

Reforms were Undertaken by the Republic of Uzbekistan to Prevent Desertification and Degradation of Central Asian Lands

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Annotation: This article describes the causes of land desertification problems in Central Asia, the factors leading to desertification, and what reforms are being made by states to prevent overgrazing. You can also see in the article the statistics on how fast the lands of the Central Asian states are desertifying today. You can also see how Uzbekistan, located in the heart of Central Asia, is fighting desertification and what reforms are being implemented by the government.

Keywords: desertification, land degradation, drought, climate change, dust storms.

Every second, 23 hectares of land around the world are deserted. As a result, by 2050, 95 percent of the Earth will be deserted, leaving more than 3 billion people with food shortages. Desertification has been a major environmental problem since the last century. So what is desertification and what awaits humanity behind this process? What is the problem of desertification in Central Asia and what are its causes? What measures is Uzbekistan taking against desertification?

Desertification is the process by which land becomes uncultivated. At the same time, ecological systems are disrupted in arid climates, and all forms of organic life deteriorate. This is leading the world to a natural economic crisis. Desertification leads to poverty. And 3.2 billion people now living well could suffer from food shortages shortly [1]. Every year, 12 million hectares of land around the world are deserted, and 23 hectares in 1 minute. Now 75 percent of the Earth is deserted. If this threat continues, by 2050, 95 percent of the Earth will be unusable.

Eighty-seven percent of deserted wetlands have become like this in the last 300 years. Even more recently, 54 percent of desertification has occurred in the last 100 years. This process is still ongoing in Southeast Asia and Africa. In Uzbekistan, 9 square meters of land is desertified every minute.

From an ecological point of view, relatively favorable conditions remained in the Central Asian region until the second half of the 20th century. However, as a result of population growth, transport, industrial enterprises, chemicalization of agriculture, increasing man-made pressure, the relative balance in the "nature-human" system has been disturbed[2]. Today, most of Central Asia is characterized by unfavorable environmental conditions and the development of all types of desertification.

The cotton monoculture that has developed in the Central Asian region has established an extensive approach to agriculture for many years. The one-sidedness of development has led to the limitation of the grain, livestock, vegetable, horticultural and other sectors. The extreme expansion of monoculture and irrigated lands has led to an acute shortage of irrigation water. Irreversible withdrawal of water from the Amudarya and Syrdarya for irrigation has led to a disturbance of the balance of water flow and evaporation in the Aral Sea, which has become a disaster for the entire basin [3].

Central Asia is a classic example of an arid region characterized by serious transboundary desertification problems. Nowhere is there an entire area of more than four million square kilometers that is at greater risk of desertification than the area between the Caspian Sea and the Pamir Mountains. Currently, more than two-thirds of Central Asia is arid. In Kazakhstan, for example, the World Bank estimates that 66 percent of the country's territory is desertified.

The effects of desertification are exacerbated by climate change and increasing anthropogenic pressures. Central Asia is one of the most vulnerable to climate change. According to climate forecasts, a significant temperature rise (up to 2-4 degrees), uneven distribution of precipitation, intensive melting of glaciers (currently 46 glaciers are expected to meet in the region) - all this will lead to an increase in temperature. The process of long-term desertification. During the Soviet era, land misuse, including intensive irrigation, overgrazing of steppes, and clearing of mountain forests in a wide arid zone with limited environmental resistance, caused many environmental impacts. Subsequent economic growth led to increased anthropogenic pressure and consequent land degradation.

Currently, 4-10% of arable land, 27-68% of pastures, and 1-8% of forests in Central Asia are significantly degraded [4]. The causes of land degradation are many but usually related to misuse and overuse of natural resource base, in particular, bad and unsustainable agricultural practices, grazing, deforestation, forest degradation, and natural disasters. This problem is not only the problem of the Central Asian states but also the problem of all the countries around Central Asia. This is because sand particles flying from the deserted regions of Central Asia have an impact on these regions as well.

What are the causes of desertification in Central Asia today?

First, desertification is influenced by natural and anthropogenic factors. Anthropogenic factors include improper irrigation, soil pollution, industrial waste, rock, sand, and mineral extraction [5].

Second, population growth is one of the main causes of desertification. Because the increase in people also increases the demand for food and material wealth. This means that more land needs to be harvested. As a result, agricultural lands are used inefficiently and become unusable.

Third, the lands allocated for agricultural use are not being used properly.

Fourth, non-compliance with the rules for grazing livestock in pastures. That is, when livestock are sent for grazing, they eat the plants by the roots. This accelerates the degradation process.

In addition, the lack of crop rotation, inefficient tillage, non-compliance with agricultural maintenance requirements, uncontrolled use of fertilizers, as well as the low level of implementation of agro-ecological standards leads to deterioration of soil-ecological conditions and increase of degraded lands.

For the Republic of Uzbekistan, whose territory is 80% desert and semi-desert, the issues of combating desertification and drought are a priority in ensuring sustainable development.

