extremely dangerous pollution. On November 27, 2021, the average AQI in Delhi was 471 (Fig. 1), this index has not dropped below 400 in the capital since November 5. According to Indian scientists, inhaling this air is equivalent to smoking 50 cigarettes a day. The townspeople complain of shortness of breath and itching in the eyes, the number of visits to medical institutions has sharply increased. The main reason for the smog over the Indian capital is the massive burning of stubble and straw in the harvested fields around the city after the fall harvest, despite an official ban.



Fig. 1. An illustration of air pollution in Delhi (Photo: Reyters).

It is known that life on the planet is possible only because the ozone layer protects it from the lethal effects of ultraviolet radiation. If the amount of ozone continues to decrease, then humanity is threatened at least by an increase in

the occurrence of skin cancer and eye damage. Ozone holes are most common in the Polar Regions. A probe of the British station in Antarctica discovered the first such hole in 1982. At first, this fact of the appearance of ozone holes in the cold Polar Regions caused bewilderment, but then it turned out that a significant part of the ozone layer is destroyed by rocket engines of airplanes, spaceships, and satellites.

#### **METHODOLOGY**

Air pollution under the influence of anthropogenic factors in the modern world is becoming one of the factors in the deepening of global environmental problems, the consequences of which will negatively affect the health of the population of all countries of the planet Earth. This problem is relevant today for all regions where the energy, mining, metallurgical, chemical and other sectors of the economy are developing intensively. Increasing air pollution is the main cause of the development of various diseases around the world. Because of air pollution with small particles of aerosols, ash and dust, it is accompanied by a negative impact on the life of humans, animals, plants, soil and water basins. UN Special Rapporteur on the Environment David Boyd stated in his 2019 annual report that 7 million people die each year from the effects of air pollution.

It should be especially noted that clean air almost completely disappears around settlements, rivers turn into gutters, everywhere heaps of garbage, landfills, crippled nature - such is the striking picture of the insane industrialization of the modern world. Air pollution is the most serious environmental problem in modern cities; it causes significant damage to the health of citizens and green spaces. Over large cities, the atmosphere contains 10 times more aerosols and 25 times more gases. At the same time, 60 - 70% of gas pollution comes from road transport. In general, emissions from vehicles are significantly more toxic than emissions from stationary sources. Along with carbon monoxide, nitrogen oxides and soot (in diesel cars), a running car emits more than 200 substances and compounds with toxic effects into the environment. Among them, heavy metal compounds and some hydrocarbons should be distinguished, especially benzopyrene, which has a pronounced carcinogenic effect.

The United Nations Conference on Sustainable Development, also known as Rio + 20, took place from 2012 June 2022. The conference took place in Rio de Janeiro, Brazil, twenty years after the historic 1992 Earth Summit in Rio. Rio + 20 also gave people the opportunity to imagine what we would like to see the world in 20 years from now. The concept of "sustainable development" is often considered to be closely related to ecology, mainly to ensuring environmental safety, environmental protection, which was demonstrated at the UN Conference in Rio de Janeiro.

Many ecologists even believe that everything that is done in the field of ecology is fully aimed at ensuring the goals of sustainable development. Meanwhile, this is far from the case, and very many environmental measures in the course of their implementation in the local ecosystem improved the ecological situation, worsening it on a global scale. However, the transition to sustainable development is possible only on a planetary scale, and therefore the global goals and imperatives of sustainable development - the preservation of the biosphere and the survival of humanity in it - are of higher priority for the transition to this type of development than local goals and requirements. With the beginning of the implementation of the sustainable development strategy, environmental problems at all levels should be looked at in a completely different way than before.

The essence of the transition to sustainable development lies in the survival of humanity and the simultaneous preservation of the biosphere, in other words, in the preservation of the biosphere and civilization. However, in order to survive, to be preserved as a unique biological species, a person needs to radically transform all spheres of his activity in the direction of a significant decrease in pressure on the biosphere - by almost an order of magnitude. This is a very difficult task, and its implementation in many respects contradicts everything that is characteristic of the model of unstable or economically centric development, which began with the transition of humanity to a productive economy. The ecological inconsistency of this model was especially clearly demonstrated by the 20th century.

The process of transition to sustainable development is global, and an individual country cannot go on this path while other countries remain within the framework of the old development model. That is why it is important to use the spontaneously begun process of globalization and direct its economic, environmental and social components, first, to the implementation of sustainable development goals. Thus, the process of globalization, unfolding at the initiative of post-industrial states, transnational corporations and world organizations would contribute to the transition of the world community not to the post-industrial, but to the sustainable development of the entire civilization.

It should be noted that the ecological situation on our planet gives us many reasons for concern. However, it is worth recognizing that in the 21st century we have made serious progress in terms of awareness of the problem and activity. Despite all the damage that we have caused to our planet, we still have enough chances to return it to its previous form.

#### **CONCLUSION**

Today, as never before, a deep understanding of the interdependence of man and the biosphere is necessary, the unification of the efforts of all people living on Earth to save life on the planet. There is simply no more important task for humanity at the present stage. In addition, the preservation of the world is the "entrance door" to the solution of all other burning problems of our time: environmental, energy, food, demographic, raw materials, etc.

In conclusion, we would like to note that the growing severity of threats posed to human civilization by this or that global problem, including an ecological catastrophe, is beyond doubt at the present stage.

At the same time, not a single state, no matter how powerful it may be, nor a group of states is able to independently cope with these problems. Only the interaction of all countries in peace, only the awareness of universal interdependence and the advancement of universal human tasks will allow peoples to gain confidence in the future, prevent social and environmental catastrophes, and finally, simply survive.

#### REFERENCES:

*World Conferences Introduction*

*UNCED, Earth Summit .: Sustainable Development Knowledge Platform*

*Global environmental problems of modernity* [https://airnanny.ru "blog" globalnyie-ekologicheskie-](https://airnanny.ru/blog/globalnyie-ekologicheskie-)  
(<http://www.un.org/russian/conferen/wssd/agenda21/>).

<https://tass.ru/spec/climate> <https://novate.ru/blogs/190315/30488/>

*What is Rio+20? Official UN website. Date of appeal: January 2, 2019. Archived on March 30, 2018.*

*The United Nations conference on sustainable development "Rio+20". Official UN website.*

*Widespread Criticism of Rio Environment Summit - DER SPIEGEL*

*The International Agency for Research on Cancer (IARC) evaluation of the carcinogenicity of outdoor air pollution: focus on China.*

*Loomis D, Huang W, Chen G.Chin J Cancer. 2014 Apr;33(4):189-96.Widespread Criticism of Rio Environment Summit - DER SPIEGEL*

*Adilov T.T., M.Kh.Sarikulov THREATS POSING A DANGER TO CIVILIZATION AND HUMANITY European*

*Scholar Journal (ESJ) Available Online at: <https://www.scholarzest.com> Vol. 2 No. 4, April 2021, ISSN: 2660-5562 Pp 181-184*

*T.T. Adilov, M.kh.Sarikulov, H.A.Riskulov, N.Kh. Kuchkarova TO STUDY THE PROBLEM OF DRINKING WATER SHORTAGE AND PUBLIC HEALTH IJIAET International Journal of Innjvative Analyses and Emerging Technology e-ISSN: 2792-4025 <http://openaccjournals.eu> Volume: 1 Issue: № 5 (Oct 2021) Pp 192-196*

*«Ahmadinejad comes to Rio +20 to show that Iran has friends» – 57 seconds in, 'J10 News', 30 May 2012.*