

Global climate change and its negative consequences

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Abstract. In the emergence of global problems of nature and man, these problems have natural anthropogenic roots; the presence of periodic changes in climatic processes; the atmosphere is the shell surrounding planet Earth., natural factors that shape the climate, astronomical, geographic, circulation factors, the increasing influence of anthropogenic activities on the chemical and physical composition of the atmosphere; ;rapid development of natural resources, rising sea levels and water pollution, rapid growth of natural and industrial disasters, increasing anthropogenic impact on the atmosphere; population of the globe, countries, cooperation of international organizations; wind, water, solar energy, renewable energy sources; methods and technologies that reduce methane emissions; technological and transport accidents; Fire safety; continued promotion of climate change; our planet is our common home; improving the technology for rational waste disposal in manufacturing sectors; search for the geographical basis for changes in the indicators and consequences of climate warming within regions and its elimination; promoting issues in this topic.

1 Introduction

The problem of climate change is one of worldly (global) problems such as war and peace, poverty, environmental, international terrorism, desertification. The term "global" is *French for global* - the most general, diverse in scope and direction, and concerns the entire globe [1; 6; 8; 10].

Global problems, in a broad sense, arise as a result of the violation of the relationship between nature and man (society). So, these problems have natural - anthropogenic roots. Climatic conditions, among other factors, are particularly important for the sustainable development of society for a decent life for mankind. Even small deviations from the norm cause problems [2; 7; 9; 11].

The term climate comes *from the Greek kluma-* slope, which means the slope of the sun's rays to "bend" on the earth's surface at noon. This term was introduced into science by Hipparchus (160-125 BC), a Greek astronomer and one of the founders of mathematical geography.

Climate is the result of natural processes occurring in the atmosphere layer near the earth's surface as a result of the relationship between the Sun and its orbiting satellite, the

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Earth. Climate has a seasonal nature, quality and changes. And weather is the state of climatic parameters at the same place and time. The weather can change several times in a day or night. During the year, the climate of the place and its seasonal weather conditions occur. The main source of climate is primarily the Sun. The greater the angle of incidence of the sun's rays reaching the earth's surface, the stronger the heat and light power of the rays, and vice versa, the less and weaker. Without the sun, life on Earth would not exist [3; 7; 8; 9; 12].

2 Material and methods

The main goal of this article is the aggravation of the environmental situation associated with global climate change in today's world, in Central Asia, including Uzbekistan, together with the study of its negative consequences, development of measures to optimize the ecological situation of areas affected by vegetation and soil degradation during the research period [4; 5; 1; 7].

3 Results and discussion

It should be noted that the relationship between the Sun and the Earth related to climatic conditions, as well as the factors influencing the Earth's climate, have changed throughout the history of the development of Earth's nature. Coal deposits on the Antarctic mainland and the Spitsbergen Islands, as well as repeated glaciations in the Quaternary period, are irrefutable evidence. Scientists also recognize the existence of periodic changes in climatic processes. For instance, A.V. Shnitnikov determined periodic changes in natural moisture on the continents of the Northern Hemisphere during 1800 years. Each period consists of two seasons. The first is a cool, wet, warm period lasting 300-500 years, and the second is a hot and dry climate period lasting more than 1000 years. According to him, between these two "seasons" there is an intermediate period of 100 - 300 years (Jekulin, 1989), [7; 8; 9; 12].

Climatic changes that occurred in the history of the Earth are studied by representatives of the science of paleo-climatology. In addition, there are scientific directions such as paleogeomorphology, paleobotany, paleozoology related to this field. It has a special place in geological science.

