EARTH CLIMATE CHANGE AS A GLOBAL PROBLEM OF MODERNITY

Climate change represents the most serious crisis of our time, and it is happening even faster than we thought. Nevertheless, in the face of this global threat, we are by no means powerless.

No corner of the globe is immune from the devastating effects of climate change. Rising temperatures are a direct cause of environmental degradation, natural disasters, extreme weather events, food and water insecurity, economic disruption, conflict and terrorism. Sea levels are rising, Arctic glaciers are melting, coral reefs are dying, ocean acidification is occurring, and forest fires are raging. Obviously, a radically new approach is needed. As the effects of climate change damage become almost irreversible, the time has come for decisive collective action.

As a result of the extraction of coal, oil and gas, billions of tons of carbon dioxide are released into the atmosphere every year. Human activity is driving record high levels of greenhouse gas emissions, with no signs of slowing down.

The last four years have been the warmest for the entire period of meteorological observations. According to a World Meteorological Organization (WMO) report released in September 2019, temperatures are currently at least one degree Celsius above pre-industrial times, and we are close to taking over, according to scientists, “unacceptable risk." The 2015 Paris Agreement on Climate Change calls for global average temperature increases to be kept well below 2°C above pre-industrial levels and for efforts to limit temperature increases to 1.5°C above pre-industrial levels.However, if we do not slow down the pace of global emissions, by 2100 temperatures could rise to 3°C above industrial levels, causing additional irreparable damage to our ecosystems. The main document regulating cooperation in the field of climate change is the UN Convention on Climate Change, adopted in June 1992 in Rio de Janeiro at the UN Conference on Environment and Development. The Convention defines climate change as follows: “Climate change attributed directly or indirectly to human activities that change the composition of the Earth's atmosphere, in addition to natural climate variations observed over time periods of comparable duration.” The main objective of the Convention is written in its Article 2. This is “... stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.

This level must be reached within the time needed for ecosystems to naturally adapt to climate change so as not to jeopardize food production and allow economic development to continue in a sustainable manner.” The problems of climate change in Uzbekistan are extremely relevant. Observations of the last ten

years show that the Central Asian region is experiencing strong warming, the rate of which is 40% higher than the global average. This leads to a change in agro-climatic resources, degradation and reduction in the areas of snow-ice sources that feed the rivers. Total greenhouse gas emissions in Uzbekistan in 1999 amounted to about 0.7% of global emissions as a whole, and the analysis shows that greenhouse gas emissions in Uzbekistan will increase. The outcropping of the Aral Sea floor and the reduction of areas under natural vegetation have caused significant changes in the local climate, which has become more arid and continental, and the associated impacts on soil properties and loss of biodiversity. Global warming and the associated reduction in fresh water sources can have a serious negative impact on the ecological, economic and social security of Uzbekistan, the reduction of glaciation in the foreseeable future will have negative consequences regarding the volume and flow regime, as well as the quality of fresh waters 12. According to forecast estimates, an increase in air temperature by 2-3°C and above will cause a shift in sowing dates and a decrease in crop yields, an increase in soil salinity and the incidence of low-immune plants. Changes in circulation processes will intensify the processes of salt transfer from the dried bottom of the Aral Sea and have a negative impact on the adjacent regions of Karakarpakstan, Khorezm and Bukhara (NC FCCC, 2001).

To date, the Navoi mining and industrial region covers a number of deposits containing mineral raw materials for various purposes by application, as well as enterprises involved in their extraction and processing. Year after year, with an increase in the volume of their development, the range of problems of their processing is expanding, thereby the need to create low-waste, environmentally efficient, less energy-intensive resource-saving technologies. Currently, enrichment plants emit a large amount of emissions into the atmosphere, which are included in a number of toxic and greenhouse gases (As2O3, SO2, CO2, CO, etc.). Although there are numerous methods for their capture, neutralization and disposal methods, however, the problem remains of developing a more efficient way to use these waste gas wastes for various purposes, most importantly improving the environmental situation in the territories where they are distributed. This becomes even more acute due to the fact that these problems have existed for many years and scientific research has been carried out to solve them, however, their utilization in production or in other areas of the national economy still remains an urgent unsolved problem for both manufacturers and scientists. Navoi State Mining and Technological University contributes to solving the problem of global warming. The university conducts research on the development of an environmentally efficient technology for the use of exhaust

gaseous waste from chemical and metallurgical industries in the processing of mineral raw materials.

In 2011, the Patent of the Republic of Uzbekistan No. 04343 was obtained. A method for enriching highly carbonized phosphorites to obtain calcium nitrite-nitrate. / Erkaev A.U., Tursunova I.N., Mardonov U.M., Nurmurodov T.I. (UZ) - Application No. IAP2008 0249.04.07.2008. publ. 31.05.2011 // Bull., 2011. No. 5 Patent RUz No. IAP 05945. Method for flame retardant treatment of cellulose materials / Tursunova I.N., Mardonov U.M., Erkaev A.U., Muratova M.N., Umirov F.E. // application.03.04.2014. Bulletin. No. 9 (173). - Tashkent, 2015, publ. 08/28/2019. In 2018, defended a doctoral dissertation on the topic “Development of methods for processing low-grade Kyzylkum phosphorites using nitrous gases” And also research is being carried out in the field of developing an environmentally friendly method of blasting in open pits. In the research work, urgent scientific and technical problems were solved to develop a new method for reducing dust and gas emissions, which provides an increase in the efficiency of dust suppression and an increase in the efficiency of explosive energy during mass explosions, which is important in open-pit mining of mineral deposits. In 2019, defended a doctoral dissertation on the topic “Development of methods for controlling the dust and gas regime when blasting high ledges in deep pits” and in 2021 on the topic “Development of a new composition of a non-explosive destructive mixture for use at open-cast mining sites”.

And also the university conducts scientific research on the problems of reducing soil salinity and studying the bioecological features of the species Indigofera tinctoria L. in the conditions of Kyzylkum. properties and methods of cultivation of Indigofera tinctoria L. in the conditions of Kyzylkum.

NSMTU action plan on climate change

In striving for global competitiveness, NSMTU focuses on achieving the status of a leading university in Uzbekistan and competitive in the world in strategic scientific and educational areas. Thanks to this, the university will make a significant contribution to the implementation of national projects and the development of the economy of Uzbekistan: To achieve the goals, the university implements the following plans: – scientific monitoring of the causes of climate change and raising the scientific level of research on all problems associated with global warming; especially the problems of changes in solar activity and the growth of greenhouse gases in the Navoi region. - Study of natural and technical systems, assessment of the impact of various factors on the environment, which will help form an integral system of knowledge. - the university's transition to active participation in the formation of a green economy by promoting its developments, as well as the

transition to safe and affordable ways to adapt economic activities to global warming, specific to the Navoi region. - International research cooperation allowing the world scientific community to participate in solving problems, ensuring the achievement of sustainable development goals at all levels (university, region, city, world). - Increased international cooperation and support to strengthen the capacity of developing countries to implement water supply and sanitation activities and programs, including runoff collection, desalination, improved water use efficiency, wastewater treatment and application of recycling and reuse technologies.