

CONDITIONS FOR THE RATIONAL USE OF WATER RESOURCES IN UZBEKISTAN

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Abstract: This article focuses on the existing water problems in Uzbekistan and their causes. It analyzes the scarcity of water resources, climate change, inefficient water use, and infrastructure challenges. The article also discusses effective solutions for addressing the problem, including the introduction of water-saving technologies, reforms, and international cooperation. It highlights ways to use water resources rationally and ensure sustainable water supply for future generations. Furthermore, this article discusses the proper distribution and efficient management of water resources in Uzbekistan within the context of current geopolitical trends. Additionally, we will address the key principles related to water allocation in Central Asia that require our attention. Finally, we will discuss Uzbekistan's future prospects, taking into account forecasts of water resource sources and reserves.

Key words: Water source of Uzbekistan, important way to solve water issues, Central Asia, feresights, Syrdarya and Amudarya, smart water, environmental crisis, Transboundary Freshwater Interaction Nexus

Introduction

Water is the source of life. Its value is becoming even more apparent in the process of global globalization. After all, there is no life without water. Water is the elixir of life that has had an incomparable impact on the evolution of life, as well as on environmental and climate changes for millions of years. Therefore, humanity must protect it like the apple of its eye. It should be noted that currently, the demand and need for water are increasing more than ever. As a result, there is a shortage of water around the world. This pressing issue has not bypassed the Central Asian region either. According to experts' calculations, water resources are expected to decrease by up to 5% in the Sir Darya basin and up to 15% in the Amu Darya basin by 2050. On the other hand, due to population growth, the demand for water in Uzbekistan may reach 7 billion cubic meters by 2030, and this figure may double by 2050.

Taking this into account, the use of water resources in our country has been fundamentally reformed in recent years. The main issue is focused on the rational and efficient use of water and improving the melioration of irrigated lands. Accordingly, the President's pre-election program also paid special attention to water conservation, outlining measures to fully transition all irrigated farmland in our republic to water-saving technologies by 2030, to widely apply market

mechanisms to the sector, and to further increase incentive mechanisms for farmers and dekhkans who implement water-saving technologies.

Main part

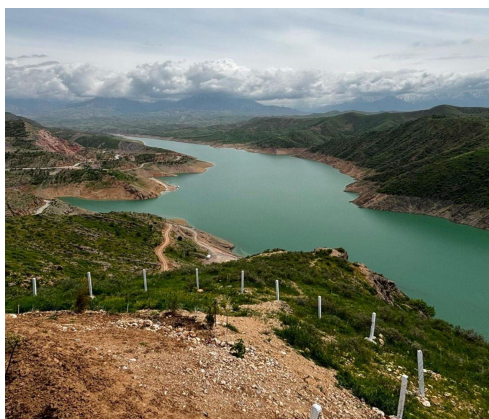
Until the collapse of the USSR, water allocation in Central Asia was controlled by Moscow and managed within the framework of a single state, the USSR. Tajikistan and Kyrgyzstan, located upstream in the Central Asian mountain ranges, released water from their rivers during the summer, allowing downstream neighbors to develop agriculture and prevent the risk of potential droughts. Thus, 90% of Turkmenistan's, 77% of Uzbekistan's, and 40% of Kazakhstan's water supply came from these two countries. Under this exchange system, established during the Soviet era, the "downstream" republics of Central Asia paid their debts to the "upstream" countries by exchanging energy resources such as gas, oil, and coal. This informal system fostered thriving agriculture in an arid region, albeit in an unsustainable and environmentally damaging way. However, with growing discontent from Uzbekistan, this implicit compromise has gradually come under scrutiny. Today, water is one of the main issues of this subcontinent, at the heart of the geopolitics of the five Central Asian states.¹