The current climatic conditions prevailing on the Earth were mainly formed after the glaciations that occurred in the recent past, in the lower, middle and upper part of the Quaternary period. Although the main source of life on Earth is the sun, the climate-forming importance of the atmospheric shell occupies a special place. The formation and change of atmospheric composition is directly related to the process of development of the organic world. According to Academician I.V. Vernadsky, it is a product of the development of the organic world. The atmosphere is the "cloak" that surrounds the planet Earth. It's too hot there and keeps it from getting cold. Without the atmosphere, there would be no life on earth. According to the calculations of climatologists, without carbon dioxide gas in the atmosphere, the temperature would have decreased by 60 °C, and without water vapor, the surface temperature would have decreased by 250 °C (Ososkova et al., 2005, p. 5), [1; 6; 8; 10].

Scientists divide the natural factors that create climate into three groups - astronomical, geographical and circulation factors. Regardless of how these factors are grouped, the following play a key role in the formation of the earth's climate. The main factor in this is the amount of radiation and light reaching the earth's surface from the sun. The distribution of oceans and land on the surface of the earth, the geographical location of the place, the relief, the indicators of the return of sunlight from the surface of the earth, the composition and circulation of the atmosphere, and the currents of the sea.

There are different approaches to grouping the climates of the globe. Among them, the genetic classification developed by B.P. Alisov in the 1930s is preferred by many. This classification is based on the types of air masses that prevail throughout the year or during hot and cold periods. It divides the seven air masses (equatorial, 2 tropical, 2 temperate and arctic, antarctic) that prevail along geographic latitudes. On this basis, he distinguishes 4 main (equatorial, tropical, temperate, arctic - antarctic) and 3 transient - intermediate (subequatorial, subtropical, subarctic - subantarctic) climatic regions (Khromov, Mamontova, 1974, p. 202). The formation of the above-mentioned air masses is based on the radiation balance on the surface of the earth, the change of air temperature and humidity from the poles to the equator [10; 13; 15; 16].

By the middle of the 20th century, these climatic conditions settled on the earth's surface faced strong anthropogenic influence. That is, the increase in the number of people, the continuous increase in the demand for natural resources, and finally the increase in the influence of man armed with science and technology on nature will lead to a change in the climate of the Earth.

This process can be justified by the following arguments:

- the increasing impact of anthropogenic activity on the chemical and physical composition of the atmosphere, the impact on atmospheric temperature by releasing ozone-depleting freon gases and carbon dioxide and other greenhouse effect-forming gases and aerosols, burning various organic fuels and using energy increasing;

- changes in the albedo of the Earth's surface due to the rapid exploitation of natural resources (land, water, forest, mining);

- negative impact on air and water exchange in the atmosphere-ocean-land system due to the rise of the world ocean level and water pollution;

- ethnic conflicts, inter-state discord, wars, international terrorism, natural and industrial disasters taking place on the surface of the earth are intensifying;

- due to anthropogenic influence, the intensity of natural, economic and social processes increases due to the exchange of matter and energy on Earth;

- increasing anthropogenic impact on the atmosphere due to air transport and exploitation of near space, etc.

According to climatologists, global warming is observed due to the above-mentioned process. The main reason is the gases that create a greenhouse effect in the atmosphere by absorbing long-wave radiation from the earth's surface. Gases belonging to this category are called "greenhouse gases". The essence of this process is as follows: part of the radiation from the sun (30%) is returned to space due to the atmosphere (mainly through clouds). About 15% is absorbed in the atmosphere. The remaining energy passes through the atmosphere and reaches the surface of the Earth and heats it. The Earth, in turn, reflects long-wave infrared rays back into space through the atmosphere. Some of this radiation is absorbed by greenhouse gases instead of escaping into space, thereby warming the atmosphere more than normal and eventually forming a greenhouse layer that affects the Earth's climate. As noted above, the increase of greenhouse gases in the atmosphere is related to human activities on earth. There are mainly six such gases. The most important is carbon dioxide gas (CO₂). Their category also includes methane (CH₄), nitrogen oxide (N₂O), perfluorocarbon (PFCs), hydrofluorocarbons (HFCs) and sulfur hexafluoride (SF₆).

