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THE CRITICAL STATE OF WATER RESOURCES IN OUR COUNTRY AND MEASURES TO ELIMINATE IT

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Abstract
The article discusses the scarcity of water resources in our country and measures to address it.

Keywords: Nature, discipline, technique, suv, Central Asia, region, population, tariff, life, field, steppe, resource, meteorology, hydraulic engineering, reformation, ecology.

"Another issue of crucial importance facing Uzbekistan today is related to water scarcity, environmental and atmospheric pollution, soil degradation, and desertification"[1].
Sh. M. Mirziyoyev

[1] Shavkat Mirziyoyev. Strategy of the New Uzbekistan. – Tashkent: 2021. -162-page.

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Introduction

"Water is life", says our people. Indeed, the first signs of life appeared in the water, developed, and reached their current perfection.

Almost 71 percent of the Earth's surface is covered with water, meaning that there is a lot of water in nature, but it is unevenly distributed, and many regions are in need of water. Wherever there is enough water, life flourishes. If there is not enough water, you will see a lifeless landscape before your eyes. A grain of corn can lie on dry land for thousands of years. Until the grain was touched by water, moisture, "the soul enters"it. A person can only survive a few days without water, but without food, he can survive for more than a month with water alone.

Since ancient times, people have struggled to use water properly, realizing its great life-giving powerThousands of years ago, rivers were widely used for irrigation and as a means of transportation in Egypt, China, India, Rome, Mesopotamia, Syria, Central Asia, Transcaucasia, and many other places.

Everyone is interested in the question of when irrigation began in Central Asia. According to the research of our scholars, artificial irrigation, agriculture is much talked about in the Avesta (originally ovasta), the sacred book of Zoroastrianism (Zoroastrianism) religion (who lived before Islam). This book describes events from the end of the second millennium BC to the beginning of the first millennium BC. So, there is reason to believe that irrigation is indeed ancient (Uzbek Soviet Encyclopedia, Volume 1, page 87).

At the moment, along with irrigation, water is spent a lot, especially for industrial needs, for example, to melt 1 ton of cast iron, to turn it into a steel rolling mill, to obtain 1 ton of copper – 500, for so many nickel, 4000 cubic meters of water are needed. To produce 1 ton of grain, cotton, and rice, at least 1,500, 4,000, and 10,000 cubic meters of water are required, respectively[1].

The Greek historian Herodotus said, "Egypt was created by the Nile". In fact, 97% of Egypt's population lives in the Nile Valley, which makes up only 2-2.5% of Egypt's territory.

The well-known historian Istahri also said that “Khwarazm is a country that can get the whole benefit of Jaykhun (Amudaryo)”. Because the emergence and development of this state is closely linked to this river. Artificial irrigation of land in particular is of great economic and social importance.

[1] A. Razzakov. Water and life. – T.: Mehnat, 1991. -3-page.

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According to the data of the Academician of the former USSR, Hero of Socialist Labor V.V.Poslavsky, 12 percent of the cultivated areas on Earth are irrigated at the present time. The productivity of the products obtained from these lands is equal to the productivity of the remaining 88 percent of the non-irrigated land.

In addition to the lack of water, its excessive abundance, inability to use water correctly also harm a person, nature. In addition to material damage, flood floods have dried up the pillows of many people.

In Central Asia, and especially in our republic, land and water are inseparable, because agriculture, the main branch of the national economy, is based on artificial irrigation. In Uzbekistan, 97 percent of agricultural products (4 percent in the USSR) are grown on irrigated land. These lands provide 100 percent of our country's cotton and chickpeas, 75 percent of its vegetables, half of its fruits and grapes, and 40 percent of its corn. However, only 16.54 percent of the USSR's land was used for irrigated agriculture.

There are many sayings among our people, such as "the earth is alive with water", "the earth is a treasure, water is a gem", "the earth is a father, water is a caring mother", and "where the water ends, the earth ends", which are not said for nothing. Water has been a livelihood, a source of life, a means of Transportation. Our people have gained a lot of experience in irrigating land and farming.

Irrigation farming in Uzbekistan has a history of almost 5-6 thousand years. Since ancient times, important steps have been taken to build and improve irrigation (Latin - irrigation) facilities. In particular, the construction of dams on rivers, the digging of canals and ditches, the construction of water wheels, the construction of reservoirs, and other irrigation works have had great economic and social significance. New lands were opened and cultivated, towns and villages were formed. Looking at the geography of ancient cities in our republic, we easily notice that many of them were built around rivers: Tashkent-Chirchik, Samarkand-Zarafshan, Turtkul-Amu Darya, Bekabad, Leninabad (Khujand), Kokand and other cities arose and developed on the banks of the Syrdarya.

The work related to irrigation immediately bore fruit: as soon as the water arrived, life began to flourish in the desert and steppe lands that had recently seemed lifeless, and plants and trees began to grow, adding beauty to the environment[2].

