

WATER DEFICIENCY PROBLEM OF CENTRAL ASIA

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ABSTRACT

This article examines the global problem of our time, the problem of lack of fresh, drinking water. In particular, the authors focus their attention on this aspect on Central Asia, the Republic of Uzbekistan. The reasons and ways of fixing this environmental problem are briefly considered.

Keywords: Ecology, global problem, fresh water, water resources, modern technologies.

As you know, water is the basis of life on our planet: it is present in all living organisms, serves as a solvent for nutrients entering the cell. But at the same time, we do not think about the fact that the planet's water reserves are decreasing every day. 97.5% of the planetary water resources located in the seas, oceans and depths of the earth are not yet suitable for consumption due to excessive mineralization. Theoretically, this water can be desalinated even now, but then the cost of the final product would be comparable to exotic delicacies. Fresh water supplies were actually not so great, given that almost 90% of them are concentrated in the form of polar ice and glaciers, mainly in Antarctica and Greenland. Seriously talking about the large-scale transportation of pieces of the Greenland ice shell to arid deserts is still the lot of science fiction writers. If we take into account how much fresh water wanders in the form of clouds in the atmosphere, how much has taken refuge in mountain glaciers and hard-to-reach depths, then in the end only tenths of a percent of the total water resources are able to practically support the vital activity of the world's population. The planet's population is growing steadily, and its vital needs are also increasing, and therefore the diagram of world water consumption is creeping upward at an unprecedented rate. In the twentieth century, compared with the previous one, water consumption increased sixfold, twice the rate of population growth. Along with this regularity, the problem of sustainable water use is further complicated by the fact

that the insidious nature, flooding two-thirds of the earth's surface with salt water, in addition divided the remaining third into arid and humid zones, that is, in areas with insufficient and excessive natural moisture.

According to experts, the reserves of the water we use are far from unlimited, moreover, the process of its depletion is underway. Researchers predict that half of the world's population, which is approximately 47%, by 2030 will experience the threat of water shortages. Given that by 2050, the population of the so-called developing countries will increase significantly, exacerbating the already difficult situation with drinking water.

The lack of fresh water will undoubtedly create negative consequences for the population in various forms: from the deterioration of living conditions and the development of diseases to dehydration and death. The problem of drinking water becomes the reason for using it from unsafe sources, which subsequently gives rise to various diseases.

According to environmental scientists, every sixth person on our planet lacks clean drinking water. It is possible to distinguish by sequence some countries in which the situation with drinking water is rather deplorable: Qatar (1st place), Israel (2), Lebanon (3), Iran (4) and Jordan (5). What is the state of the Central Asian countries?

The issues of water resources protection, as well as their use in the Central Asian region are no less urgent and require special attention. Historically, fresh water in this region was the most important natural wealth, and the songs of the peoples were composed about it. Being a key factor in the rather hot climate of Central Asia, water resources fulfill the main task of maintaining a sustainable natural balance of natural ecosystems and socio-economic development. This situation is confirmed by the fact that Tajikistan and Kazakhstan occupy 51st and 60th places as a group of countries with a high shortage of fresh water. Turkmenistan, of the Central Asian states, is the driest country and occupies the 15th line of the rating, respectively, Afghanistan occupies the 27th place in this rating, Kyrgyzstan - 38.

A feature of the hydrographic network of Central Asia is the extremely uneven distribution of its water bodies not only within the region, but also within each of the powers in the region, which does not allow countries to fully use water resources in ensuring their national interests. The main sources of water in the region are located within two states - Kyrgyzstan and Tajikistan, which creates difficulties in the relations of these countries with Uzbekistan, Kazakhstan and Turkmenistan. The

situation is also complicated by different approaches to water use. Since the early 1990s, water problems have become factors of regional security. The existing mechanism for the use of transboundary water resources in Central Asia has a significant potential for conflict, water problems occupy one of the leading places in the hierarchy of problems in the Central Asian region. As a result, the problems associated with water use in the Central Asian region have considerable potential for conflict and require constant monitoring. Despite numerous discussions and attempts to resolve the water issue, the parties have not come to an agreement. The involvement of other countries and international organizations has also been unsuccessful in efforts to contribute to the solution of the water problem. At present, the region is witnessing a warming of relations and the elaboration of a joint course for the development of Central Asia after the coming to power of the new President of the Republic of Uzbekistan, which may also have an impact on the development of the situation around water and energy resources. Drought and water shortages lead to a reduction in agricultural crops and the loss of livestock not only in the countries of the so-called “downstream” - Kazakhstan and Uzbekistan, but also in Kyrgyzstan, the “upstream” country, where several transboundary rivers of Central Asia are formed. The situation in Tajikistan (also upstream countries) is not yet as acute as in neighboring countries. According to official data, about 60% of the water resources of the Aral Sea basin are formed on the territory of Tajikistan. But a global change in ecosystems has led to significant reductions in glacier areas, which poses threats both for the entire region and for Tajikistan itself. Meteorological data indicate that about 35% of small glaciers have been lost in Tajikistan over the past 70 years. Of the 13 thousand glaciers located in the mountains of Tajikistan, more than a thousand have disappeared by now. And the annual floods of rivers and mudflows in the spring lead to enormous economic damage, crop losses and human casualties.