It should be noted that in the historical periods when the level of energy armament of mankind was low, its impact on the global climate was not significant. But by the middle of the 20th century, the negative impact of anthropogenic activity, which is becoming an increasingly powerful force, on the world's climate has become significant. According to climatologists, over the next 100 years, the temperature of the Earth rose by 0.6 C, while the indicator was 1.2 C on the European continent (the average global temperature on the Earth's surface during this period equal to + 15 C). The water level in the world's oceans and seas

has risen by 10-20 cm. If appropriate measures are not taken, the global temperature will increase by 0.3 C every decade of the next century. Climate warming will lead to the melting of polar ice caps and the rise of the world ocean level by 20 cm by 2030 and by 65 cm by the end of the 21st century.

The negative effects of global climate change are becoming more and more evident, especially in coastal countries and coastal climate regions. These negative global processes came to the attention of climatologists and scientists dealing with world problems in the late 1960s, and the UN took the lead in the effort to solve these problems.

Climate warming was expressed in the Stockholm Declaration of 1972, dedicated to the protection of nature. At the first World Climate Conference held in 1979, a Declaration warning the world community about anthropogenic climate change was adopted. In 1980-1990, several international conferences dedicated to this topic were held. In 1988, the Intergovernmental Panel on Climate Change (IPCC) was established. This organization presented its first climate change assessment report in 1990. According to the experts' conclusion, if the necessary measures are not taken, the global temperature will increase by 0.3 C every 10 years for the next 100 years. As a continuation of climate change measures, the UN Framework Convention was adopted at the World Summit held in Rio de Janeiro in 1992. This document entered into force on March 21, 1994. Today, 189 countries are Parties (members) of the Convention. Among the issues related to climate change, the conference adopted a legal and programmatic document on limiting the release of "greenhouse gases" into the air, which create a heat effect in the atmosphere. Several international conferences have been held to evaluate the processes of implementation of this Framework Convention of the UN and determine the next steps.

In this regard, the Protocol of Kyoto (Japan), signed in 1997 and entered into force on February 16, 2005, was of particular importance. In this conference, unlike the previous ones, reduced volumes of greenhouse gas emissions into the atmosphere were determined for developed countries. As a result of the negotiations, during 2008-2012, the obligation to reduce greenhouse gases by 8% compared to 1990 in the EU countries, 7% in the USA and 6% in Japan was imposed. For other developed countries, the highest "limits" have been set (On Climate Change... 1999, p. 32)[10; 12; 13; 14].

Although the Republic of Uzbekistan is not among the countries that have taken specific obligations, the proposals related to the "trade of shares" (trading of waste quotas) made to it by the USA are significant. According to this proposal, developed countries can buy their shares from low-emission countries for the gases they emit into the atmosphere in excess of their obligations. It can be done by paying a cash equivalent or by providing new technologies or funding. At the same time, the parties (countries) have national programs designed in accordance with their socio-economic potential in order to fulfill the obligations of the Kyoto Protocol.

The Kyoto Protocol is the first practical step towards combating the increase in greenhouse gas emissions by mankind.

Uzbekistan's response to the problem of global climate warming Thanks to independence, Uzbekistan became an equal member of the UN, and it continues to support and strengthen international cooperation related to the fate and future of mankind and the protection of nature. The Framework Convention of the United Nations (UNFCCC) was ratified by the Government of Uzbekistan in June 1993. Studying it and finding a solution was given the status of the whole state. The Hydrometeorological Service Center under the Cabinet of Ministers of the Republic of Uzbekistan was designated as the organization responsible for fulfilling the obligations of RKIK OON in Uzbekistan. 34 institutions participating in its implementation and a secretariat coordinating their work were established (in 1995, the head of Uzgidromet V.Y. Chub was appointed as the national representative). In 1999, the first national information of the Republic of Uzbekistan on the UN Framework