[2] A. Razzakov. Water and life. – T.: Mehnat, 1991. -4-5 pages.

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"Most of the water resources in our country are accounted for by the Amu Darya and Syr Darya rivers. Domestic water sources are limited, mainly consisting of groundwater and seasonal flows. "While domestic water resources amount to approximately 15-16 billion cubic meters per year, total water consumption exceeds 50 billion cubic meters".

In fact, water is the main source of human life, nature and economy. It has no alternative. In the 21st century, with global climate change, population growth, and industrial development, the issue of clean drinking water has become a major environmental and social problem worldwide. This problem is particularly acute in countries with dry climates and those dependent on transboundary water sources.

According to the international Meteorological Organization's calculations, by 2050, 5 million of the inhabitants of the Earth may not be able to adequately enjoy drinking water. In 2018 alone, 3.6 billion people were without drinking water for at least a month. This report was made on the basis of conclusions made by more than 20 international organizations and scientific centers. It can be seen how alarming the numbers it offers.

We will try to justify the tragedy with examples, which we still cannot imagine enough. For example, from the pre-industrialization period until now, 80% of namchil areas have disappeared. Also, in the last 20 years, the reserve of drinking water has been decreasing by one centimeter every year. This also includes the calculation of precipitation, groundwater and surface water, adding glaciers. The duration of drought has increased by 29 percent in the last 20 years.

Waterlessness has become a major problem in many states. It is expected to be particularly difficult for Africa. Now more than 2 billion people live in water-scarce countries, suffering from the problem of drinking water and sewage.

A large part of the water resources in our country are at the expense of Amudarya and Syrdarya. Inland water sources are limited, consisting mainly of groundwater and seasonal runoff. While domestic water resources amount to approximately 15-16 billion cubic meters per year, total water consumption exceeds 50 billion cubic meters.

This situation makes the country dependent on external sources. This is due to the fact that the effective use of Water Resources, their savings and recovery have become one of the most important tasks of today.

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According to the geographical location and distribution of Regions, the level of access to drinking water by the regions of Uzbekistan is very disproportionate. According to the Ministry of Water Management in 2023, 27% of the total population has no permanent access to clean drinking water. In particular, water supply problems in the Republic of Karakalpakstan, Jizzakh, Kashkadarya, and Navoi regions are negatively affecting the living standards of the population.

Khurshid Rakhmatullaev, Deputy Chairman of "Uzsuvtaminot", stated at a press conference held in February 2025 that we have slightly higher standards, meaning that the requirements for wastewater discharged from wastewater systems are higher. In Europe or a number of developed countries, treated effluent is discharged into the sea, river or ocean. For this reason, these requirements are slightly lower in them. And in our case, sewage flows, mainly to the ground or to the rivers that will be used later. There is a debate about this issue in the right and good sense. This also has a certain effect on the timely implementation of projects.

In Karakalpakstan, only 40% of the population is connected to a centralized drinking water network. In this area, due to the island tragedy, the salinity of groundwater and contamination with hazardous substances threaten the health of the population.

In Navoi region, many villages are located far from water sources, and in most cases, residents are forced to collect water in tanks. This not only causes technical problems, but also poses a risk to sanitation and hygiene.

Experts added that the problem of drinking water in these areas has not been solved for many years due to lack of infrastructure and material resources, as well as insufficient financing.

"The products we consume, the air we breathe, the water we drink, give life to the planet where we live the climate is all natural on top of it because of nature, now nature itself gives us a sign – in order to care for our people, we must first take care of nature. Now-the Renaissance. To notice problems, to raise our voice ... the time to create a better environment for Humanity, for the Earth planet, is the time of nature-the International Day for the protection of the environment," the agenda of "International Environmental Protection – 2020" says.

Our President Shavkat Mirziyoyev, speaking from the International Roost, said that according to the UN Environment Program, human activities have

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significantly changed the ecological environment in three-quarters of the Earth's land area and two-thirds of its water bodies.

Also, the level of salinity of the world's oceans is increasing, glaciers are melting with great speed. This-increases the increase in ocean waters and the likelihood that areas close to the waterfront will be flooded, causing a violation of the ratio of heat to moisture.

Air pollution is a serious environmental problem in Uzbekistan. In most regions, soil degradation and loss of fertile land are increasing, and desertification, water scarcity, drought, and access to drinking water are becoming serious problems.

Also, at present, due to the island tragedy, more than 5.5 million hectares of Aralqum desert have appeared. Every year, 100 million tons of sand and salt rise into the air. "This once again proves that the Aral Sea disaster is a global problem,"1 the United Nations General Assembly said in a speech at a session.