At the heart of the Silk Road, Uzbekistan's water supply comes mainly from the two major basins of Central Asia: the Amu Darya and the Syr Darya. These two rivers eventually flow into the famous Aral Sea, the fourth largest inland body of water in the world. Located between Uzbekistan and Kazakhstan, this sea was largely dried up during the Soviet era to transform the region's desert steppes into cotton and grain fields—to the detriment of Uzbekistan, as these two vast water basins originate outside its borders. The Amu Darya basin, which accounts for 87% of the water flowing into the Aral Sea, is mainly located on the border between Afghanistan and Tajikistan. Due to large losses in arid areas, as well as withdrawals for agricultural needs, only a small portion reaches the Aral Sea, less than 10% during drought periods. As for the Syr Darya basin, which originates in the Kyrgyz mountains and accounts for 13% of the total contribution to the Aral Sea, it effectively discharges only a fraction of its volume due to the same factors of loss, less than 5% in summer. However, the rapid retreat of the Pamir and Tien Shan glaciers, partly due to sandstorms from the dried-up areas of the Aral Sea, threatens to eventually reduce the flow rate of these two basins. The Amu Darya, which represents 87% of the water inflow into the Aral Sea, sees its flow originate mainly on the border of Afghanistan and Tajikistan. Due to significant losses in arid areas, as well as withdrawals for agricultural purposes, only a small portion reaches the Aral Sea, falling below 10% during periods of drought. In addition to these two flows, Uzbekistan can rely on 94 major water bodies, including 13 transboundary basins, but these do not allow it to achieve true hydrological sovereignty.

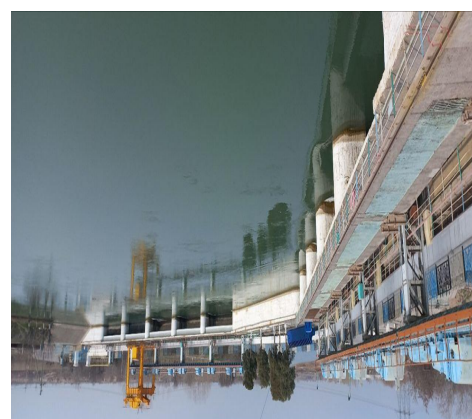
Uzbekistan is in 25th place on the list of 164 countries with a water shortage, as stated in the World Resources Institute (WRI) report. According to the study, Uzbekistan is on the list of 27 countries experiencing high water scarcity. The hydropower resources of Uzbekistan make up

¹ The World Bank Report, 1997, Republic of Uzbekistan: Water Supply, Sanitation and Health Project, 8
www.adb.org/documents/handbooks/water_supply_projects/default.asp

4.92% of the entire territory of the country, the total water resources are 50–60 km³ per year, of which only 12.2 km³ are formed on the part of the republic, and the rest of the water comes from outside – from the Tien Shan and Pamir mountains -Altai, from melting snow and glaciers in summer. The central part of water resources goes to irrigate cotton fields. By 2030, the republic's population has been projected to increase to almost 40 million people, which will cause a reduction in available water resources by 7-8 km³. Under these conditions, the shortage of water resources will increase by 2030 from the current 13-14% to 44-46%, which will slow down the development of agriculture and other industries. One of the ways to overcome the growing shortage of fresh water in Uzbekistan is to save it for industrial and domestic needs and stop the discharge of industrial, agricultural, and domestic wastewater into inland waters. For Uzbekistan, the lack of water is a very urgent problem, given that its shortage in several regions of Uzbekistan, particularly in Karakalpakstan, can lead to a social and environmental crisis. Already today, there is a lack of water not only for agricultural purposes but also for the domestic needs of the population, especially in Kashkadarya, Syrdarya, Khorezm, Jizzakh, and Fergana regions.”



Kashkadarya



Syrdarya

Water scarcity issues in Uzbekistan could escalate to a critical level in the near future. Considering the demographic situation, it is not unlikely that Uzbekistan will face a drinking water shortage by 2050. This begs the question: what effective methods have been employed so far? Concrete measures are being implemented to address existing shortcomings in the introduction of water-saving technologies, mitigate the negative impact of water scarcity, and utilize water resources more efficiently in crop cultivation. For instance, a new system for state support of water-saving technologies – a subsidy allocation mechanism – was launched in Uzbekistan in 2019. This system was digitized in 2022. These efforts will undoubtedly lead to a significant increase in the area utilizing water-saving technologies. It should be emphasized that, as in all areas today, serious attention is being paid to the introduction of digital technologies in the water management sector. For this purpose, 5,479 "Smart Water" devices were installed, 1,446 online monitoring devices were installed at pumping stations, and 5,055 "Diver" devices were installed in melioration observation wells to monitor the level of mineralization online. The management process of 45 large water management facilities was automated. As a result of these measures, 3 billion cubic meters of water were saved, and water supply was improved in an additional 400,000 hectares. Water losses were reduced by up to 10% through automation of the