Convention on Climate Change was presented (2008. p. 137). When analyzing average annual changes in air temperature for Uzbekistan for 1933-2007, it was defined that it increases by 0.2 C every 10 years. This is 40% more than the average rate of warming for the Northern Hemisphere. As a result of warming, the snow and ice areas in the mountains located in the Aral Sea basin have decreased by more than 1/3. A steady warming direction (trend) of interannual climate is observed in the region. The change in the standardized precipitation index (as a percentage of the baseline 1961–1990) also shows a relative increase in atmospheric precipitation due to warming (see the topic “Geographic Prediction and Practice”). Considerable work is being done in the republic to fulfill the obligations of the Kyoto Protocol. Reduction of emissions of carbon dioxide (CO₂) and nitrogen (a nitrogen oxide) into the atmosphere (during 1990-2005), which are considered direct greenhouse gases (except for methane), was achieved.

The warming of the climate leads to a reduction of water resources by 10-15% due to evaporation from the water surface, and by 10-20% due to transpiration. The sum of annual temperatures increases by 5 - 10%, the duration of the cold period is reduced by 5 - 15 days. This leads to changes in agro-climatic conditions in the cultivation of agricultural crops [1; 6; 8; 9].

The decision of the Cabinet of Ministers of the Republic of Uzbekistan on April 10, 2007 "On approval of the Regulation on the procedure for the preparation and implementation of investment projects within the framework of the Kyoto Protocol Clean Development Mechanism" defines the tasks of mitigating global warming and adapting to it. Environmental, social and economic consequences of climate warming are very complex and multifaceted. It is desirable to work on the basis of a strategy of continuous change and adaptation to it.

Solving the problem of global warming, that is, the global increase in air temperature, is a very difficult task. Because this issue also goes back to the "nature-man-society" relationship, that is, the balanced and harmonious development of these three. In order to find and maintain this balance, the following practical measures should be taken:

- a deep understanding of the nature of the climate change problem, achieving cooperation between the people of the Earth, countries, and international organizations;
- transition to new technologies that allow to reduce the emission of greenhouse gases (out into the atmosphere);
- efficient use of ecologically clean, renewable energy sources such as wind, water, and solar energy to the extent possible;
- to achieve technologies and methods that reduce the release of methane from crops, especially cholipoyas;
- livestock farming, achieving an increase in the productivity of each head of livestock, which is one of the ways to reduce methane emissions, not their number;
- introduction of cost-effective, environmentally friendly methods of heating houses and capital construction buildings;
- strengthening technological and transport accidents and fire safety measures;
- continuous promotion of climate change among the public;
- to make everyone feel the sense and responsibility of "our planet is our common home" and create a worthy culture. Because the human personality plays a decisive role in the coordination of nature and society;
- improvement of the technology of rational disposal of household and industrial waste;
- to look for the geographical bases of climate warming indicators and consequences of change and its elimination within the regions and to promote the problems of this topic.

The essence of the problem of desertification. Desertification is one of the problems with a global status, and it is a consequence of the violation of the relationship between nature

and man, which belongs to the category of ecological problems. The main reason for the problem to come to the attention of the international community is the chronic drought and its tragic consequences in the Sahel zone, which is located on the southern border of the Sahara Desert in Africa.

The well-known French scientist O. Cheval in 1900 considered the world's largest Sahara Desert (area 7 million km²) in the south, stretching several thousand km from the Atlantic Ocean to the shores of the Red Sea and the Indian Ocean, and was about 159 km wide. the corridor is called "Sachel". This term means "border zone", "edge" in Arabic. The Sahel consists of semi-arid savanna, sandy, rocky terrain. This area belongs to more than ten countries (Senegal, Mauritania, Mali, Chad, Niger, Burkina Faso, Ghana, Nigeria, Central African Republic, Sudan, Ethiopia, Somalia, Kenya), and the main inhabitants are Tuagers is engaged in pastoral and nomadic animal husbandry. Due to the chronic droughts that occurred in this Sudan-Sahel zone in 1964, 1968, 1970-1972, the border of the Sahara Desert was pushed south by an average of 9 km every year during the last 10 years from 1965 (Orlovsky 2018). Due to the "great drought" that occurred in 1968-1973, 250 million people of this country lost their lives. population died as a result of hunger, disease, two million. livestock is destroyed.