Recently, I got an eye on a post from a user named Saidahan in Facebook. Finding drinking water during the summer season in Yakkatut village in kiziltepa district becomes a big problem. As long as the population receives water from the car dealership, which comes at the appointed time every day.

"We've noticed that the water has been of poor quality for the past two years. I bathe my children with boiled water." "We have to repair the toilet's drainage system twice a year, because in addition to the drought, we don't have enough engineers", he writes.

Although this post is not a response, Deputy Chairman of Uzsuvtaminot Khurshid Rakhmatullaev said, "By 2035, it is planned to increase the level of centralized drinking water supply in the republic to 95 percent". The remaining 5 percent falls on remote and mountainous areas or areas where network expansion is not technically and economically feasible. We consider it appropriate to add the following information: "Alternative sources of water, such as water trucks or on-site water supply, will be provided".

Despite this, it is planned to lay more than 45,000 kilometers of drinking water networks and build and reconstruct 1,800 facilities across the republic in 2025-2030. At the same time, in order to provide the population with quality drinking water continuously, a number of projects will be carried out in our large cities at the expense of the state budget and international financial institutions, “says Chairman of the Board of “Uzsuvta'minot” AJ v.b. Ahmad Suvonqulov.

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Local engineer and expert Sherali Otakhonov writes: “If we manage to reduce losses in water networks, introduce automated systems in use, and strengthen monitoring, a large part of the population can be additionally provided with water”.

When we say waterlessness and drought, Africa suddenly comes to our eyes. The image of the scorching earth is sealed before our eyes. So far, waterlessness in other countries cannot be underestimated in this landscape. But it would be a mistake to say that other lands will not be damaged by drought, like in Africa. For example, Brazil is experiencing the largest drought in its history. This, in turn, also affects its energy system. Because the main electricity in the country is produced in hydroelectric power plants. In the U.S. State of California, there is a wide range of forest fires that cause drought. Also, in countries such as Australia, France, Turkey, there is a time of drought, hot air, and early forest fires. In Uzbekistan, there are several main factors contributing to water scarcity.

First, the decrease in precipitation due to climate change and the warmer and drier summer season are causing water sources to dry out. This situation reduces productivity on irrigated land and reduces drinking water reserves for the population.

Second, in agriculture, 70-80 percent of water is delivered through canals and ditches, which accounts for a large part of the losses. Experts estimate that water losses during irrigation reach 35-40 percent. For example, the water canals in the Fergana Valley were built more than 50 years ago and do not have insulation or modern control mechanisms.

Third, the majority of water resources (85 percent) depend on transboundary sources. The Amu Darya and Syr Darya rivers originate in the territories of Kyrgyzstan, Tajikistan, and Afghanistan. New hydroelectric power plants and reservoirs being built by these countries could reduce the flow of water to Uzbekistan.

Fourth, population growth and urbanization processes are also leading to water shortages. The population of Uzbekistan increases on average by 51.5 thousand people in each month of 2025 alone. This is increasing demand for water.

Ecologist and engineer Dilfuza Rakhimova says: “The introduction of water-saving technologies is our greatest need. "If we widely use drip irrigation,

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recycling, and intelligent control systems, we can achieve up to 30 percent efficiency in water use".

According to reports jointly prepared by the UN Water Committee and UNESCO, water demand was estimated to grow by 20-30 percent by 2050. This is due to demographic growth, economic development, evolution of the way of consumption. Now the risk of water shortages remains high. Because water resources are poorly managed.

"60 percent of national meteorological and hydrological services responsible for providing information to the government and the general public do not have the capacity to provide climate services for the water sector," says Petteri Taalas, a specialist at the World Meteorological Organization. While water resource management efficiency has improved by 10 percent overall since 2018, it has worsened in 26 of the 166 countries analyzed. "107 countries are still not on the right path to achieving sustainable water resource management by 2030", the expert said, expressing concern[1].

In European countries, too, wasteful freshwater reserves in agriculture are a big problem. The report of the European Accounts Chamber notes that European agricultural policy is causing water waste. Because the main financed products are those that require a lot of water, such as rice, nuts and fruits and vegetables. Also, the regions where these products are grown also fall into water-scarce areas. During the writing of the article, it was necessary to pay attention to the experience of a number of countries on the topic.

Water issues have not been resolved in many countries around the world. For example, in Singapore, each rain drop is considered valuable to the state economy. This is where the so-called" NEWater " is a water recycling program, and the water used is treated through special systems and redirected to reuse in good quality. Singapore thus provides more than 40% of its needs through recycled water.

Australia has adopted a national drought strategy that uses methods such as regional water reserves, decentralized systems, market-based pricing of water, and public participation.

International organizations such as the United Nations and the World Bank are supporting low-water countries by effectively managing water resources,

[1] "New Uzbekistan" newspaper, May 1, 2025.