Meanwhile, with a sufficiently large population growth, the countries of the region still use old technologies for water use, irrigation of farmland, irrigation of lands, in which a huge amount of water is lost and does not reach its destination. In addition, with the growth of the population and various economic projects, the consumption of water also increases.

This trend is inherent not only in the Central Asian region - it is a global problem.

According to projected UN estimates, population growth in Central Asia in 2020 is approximately 1 million 172 thousand people, or 1.66%. As of 2019, the

current population of Central Asia was 74 million 5 thousand 626, which is about 1% of the total population of the Earth. The share of Uzbekistan in this is about 45%, Kazakhstan - 25%, Tajikistan - 13%, Kyrgyzstan and Turkmenistan - 8.5% each. (The forecast based on UN data was presented by the Worldometer project).

Of course, this forecast was made without taking into account the population decline in the region due to the global Covid-19 pandemic, but according to the same report, the birth rate in Central Asia is still positive - about 3 children per woman of reproductive age. Therefore, the population will grow as scientists predict.

The problem of the Aral Sea, dried up due to human activities, which the whole world knows about and which they tried to solve, despite all the efforts of both the governments of the countries of the region, and the UN and other world and international institutions, did not lead, unfortunately, to success. Changes in water use in this region. According to many criteria, including climate vulnerability and water availability and water availability, the CA countries are among the most vulnerable.

The difference between this region and others, for example, from the European one, is that it is located in a closed, unified ecosystem of the Aral Sea basin. It differs in that we have no access to the ocean, and our countries are in an emergency climate.

According to the International Fund for Saving the Aral Sea, the Central Asian countries are at the “red line” in terms of the level of water supply for the population, beyond which conflicts begin. Forecasts and reports from international and Central Asian specialized institutions show that water reserves and water availability in Kazakhstan will rapidly decline as a result of climate change, melting glaciers and reduced river flows.

This is influenced by a number of factors, one of which is the efficient use of water. Central Asia, unfortunately, ranks among the lowest in the world in terms of water efficiency.

Uzbekistan is also a geographically water-scarce country, ranking 25th out of 164 in the ranking of countries suffering from water stress published by the World Resource Institute.

The Republic of Uzbekistan, from the point of view of the provision of water resources, is in the most unfavorable natural conditions, since, in addition to the hot climate, the hydrographic network in this region has an uneven distribution of water bodies. The total irrigated area in Uzbekistan is 4.2 million hectares, and agriculture is the largest consumer. Water resources - over 90%. According to the 2012 CIA

World Fact Book, Uzbekistan ranks 14th in the world in terms of irrigated land (42,150 sq. Km).

The main sources of surface runoff formation in the Republic of Uzbekistan are the Amu Darya and Syr Darya rivers, the total average long-term runoff of which is 115.6 km³

Despite the fact that Uzbekistan is located in the basin of two large rivers Syr Darya and Amu Darya and, nevertheless, experiences a shortage of fresh water [1].

In our opinion, the primary reasons for the shortage of water resources are natural conditions, as well as irrational economic use. The amount of available clean water in the region is gradually decreasing due to its extensive use and natural factors.

The environmental movement in Uzbekistan pays special attention to this problem and is looking for rational ways to prevent possible irreparable consequences. The shortage of drinking water, as noted above, is associated, among other things, with the irrational use of water resources [2]. But it would be correct to point out one more important aspect in this matter. This concerns the issue of modernizing the water supply system, which fell into decay along with the collapse of the Soviet country.

According to the President of the Republic of Uzbekistan, water supply needs fundamental changes due to the fact that the former Ministry of Agriculture and Water Management did not meet modern requirements, especially in the field of introducing market relations and increasing the efficiency of agricultural production.

In order to increase the efficiency of water resources use, improve the quality of work while reducing tariffs for services, the head of Uzbekistan made a bold decision by creating a Center for the implementation of investment projects in agriculture and water management, abolishing advice on solving problems of agricultural sectors and creating irrigation departments in several basin management.

In recent years, Uzbekistan has carried out significant reforms in the system of water resources management. Currently, an appropriate regulatory and legal framework has been created, including the Concept for the Development of Water Resources for 2020-2030, the priority areas of which are:

- efficient and rational use of waters, improving their quality;
- use of water-saving irrigation technologies;
- creation and maintenance of reservoirs and other water management structures;

- introduction of market principles in water management;
- development of interstate relations on the use of transboundary waters, etc.

An important factor in solving this and other environmental problems is the education of the younger generation, the development of environmental culture [3]. It is necessary to develop respect for the environment in the younger generation. To accustom one to a rational attitude to the gifts of nature, including to such a precious phenomenon as water.

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