The process of desertification is typical for arid climatic regions, which occupy about 30% of the Earth's land area. Desertification is also observed in some semi-humid climates. Drought is the "leaven" of the desertification process. During the 10th - 18th centuries, there were 40 droughts in Russia, and 9 times in the 19th century. Currently, this harmful disaster is repeated every 3-4 years in the forest-steppe and steppe zones.

The term "desertification" was introduced to science in 1949 by A. Aureville, a French geobotanist who studied humid tropical forests of Africa. There are different interpretations of the meaning of the term desertification. However, most scientists recognize desertification as the impoverishment of landscapes (ecosystems), that is, the decrease in their biological productivity (impoverishment). In the process of desertification, soil salinity increases, wind and water erosion increase, the atmosphere becomes polluted with dust and pollen aerosols, the quality of the ecological environment decreases, and finally, it causes enormous social, economic, and moral damages. There are many causes of desertification, and they consist of two groups of factors: natural and man-made.

Among natural factors, climate is of leading importance (On Climate Change, 1999, p. 19). Especially the arid climate (desert and semi-desert zones) is considered to be the center of sufficient desertification. Because the stability of desert landscapes will be weak. That is, they are resistant to external influences related to drought and change quickly.

Arid - Latin "arid" - has the meaning of dry, arid. Based on this, extraarid means extremely arid, semiarid means Latin "semi" - semi-arid, humid means Latin "humius" - moist, sub humid means "sub" - "next to". More precisely, the stability of landscapes depends on their bioclimatic (drought) level, that is, as natural humidity increases, their stability level increases (Table 1, 4).

Table 1. Aridity level of bioclimatic (arid) zones (Zonn, Orlovsky, 1984).

Bioclimatic zones	The amount of annual precipitation in mm	Wetting coefficient
Estraride	<100	<0.03
Arid	100-200	0.03-0.20
Semiarid (semi-arid)	200-400	0.20-0.50
Subgu, id (moisture deficient areas)	400-800	0.50-0.75

According to this table, the deserts of Central Asia belong to the arid zone. But the deserts located within the Gazli-Urganch (Tayamo'in) people are relatively dry. These lands should

be considered as belonging to the extra-arid bioclimatic zone. Because the average annual precipitation in these landscapes is less than 100 mm.

The process of desertification was mentioned as a global natural, social and economic problem at the XXIX General Assembly of the UN in 1974, and it was decided to hold a special council in this regard. Finally, after three years of preparation, the problem of desertification was discussed at the UN Conference, which opened on August 29, 1977 in Nairobi, Kenya. This prestigious conference will last 20 days and will be attended by more than 1500 delegates from 100 countries of the world and more than 50 international organizations. I.P.Gerasimov, A.G.Babayev, V.A.Kovda, B.Grozanov, T.N.Nechayeva, M.P.Petrov, V.N.Kunin actively participated in this conference. At the conference, the prevention of the crisis caused by the inefficient human economic activities, that is, the need to preserve nature, was defined as the duty of the world community, and the "Desertification Combat Plan" was adopted. The program for the countries supporting this plan and the international scientific community has fulfilled its mission. Several international and regional conferences on this topic were held under the leadership of the UN.

In 1992, the Intergovernmental Committee was established at the UN General Assembly (headquarters is in Geneva). The problem of desertification was re-examined at the UN conference held in Paris on October 14-15, 1994, and taking into account the shortcomings in this regard, a new program was adopted - the Convention to Combat Desertification. Currently, this Convention has been adopted by more than 100 countries, and many countries are fulfilling their obligations. It should be noted that the team of the Institute of Deserts under the Academy of Sciences of Turkmenistan played an incomparable role in the fight against desertification in the former Union and in Central Asia, that is, in solving issues related to its organization and direct practice. This institute was established in 1962. Since 1967, this scientific center has been given the right to coordinate the work of scientific teams working on the study of natural resources of arid regions in the territory of the former Union and their effective use. The Scientific Council on the problems of "Study and development of the desert areas of Central Asia and Kazakhstan" was established at the Institute. Since 1967, the International Conference "Problems of Desert Development" has been held 6 times a year. publication of a scientific-practical journal has been launched. This magazine should be regarded as a herald of the fight against desertification, the science of desertology and the rational use of natural resources of the desert zone and their preservation.