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establishing inter-territorial cooperation, and attracting investment. International expert Dr. Lars Petersen emphasizes: “Uzbekistan needs to implement regional partnerships, advanced technologies, and education together to solve the water problem”.

In recent years, a number of state programs and popular reforms have been implemented in our country to solve problems related to drinking water. By the decree of our President dated July 10, 2020, the Concept for the Development of Water Resources of the Republic of Uzbekistan for 2020-2030 was approved. On September 11, 2023, the decree” on the strategy of Uzbekistan – 2030” was adopted, confirming the strategy “Uzbekistan – 2030”, developed on the basis of experience gained in the process of implementation of the development strategy of New Uzbekistan and the results of public discussion.

The third of the 5 priorities of the Uzbekistan — 2030 strategy was dedicated precisely to saving water resources and protecting the environment[2].

The head of state noted that at a videocenter meeting on March 17, 2025, this year it is planned to pull 1,619 kilometers of drinking water, 521 kilometers of sewage, build and reconstruct 162 structures in the system. As a result, clean drinking water reaches 715 thousand inhabitants for the first time, 135 thousand households are connected to the wastewater network, a modern meter is installed for 157 thousand consumers.

As part of the Uzbek President's visit to France this year, 3 projects worth 340 million euros for drinking water were agreed upon in the Surkhandarya and Kashkadarya regions. The French company Suez is privately managing the drinking water supply in Deneuve, saltwater, Sariosia and Sandbar. As a result, the county's centralized drinking water coverage is expected to reach 90 percent. Significant work is also being done on digitizing the industry. For this, it is set to attract $ 125 million from the Asian Development Bank. In five years, it is envisaged to install 4,800 “smart” meters, 2,800 telemetry systems on a large water facility and main pipelines. This will allow you to reduce losses and effectively use resources in the near future.

Of course, such figures indicate that the provision of clean drinking water, the most important need in human life, will increase significantly in the coming

[2] "New Uzbekistan" newspaper, May 1, 2025.

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years. However, another important aspect of the issue is the need to widely promote environmental education and enlightenment among the population.

True, in schools and higher education institutions, classes on water conservation, its targeted use are included. Subsidies and campaigning for the use of low-water equipment are underway among the population.

However, the amount of water consumed every day, especially the amount of water wasted, is so large that it cannot be expressed in small numbers.

The problem is exacerbated by the fact that water devices that are not repaired in a timely manner or by the lack of valves to close large amounts of water gushing from the ground or improper irrigation of crops.

Water scarcity is causing serious consequences not only economically, but also environmentally and socially. The ecological disaster caused by the drying up of the Aral Sea in Karakalpakstan and Khorezm has led to climate change, land salinization, and the loss of biodiversity. This, in turn, has a major impact on public health, productivity, and living conditions.

Experts believe that the drying out of water sources negatively affects the lifestyle of animals and plants. Fish populations in the Syrdarya and Amudarya basins have declined dramatically, while desertification processes cover new areas.

An integrated approach is needed to effectively solve the problem of drinking water in Uzbekistan. To do this, a number of measures must be carried out in the technical, organizational, legal and educational fields.

First, great attention should be paid to updating and modernizing water supply infrastructure. It is necessary to replace old and inefficient networks with modern, insulated pipes, and to introduce drip irrigation and recycling systems.

Secondly, it is necessary to teach the population to save water and make a comprehensive promotion on this. In higher and secondary educational institutions, it is necessary to include the topic of water resource protection as a mandatory subject, to strengthen propaganda work through the media.

Third, it is necessary to use digitalization and artificial intelligence in water resource management. Geo-information systems, sensor monitoring, and automated meters can be used to achieve efficient water use.

The problem of drinking water is a pressing issue for Uzbekistan, not only of ecological, but also of social, economic and political importance. Efficient use of

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available resources, introduction of modern technologies, activation of economic mechanisms, and public awareness are key factors in solving the problem.

Global experience shows that cooperation between the state, society, and the private sector, consistent reforms, and innovative approaches play a key role in the fight against water scarcity. Efforts in this direction are being intensified in our country, and the implementation of advanced practices and the expansion of international cooperation are of great importance in this process.

One drop of drinking water is not an ordinary natural resource, but a value that is closely connected with human life, children's health, the future of the motherland. If we do not know the value of water today, then tomorrow every day we can remain a deposit.

Do we choose to live in silence? Or do each of us – a citizen, an official, a family, a youth-begin to feel responsible for water, realizing the responsibility we have? Life lives in the drop. Keeping it is not only the duty of the state, but of each of us. Because tomorrow we have to act today so that our children do not have to look for life, not water.

“In Uzbekistan, there are several main factors contributing to water scarcity. First, climate change is causing a decrease in rainfall and a hotter and drier summer, leading to the drying up of water sources. "This situation reduces crop yields in irrigated areas and reduces drinking water reserves for the population”[1].

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