AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Technology and Applied Sciences
ISSN (E): 2832-1766| Volume 17, | October., 2023

WATER RESERVES OF WATER RESERVOIRS OF KASHKADARYA REGION AND ISSUES OF THEIR EFFICIENT USE

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A B S T R A C T	*K E Y W O R D S*
This article covers water resources of Kashkadarya region reservoirs and their future use. The article also talks about economic mechanisms of using regional water reservoirs and issues of water saving.	Reservoir, water resources, water saving, economic mechanisms, irrigation.

Introduction

Today, with the increase in demographics, indicators, that is, the world population, the demand for food, clothing, electricity, industrial and agricultural products, which are important for the daily needs of humanity, has increased. causing it to increase every year. This, in turn, leads to the opening of new lands in different countries, the development of deserts, and the use of various land areas that have not been used in agriculture. One of the main issues is to provide these appropriated land areas with modern irrigation and irrigation systems for agricultural use. In order to efficiently and effectively use water resources, it is important to build various dams and reservoirs that store water. In our country, more than 50 water reservoirs are used today by various branches of agriculture and industry. Reservoirs in Kashkadarya and Surkhandarya regions, which are the southern regions of our republic, also have their place in the irrigation system of our country, and are considered as one of the regions with the base of raw materials necessary for the economy of our country. Therefore, the provision of water for terrestrial resources in this region is one of the urgent issues. Predictions made by experts in the 20th century about water becoming the most expensive resource have begun to be proven today. After all, by 2030, there will be a shortage of 7 billion cubic meters of water in Uzbekistan, and as a result, the country will fall into the ranks of 33 countries with a shortage of water, of course. This requires the rational use of water in agriculture, and the acceleration of the use of economical methods of irrigation [1].

The main part

After we gained independence, many laws in the field of agriculture and irrigation were adopted by the first president of our country, I.A. Karimov. Our state paid special attention to the development

of water management in the first years of independence. The Department of Water Resources Balance and Development of Water-Saving Technologies was established in the Ministry of Agriculture and Water Management. Today, water resources are managed with the help of 800 large hydrotechnical facilities, 54 reservoirs with a total capacity of 19.4 billion km3. Many reservoirs of different sizes were built in Uzbekistan in the second half of the 20th century, and they are mainly used to control the water regime of river waters and obtain energy. Even today, their construction and operation are for the purpose of public drinking, leading to the design and construction of new water reservoirs.
In order to use river water more efficiently, a number of reservoirs were designed and built in the territory of the Central Asian countries in recent years, and even today new such works continue in the region [2]. We can clearly see this in the table below (Table 1).

Table 1 Hydrographic indicators of reservoirs in Central Asia

Reservoirs	Reservoirs	Reservoirs		
		Water capacity (in millions of cubic meters)	Field (in km^2.)	Average depth (on the account of m.)
Tokhtagul	Norin	19500	284	68,7
Rogun	Vakhsh	12400	160	77,5
Norak	Vakhsh	10500	98	107
Tuyamoyin	Amudaryo	7300	790	9.2
Chordara	Sirdaryo	5700	900	7.9
Qayroqqum	Sirdaryo	4200	513	8.2
Chorbog	Chirchiq	2000	40,3	50
Andijon	Qoradaryo	1750	60	29.1
Tolimarjon	Amudaryo	2530	77,4	19.8
Todakol	Zarafshon	875	225	3.8
Kattaqorgon	Zarafshon	845	83,6	10.1
South Sukhon	Surkhandaryo	800	65	12.3

The data in the table is based on the textbook "Natural Geography of Central Asia" by P. Baratov and others.

President Sh.M. Mirziyoyev gave a number of specific instructions for the development of irrigation and improvement of the melioration of irrigated lands in 2018-2019, as well as 448 kilometers of irrigation canals, 5259 kilometers of irrigation network in our country. 3,636 hydrotechnical facilities, 495 pump irrigation wells, as well as 7,500 kilometers of collector-drainage wells, 13 reclamation pumping stations and 185 vertical drains need to be reconstructed and constructed. Kamashi reservoir is located 4 km from the center of Kamashi district. The reservoir basin was built above ground in the natural riverbed of Shorchasoy. Its height is 10 meters, the water collection area is 900 m in width. The circulation of the dam is 1500 m, the volume of water collection is 11 million m3. Excess irrigation water from the Yakkabogdarya and Karabogdarya water sources is added to the Qamashi reservoir, as well as water from small eastern mountain streams. In 1957-1962, under the leadership of chief architects A.V.Petrov and G.I.Prozorov, the "Sredazgiprovodkhlopok" institute developed a technical project for the reconstruction of the "Kamashi reservoir" in the Yakkabog Darya basin. After the project was approved in 1962, after the reconstruction of the Qamashi reservoir, its water collection volume reached 16 million m3. The construction of the reservoir took five years. By the