In 1978-1992, "Training courses on the fight against desertification" with international status were organized at the Institute of Desertification. Training sessions were conducted on the problems of "reinforcement of additional sands" and "reclamation of saline irrigated lands". During these years, 3 international symposia, 40 training courses, seminars, educational trips, 10 advisory and evaluation meetings were held. More than 700 experts from 81 countries participated in these events. In 1984, the Institute of Deserts was awarded the silver medal of the UN Environment Program (UNEP) for researching arid lands, developing methods of combating desertification, and training specialists for developing countries [2; 3; 13; 14].

In 1992, the team of the Institute of Deserts developed the map "Land impoverishment in the Arol Basin due to anthropogenic influence" (scale 1:2500000). In the pamphlet dedicated to the explanation of this development, the level of desertification (weak, moderate, strong), reduction of vegetation cover, deflation in sandy deserts, water erosion, salinization of soils due to the drying up of the Aral Sea, flooding in irrigated lands Evaluation criteria for agriculture, man-made desertification and wetting of pastures are reflected. In addition, the land area and composition of desertification were determined due to anthropogenic influence in Kazakhstan, Turkmenistan, Kyrgyzstan, the Republic of Uzbekistan and especially the Arol Basin. This methodological development serves as a program for studying and evaluating desertification processes in the regions.

As a result of long-term research, 45 causes of desertification have been identified, 13% of them are natural, and 87% are related to anthropogenic activities (2). However, it is desirable to further clarify the extent and proportion of factors that cause desertification in the current period of global warming.

Desertification in Uzbekistan and the fight against it. The Republic of Uzbekistan is located in the central part of Central Asia and is one of the countries with an arid climate. 75% of its plains are deserts and semi-deserts. The process of desertification is specific to these regions. For this reason, the Republic of Uzbekistan has been supporting the efforts of the UN to combat desertification since the first days. Uzbek desert scientists, especially the group of scientists led by AARafiqov of the Department of Geography under the FA of Uzbekistan (now under the Scientific and Research Institute of Seismology) were among the first to study this problem. As a result of research on desertification, in 1988 the monograph "Desertification in Uzbekistan and the fight against it" was published in Russian in the "Fan" publishing house. At the same time, a map-drawing "Danger of desertification in the arid zone of Uzbekistan" was created (scale 1:500,000). Most of the scientific studies related to desertification in Uzbekistan in the 1980s and 1990s were focused on the problems of the Aral Sea [5].

Taking into account that the fight against desertification is necessary for the development of our republic, the UN Convention against Desertification and Drought was adopted by the Parliament of the Republic of Uzbekistan on August 31, 1995, and the Chief Hydrometeorological Center under the Cabinet of Ministers is the executive organization. was designated as an organization. In 1999, the "National Program for Combating Desertification in the Republic of Uzbekistan" (page 130) was developed with the participation of the team of this organization and expert scientists of the republic. Geographers A.A.Rafikov and I.K.Nazarov actively participated in the preparation of this program. In order to fulfill it, meetings, seminars, and even international scientific conferences are held dedicated to scientific research works and their results, as well as tasks to be performed. One of the international conferences dedicated to desertification was held on October 16-18, 2000 in the city of Samarkand on the topic "Problems of desertification in arid zones". 107 lectures of desert scientists from the USA, Poland, Russia, Armenia, Turkmenistan, Kazakhstan, Tajikistan and Uzbekistan were heard at this conference, initiated by Professor L.A.Alibekov, and future plans related to the topic were determined. According to scientists from Turkmenistan, the situation related to desertification processes in Uzbekistan has the following indicators:

Table 2. Analysis of desertification in Uzbekistan.