In the Central Asian Republics, migratory sands cover an area of about 1 million hectares, and two hundred thousand hectares of these lands have recently emerged around irrigated areas. This poses a serious threat to the acceleration of the desertification process. Land degradation is also occurring in irrigated areas involved in agricultural production.

Desertification poses a serious threat to Uzbekistan. That is why it is carrying out extensive reforms against desertification. The Convention for the Suppression of Desertification and Mitigation of Drought was adopted in Paris on 17 June 1994 by the United Nations Intergovernmental

Committee. The Republic of Uzbekistan also joined the International Convention to Combat Desertification in 1995, taking into account the importance of combating desertification and drought. To date, the number of countries that have acceded to the Convention has exceeded 139.

Uzbekistan has adopted a number of normative and legal acts regulating the rational use and protection of land resources. Land, Administrative Liability, Civil, Criminal, Tax, Labor, Urban Planning Codes of the Republic of Uzbekistan, "On State Land Cadastre", "On Nature Protection", "On Protected Natural Areas",

The laws "On protection and use of flora", "On subsoil resources", "On forests" are aimed at regulating issues related to the protection and rational use of land. In addition, decrees and resolutions of the President of the Republic of Uzbekistan, the Cabinet of Ministers of the Republic of Uzbekistan, the State Committee for Land Resources, Geodesy, Cartography and State Cadastre, the State Committee for Ecology and Environmental Protection, the Ministry of Agriculture, the Ministry of Water The Ministry of Economy and other public administration bodies have adopted a number of normative and legal acts[6].

Based on the commitments and requirements of the International Convention, Uzbekistan has developed a "National Program of Action to Combat Desertification in the Republic of Uzbekistan." The main goal of the national program is to prevent desertification in the geosystems of Uzbekistan, in particular in arid landscapes and agro-landscapes, to mitigate their consequences, to ensure the management of the structure of guidelines and plans developed in this regard.

Considering that more than 70% of the territory of the Republic of Uzbekistan consists of deserts and semi-deserts, salinization, swamping, wind and water erosion on irrigated lands, rising groundwater levels in pastures, especially in the Kyzylkum Desert Karakhotin, Ayoqogitma, Mullaly, Mingbulak basins. As a result, the productivity of agricultural land is declining, the production of sufficient amounts of food, fodder, and industrial raw materials is slowing down, and the quality of crops is declining[7].

As a result of the deteriorating environmental situation, the migration of people from deserted lands to the city is increasing. An example of this is the doubling of the population of Muynak district in the 70-the 80s of the last century (from 45 thousand to 22 thousand people).

Currently, 70% or 31.4 million hectares of the country's territory in Uzbekistan are arid and semi-arid areas affected by natural salinization, the spread of sand avalanches, dust storms, and hurricanes. As a result of the Aral Sea tragedy, the Aral Sea Desert, which covers more than 5.5 million hectares, was formed. To eliminate these environmental problems, on February 22, 2019, the President of the Republic of Uzbekistan adopted a resolution "On measures to increase the effectiveness of work to combat desertification and drought in the Republic of Uzbekistan." The resolution instructed the State Forestry Committee of the Republic of Uzbekistan to take measures to prevent desertification, reforestation, and increase the number of protected forests in the country, to fulfill the functions of the national authority of the Republic of Uzbekistan in compliance with international conventions[8]. To ensure the implementation of this decision, the Committee has developed a Roadmap for combating desertification and drought in the Republic of Uzbekistan for 2019-2023. And today, the tasks performed in the roadmap continue to be performed.

However, on November 4, 2021, in some regions of Uzbekistan, including Tashkent, due to strong winds, the very dry topsoil rose and in some areas the visibility decreased to 500-1000 meters, causing dust and sand. This showed how dangerous the desertification process is and the inadequacy of the work being done.

The Decree of the President of the Republic of Uzbekistan No. 5863 on the approval of the Concept of Environmental Protection of the Republic of Uzbekistan until 2030 sets several tasks to reduce desertification and land degradation, restore the quality and productivity of the land. In particular:

building capacity to implement integrated land resources planning and management;

ensuring sustainable management of forest resources, pastures, and livestock, as well as water and land resources;

Increasing the area planted with trees on the dried bottom of the Aral Sea on the Uzbek side;

Development and implementation of a set of forest and land reclamation measures through the creation of wooded strips surrounding the fields and shores, planting on the slopes, planting of forests and fruit trees;

ensuring the widespread introduction of crop rotation in the care of crops;

development and implementation of a program for the rehabilitation and reclamation of degraded lands;

to ensure the reconstruction and rehabilitation of the collector-drainage network to improve the reclamation of lands, as well as the construction of new reservoirs to improve the water supply of irrigated lands;

ensuring the gradual replacement of mineral fertilizers with organic fertilizers and the widespread introduction of biological methods of agricultural pest control;

development and adoption of a regulatory framework for the development of organic agricultural production. And other tasks were assigned.

In short, desertification remains one of the most pressing environmental issues facing Central Asian states today. The annual acceleration of the desertification process did not occur in one or two years. This is a major environmental problem that has arisen as a result of the irrational use of agricultural lands, pastures, and water bodies for many years.

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