beginning of 1962, construction works were completed. The volume of water release of the reservoir is equal to 40 m3 per second, and the land areas irrigated due to it reach about 4 thousand hectares. In addition, in 1971, the water reservoir and irrigation canals in the working water system of Yakkabog Darya were cleaned and brought to normal condition. In addition, a construction project of the Karabog Flood Reservoir was developed in the large riverbed of the upper Kyzyldarya. Based on this project, the construction of the Karabakh flood reservoir was started [3].

The current stage of construction of the water reservoir dates back to the period after the Second World War. Reservoirs built from this period were not only used to regulate river water, develop energy, expand irrigation channels, supply cities and industrial regions with water, but also aimed to improve large natural objects and the ecological condition of regions, as well as recreational purposes. was created without The territory of Kashkadarya region is not fully supplied with internal water sources. Especially after 1960, the expansion of agricultural areas, i.e., the creation of many reserve and gray land development projects, created the need to search for new water sources. This, in turn, showed that it is possible to implement these works by building a reservoir.

The first water reservoir in the region began to melt in the middle stream of Kashkadarya. It was named Chimkurgan and started working at full capacity in 1963. By this time, its total area covers an area of 44.4 km2. Its total length is 15 km, the widest part is 5.5 km, and the deepest part is 30 m. The full water capacity of the reservoir is 500 million m3, of which 425 million m3 is used. In the period from 1967 to 1987 of the 20th century, 12 large, medium and small water reservoirs were built in order to rationally use internal water resources of Kashkadarya region [4].

It is known that reservoirs organized in regions with a shortage of moisture, the rational use of water, first of all, the main attention is focused on irrigation purposes. We conducted research on the amount of water collected in the reservoir and its consumption during the period from 2017 to 2020 in 13 reservoirs of the Kashkadarya region below (Table 2).

For the irrigation season of 2007, a limited amount of water (limit) of 42,681 million m3 was allocated in our Republic. Considerable work has been done on the protection of our surface and underground water resources and their rational use. Goal 31 of the "New Development Strategy of Uzbekistan for 2022-2026" dated January 28, 2022: "Implementation of a separate state program on radical reform of the water resource management system and water economy" it is important that it has been read. Construction of 7 new water reservoirs has been started in our country for the development of arid lands. In 2019, President Sh.M. Mirziyoyev's "Congratulations on the Day of Agricultural Workers" stated that the main attention will be paid to the development of dams by increasing the number of reservoirs in our country. He noted that the Parkentsoy, Kyzilsoy and Toshtepa reservoirs were established in the Tashkent region, and the Karaman reservoirs were established in the Jizzakh region. In addition, Guldara and Ayakchisoy reservoirs will be built in Kashkadarya region, and Bulung'ur reservoirs will be built in Samarkand region. The total capacity of the reservoir is 45 million cubic meters. In order to improve the reclamation of irrigated lands, about 1.7 trillion soums (about 205 million dollars) from the state budget and 84 million dollars from international financial institutes will be allocated. In the next two years, the water supply of 1,200,000 hectares will be stabilized, about 1,700,000 cubic meters of water will be saved per year, and 600,000 hectares of land will be developed.

Table 2 Amount of water collected in reservoirs in Kashkadarya region in 2017-2020

№	Name of reservoirs	The volume of collected water is million m^3			
		2017- year	**2018- year**	**2019- year**	**2020- year**
1	Talimarjon	214,4	213,5	233,9	298.2
2	Chimqorgon	13.2	23.5	106.3	37.4
3	Pachkamar	2	9	105.1	83.2
4	Hisorak	9.5	16.5	65.2	36.9
5	Qamashi	2.1	2.2	6	8.8
6	Dehqonobod	---	----	0.3	15.9
7	Langar	0.7	0.1	2.5	5.2
8	Qorabog	0.7	0.2	1	3.2
9	Yangiqorgon	0.8	0.4	1.8	1.9
10	Nogayli	0.4	0.3	0.4	1
11	Qizilsuv	0.4	0.1	1.1	3.8
12	Shorobsoy	0.1	---	0.2	1.8
13	Qalqama	0.2	0.1	0.0	2,4
	Total	**244.3**	**265.8**	**523.8**	**499.7**

The information in the table is compiled based on the information of the water management department of Kashkadarya region.