water management process. Moreover, the number of enterprises producing equipment and components for water-saving irrigation technologies in Uzbekistan currently exceeds 50, and the localization of these technologies has reached 80%. It should be noted that the localization of the production of components for these technologies has reduced the cost of products. At the same time, the possibility of exporting equipment to neighboring countries has been created. Another important recognition is that Uzbekistan ranks first in Central Asia, second among the CIS countries, fourth in Asia, and 13th in the world in the implementation of water-saving technologies, which is undoubtedly encouraging. This can be considered a result of the effective implementation of measures aimed at further reforming the system. Currently, important tasks have been set for the Ministry of Water Resources to further accelerate reforms in this area. Fully covering irrigated crop areas with water-saving technologies by 2030 is one of them. It is worth mentioning that our country's economy is based on agriculture, and a large part of our territory and population is employed in this sector. Therefore, reducing water consumption in agriculture by one percent creates the opportunity to save millions of tons of water and direct it to the needs of the population.²

The main discourse on Central Asia has often revolved around the possibility of imminent threats and dangers. The region faces serious long-term security risks such as drug trafficking, illegal migration, and religious extremism. Experts believe that "in the long term, conflicts stemming from water resource scarcity in Central Asia (not to mention other tensions) could involve not only the states of the region but also Russia, China, Iran, Afghanistan, and Azerbaijan. This list of potential actors highlights Central Asia's geopolitical importance and the critical need to at least prevent the further deepening of water resource tensions in Central Asia." For Central Asian states, especially Uzbekistan and Turkmenistan, water issues are at the core of their declared national interests. Understanding this factor has led scholars to examine trends characterizing the region's hydro-politics. Studies have been conducted on the concept of hydro-hegemony and its relevance in the context of Central Asian regional development. In particular, Wegerich argues that "independence manifested unequal water allocation, leading to the perception that Uzbekistan, especially, is a hydro-hegemon in the Amu Darya basin," but the analysis conducted "suggests there is no real hegemon yet. Instead, various riparian states are engaged in strategic resource capture by increasing water demand without renegotiating official agreements." Another study, focusing on hydro-hegemonies and the coexistence of conflict and cooperation in the Aral Sea basin using the Transboundary Freshwater Interaction Nexus (TWINS) approach, conducted by Suvi Sojamo of the University of Helsinki, should also be mentioned. Sojamo asserts that geopolitical power plays are at the root of the basin's water relations, with power asymmetries complicating the water management process as "the hydro and energy imperatives of upstream and downstream states have begun to collide." The author utilizes the TWINS approach, which examines how power dynamics manifest in water governance in the Central Asian context. Focusing primarily on Uzbekistan's securitized water-related bargaining and coercive tactics, the author claims that transboundary management is complicated by clearly prevailing regional imbalances in power relations, with the politics of water being dynamic due to the fact that "hegemonic actions of downstream states have provoked counter-hegemonic actions from upstream states." Overall, as scholars suggest, there

² Irrigation District Improvements in Uzbekistan, An Overview of USAID Activities in Central Asia, 2003, http://www.usaid.gov/regions/europe_eurasia/car/index.html

are conflicting and cooperative tendencies present in the interaction process between regional states on water issues, which must be viewed through a holistic approach to examining water politics and management. The author concludes on a rather pessimistic note, arguing that establishing equitable and sustainable transboundary water management in the Aral Sea Basin requires a strong commitment from all regional states to cooperate, but "instead of forming a strong union, the states today are striving to break free from regional interdependencies." This ultimately means that all countries in the region will uphold water-related issues as national security imperatives. In Kazakhstan, in 2001, the National Security Council began to assume authority for formulating and implementing the state's water policies. A decision was recently made to build the Koksarai reservoir, which will help prevent winter flooding in the southern regions of Kazakhstan.³