No	Types of desertification	Desertification classes			Total
		Weak	Average	Strong	
Lands in use or suitable for use					
1	Desertification of vegetation cover	<u>132475</u> 37.4	<u>93370</u> 26.4	<u>16635</u> 4.4	<u>241480</u> 68.2
2	Deflation	<u>3955</u> 1.1	-	-	3955 1.1
3	Water erosion	<u>9825</u> 2.8	<u>325</u> 0.1	-	<u>10150</u> 2.9
4	Salinity of irrigated lands	-	<u>65745</u> 18.5	-	<u>65745</u> 18.5
5	Salinity due to lowering of the Aral sea level	<u>6115</u> 1.7	<u>2140</u> 0.6	<u>14895</u> 4.2	<u>32150</u> 6.5
6	Man-made desertification	-	-	<u>9975</u> 2.8	<u>9975</u> 2.8
Total		<u>152370</u> 43.0	<u>161680</u> 45.6	<u>40508</u> 11.4	<u>354455</u> 100

	Quick sands				3635
	Shorkoks				3330
	Wetlands				27810
	Bedrock surfaces				16615
	Total				51390
	All about Uzbekistan				405845

Source: Poyasnitenayazapiska k karte antropogennoydegradatsii zemelAralkogomorya, A shgabat, 1993, 87st

It is no coincidence that recently the UN Convention on Combating Desertification: Problems and Their Solutions (Samarkand, November 13-17, 2023) was held in Samarkand. According to UN statistics, more than 20% of the total land area in Central Asia has been degraded. The problem affects about 30% of the region's population and covers about 80 million hectares.

Today, the total area of degraded land in the world is 4.2 million km². This exceeds the total area of five Central Asian countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. According to the information of the Aral Bay International Innovation Center under the Ministry of Ecology, Environmental Protection and Climate Change, saxovol has been planted on an area of more than 1,700,000 hectares in the dry bottom area of the Aral Sea. In the future, they are planned to plant 200,000 hectares annually.

Based on the experience of Uzbekistan in this field, special attention was paid to the national project "Green Space". It started in 2021 at the initiative of ShavkatMirziyoyev. The main goal of the project is to increase the area of "Green spaces" in the cities of the Republic by 30% by 2023. It was reported that more than 416 million trees and shrubs were planted throughout our republic. More than 662 hectares of green public areas have been established. Around the cities of Bukhara, Khiva, Urganch and Nukus, 40 km long green belts were established. A new Dendropark was established in Samarkand region. More than a thousand saplings of 10 types of trees were planted here. As part of the autumn tree planting season, it is planned to plant 85 million saplings in kindergartens, schools, universities, hospitals and forestry areas. The work being carried out in this regard is part of the solution to environmental problems.

4 Conclusions

In conclusion, today it is appropriate to implement the following scientific and practical measures in order to mitigate the processes of desertification and fight against it:

- improvement of wind and water erosion control measures;
- elimination of secondary salinity, chemical, bacteriological pollution of lands in desert-oasis, desert-pasture zones;
- recultivation of biologically poor, degraded, abandoned lands;
- beautification and greening of settlements located in desert-oasis, desert-pasture zones, taking into account local natural conditions;
- it is necessary to strengthen measures and activities dedicated to raising the ecological culture of the general public, especially administrative leaders and nature users.
- It is necessary to carry out the following tasks to study the process of desertification from a scientific-theoretical point of view:
- monitor the desertification process (on the basis of space and terrestrial regional observation system) and take into account its results;
- improvement of the legal basis of the fight against desertification;

- it is necessary to scientifically analyze the local, regional and global nature and consequences of desertification processes, to create their cartographic images and to develop conclusions and recommendations on the fight against desertification.

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