In this regard, the decision of the Cabinet of Ministers was adopted on "Measures for the implementation of the Ayakchi flood reservoir construction project in Kitab district of Kashkadarya region". According to the document, 16.8 million m3 was provided by the joint-stock company "Uzsuvloyiha" as the main project organization. The technical and economic calculation of the project "Construction of the Ayakchisoy flood reservoir in Kitab district of Kashkadarya region" which envisages the construction of a flood reservoir with the size of The state unitary enterprise "Kashkadaryosuvqurilishinvest" of the Ministry of Water Management of the Republic of Uzbekistan has been appointed to implement the project, and the construction completion date is set for September 1, 2023.

95% of the reservoir is built on the river roads, and it poses a threat to the cities and villages, crops, various production and industrial enterprises around the area. For example, the "Janubiy Surkhan" reservoir with a water capacity of more than 800 million m3, which was built along the Surkhondarya river road in Surkhondarya region, is constantly used by the cities of Kumkurgan, Zharkurgan, Termiz and It is responsible for the population and environment of the districts. Because when no one expects natural disasters due to anthropogenic factors, it can be dangerous to flood the platform [5]. For example, due to the tragedy that occurred in the "Sardoba" reservoir in the Syrdarya region in May 2020, not only flora and fauna were damaged in this area, but thousands of settlements living here became unusable. Therefore, it is in accordance with the goal of permanent protection of such dangerous artificial structures and the development of emergency prevention measures. The above-mentioned situations, in turn, lead to the following changes in the natural conditions of places: lithological, hydrogeological, microclimatic, ecological conditions change, the soil affects the flora and fauna, and led to the formation of new anthropogenic landscapes. Water is important for living

nature. Among environmental problems, water pollution, lack of clean fresh water, and its salinity are extremely urgent problems. After all, water is a pledge of life, a guarantee of existence. At the same time, it is necessary to take care of water, to use it sparingly, become a habit at the level of a natural reflex for each of us. This situation is a social necessity as well as a condition of living. Therefore, it is considered appropriate to form the ecological culture of students on the basis of deciding on a responsible approach to water and its use.

Table 3 In recent years, the legal and regulatory foundations of the protection of water resources and their rational use in the Republic of Uzbekistan (2020-2021 years)

№	Date of establishment of legal and regulatory documents	Legal and normative bases
1	**July 10, 2020**	Presidential decree "On approval of the concept of water management development in the Republic of Uzbekistan for 2020-2030"
14	**December 11, 2020**	Presidential Decree "On measures to accelerate the introduction of water-saving technologies in agriculture"
15	**2021 year February 24**	Presidential Decree "On Approving the Strategy of Water Resources Management and Irrigation Sector Development in the Republic of Uzbekistan for 2021-2023"
16	**April 6, 2021**	Presidential Decree "On measures to further improve the activities of the Ministry of Water Management of the Republic of Uzbekistan"
17	**April 6, 2021**	Presidential decree "On further improvement of the state management and control system in the field of water resources use and measures to ensure the safety of water management facilities"

Izoh: jadvaldagi ma'lumotlar N.M.Suyarqulov tomonidan tuzilgan.

Conclusion

Spreading the geography of Kashkadarya reservoirs in our region, studying all the processes and events related to their activity, identifying and analyzing their characteristics with the geographical environment, and determining their practical and scientific significance is both a natural and an economic urgent issue. The construction and use of water reservoirs took on a mass dimension in the 20th century and rose to a planetary level. This was mainly due to the economic and social nature of their use. On the one hand, reservoirs are one of the factors of economic development (the population's need for water, a source of energy, agriculture, transport), on the other hand, they have become one of the landscape-ecological factors and have manifested their negative impact on nature. (waterlogging, salinization, submergence of large areas, diseases, changes in flora and fauna). This is related to the geography, water capacity, area, and shape of reservoirs. The concept of water management development of the Republic of Uzbekistan for 2020-2030 and the strategy of water resources management and irrigation sector development of the Republic of Uzbekistan for 2021-2023, in general, these documents are implemented within the framework of the tasks defined in the concept and strategy there is no doubt that the ongoing works will serve to improve the efficiency of water saving year by year.

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