In Uzbekistan, lack of drinking water can have fraught consequences on public health in various forms: from deterioration of living conditions and the development of diseases, up to dehydration and death. In polluted water may contain pathogenic microorganisms that cause the most dangerous diseases. Not only specialists, but also ordinary residents began to realize the possibility of dangerous infection. This is evidenced by the increasing demand for purified bottled and draft water around the world. People buy this kind of water to ensure that they do not get dangerous pathogens into their bodies. According to FAO, water consumption in Uzbekistan is 69% of the total during the year, which is significantly higher than in other Central

³ Integrated Water Resources Managemnet in Uzbekistan, Farxod Maksudov 2009

Asian countries. For example, in Kazakhstan this figure is 33%, in Kyrgyzstan 50%, in Azerbaijan - 54%, in Armenia 56%, in Tajikistan 62% .⁴

President of the Republic of Uzbekistan Shavkat Mirziyoyev 19 September 2017 spoke at the 72nd session of the General United Nations Assembly. President of Uzbekistan Shavkat Mirziyoyev drew attention to the problem of water shortage in the country and in the region. He emphasized the need to take action for efficient use of water resources, water conservation and sustainable water management measures for future generations. Recent initiatives and reforms in Uzbekistan's agriculture are also aimed at solving the problem of water scarcity and improving water resource management. The President said that Uzbekistan stands for improving the legal framework and modernizing the institutional mechanisms of the International Fund for Saving the Aral Sea. He proposed to review the main documents and agreements on the fund that were adopted in the 1990s, analyze its structure and prepare proposals to improve the coordination and effectiveness of the work of the fund organizations. "It is important that the process of development and reform of the fund takes place on the basis of the principle of intersectorality - an integrated approach of "water energy food", taking into account modern environmental challenges," said Shavkat Mirziyoyev. Shavkat Mirziyoyev called for strengthening systemic interaction on 33%, in Kyrgyzstan 50%, in Azerbaijan - 54%, in Armenia 56%, in Tajikistan 62% .⁵

Conclusion

Water scarcity in Uzbekistan is intensifying due to the interplay of natural, economic, and geopolitical factors. At the state level, it is crucial to implement modern water-saving technologies, strengthen transboundary water diplomacy, and improve domestic water management. Otherwise, this problem could pose a serious threat not only to economic but also to social stability. As emphasized above, these historical agreements, achieved through Uzbekistan's initiative and political will, are primarily aimed at meeting the water needs of our people, our country's economy, and future generations. Indeed, Uzbekistan advocates for the rational and integrated use of transboundary water and energy resources, consistently focusing on the ecological sustainability of Central Asia. It is reasonable to conclude that Uzbekistan's comprehensive approach to Central Asia consists of ensuring peace and economic development in the region, focusing on the development of mutually beneficial cooperation.

Literature:

1. Suv tanqisligi bo'yicha mummo va yechimlar, Baxitbay Aldamuratov. 2023, p:1-4
2. Global issues in Central Asia, 2020, <https://canecca.org/en/the-water-crisis-in-central-asia-how-to-find-solutions/>
3. Kventin.Verkruijs, "O'zbekiston geosiyosatining muhim paradigmasi", 2023-yil 7- avgust, p:1-10

⁴ Suv tanqisligi bo'yicha mummo va yechimlar, Baxitbay Aldamuratov. 2023,

⁵ President of Republic of Uzbekistan, Shavkat Mrziyoyev, UN Assambly 2017-year 20-september

4. Water resource management in Central Asia, Ulug'bek Islamaov, Farhod Maksudov, 2009, p:14-16
5. Sievers, 2002, 400-p
6. Sojamo, 2008, 76-p
7. The World Bank Report, 1997, Republic of Uzbekistan: Water Supply, Sanitation and Health Project, 8 www.adb.org/documents/handbooks/water_supply_projects/default.asp
8. Irrigation District Improvements in Uzbekistan, An Overview of USAID Activities in Central Asia, 2003, www.usaid.gov/regions/europe_eurasia/car/index.html
9. H. Abdullaev I. Mehmond ul Hassan, Vilma Horinkova, Water Productivity in the Syr-Darya river Basin, International water Management Institute (IWMI) research report 67, 2003
10. OCHA: Uzbekistan – Drought, OCHA Situation report No.1, Jun 12, 2001