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The Impact Of The Expansion Of Irrigation Networks In The Fergana Valley On The Aral Sea Tragedy

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ABSTRACT

This article discusses the unregulated use of Syrdarya water resources, which had a significant impact on the Aral Sea tragedy.

KEYWORDS

Syrdarya , 3018 km, Andijan, Chirchik, Kayrakkum Reservoirs, Canals, Aral tragedy, Aral rescue company.

INTRODUCTION

According to long-term observations of the Soviet era, the average annual water consumption of the Syrdarya River at the outlet of the Fergana Valley (near the city of Bekabad) is 278–1080 m³ / s. on average, it is 568 m³ / s (or about 18 billion m³ per year). After the addition of excess irrigation water from the Ahangaron and especially the Chirchik streams, the Syrdarya's water level will increase significantly. Near the Kokbulak observation station (27 km below the confluence of the Chirchik River), the average long-term water consumption of the river is 724 m³ / s. or 23 billion mn per year. After the

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spring, the Syrdarya spreads over a wide river and flows calmly, so the water is used for more evaporation and partial irrigation. As a result, the river water flows to the foot of the river. The average river flow to Kyzylorda falls to 673 m^3 / s, to Ghazali to 492 m^3 / s, and finally to the Aral Sea to 420 m^3 / s.

MATERIALS AND METHODS

The maximum water flow in the Syrdarya near Bekabad is usually between 1,500 and 2,000 m^3 / s, and there were years when the maximum water flow reached 3,340 m^3 / s (June 17, 1934). The minimum water consumption can be up to 150 m se / s or even less. It flows from the exit of the Fergana Valley to the confluence of the Chirchik River in a wide valley up to 15 km wide.

The banks of the river are flat and wide. For this reason, in low-water years the width of the river is 0.3-0.5 km, and in wet years in some places it overflows 5-7 km, even up to 11 km. The river is crooked and in many places formed islands and branches. Due to its soft rock structure, riverbanks often collapse and take on the shape of cliffs. During the Uzbek SSR, in 1964, a large dam was built in this part of the Syrdarya (near the village of Chordara) and the Chordara Reservoir was built. A 100,000 kW HPP has also been built near the reservoir. Below the village of Tomenariq, the tributaries of the river descend and reach the delta (after passing through the city of Ghazali), almost equal to the water level. A dam above Syrdarya was built a little above the city of Kyzylorda. The dam supplies irrigation canals on the right and left banks of the river. There are a number of branches between the Tomenariq and Jusali railway stations. The oldest of these are the Janadarya and Kuvondarya tributaries, which are separated by the Kyzylkum desert. These networks, which were once flooded, are already dry. Only in recent years have some parts of them been cleared and turned into irrigation canals. The Koksuv, Chiyli, Savramboy, Chirkeyli and Karaozak networks are the existing ones. The largest of these, it separates from the Karaozak network near the Karaozak railway station, and after 131 km, it rejoins the Syrdarya near the Jusali railway station. Today, Karaozak is the headwaters of the river, much of which flows through the network. Apart from Karaozak, other sectors are also of great economic importance. About 400 canals in the lower reaches of the Syrdarya River, which irrigate more than 70,000 hectares of land, receive water from these networks.

The Syrdarya is a rather muddy river. Near the city of Bekabad, there is an average of 2.17 kg of turbid effluent per 1 m^3 of water (approximately 37 million tons of effluent per year). Of these, 72.3% flow in March-June, 20.3% in July-September, and the remaining 7.4% in October-February.

In the Fergana Valley, the Syrdarya was almost never frozen. Freezing events in this part of the river are mainly upstream, lasting an average of 10-15 days. Leaving the Fergana Valley to the north, the flow of the Syrdarya decreases and mass freezing of the water is rare, while in the foothills (near the city of Ghazali) the river is covered with thick ice for 80-140 days.

The flow and hydrological regime of the Syrdarya River has changed significantly as a result of the impact of hydraulic structures built and commissioned in the Syrdarya and its tributaries, especially large dams, reservoirs, large canals and collectors. For example,

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according to recent observations, the average annual water level in the Syrdarya near Khojand is 476 m³ / sec. and in the lower reaches of the river (near Ghazali) to 158 m³ / sec.

In the Syrdarya basin, subsistence farming has existed for a long time. However, until the second decade of the 20th century, the developed lands were mainly in the Fergana Valley and the Tashkent oasis. These lands are Andijan, Shahrikhan, and Quvasoy, which receive water from the tributaries of the Syrdarya in the Fergana Valley. It is fed by ancient canals and ditches from the Margilansay, Oltiariqsay and Chirchik and Ahangaron rivers, as well as Zahariq, Qorasuv, Bozsuv, Tanachibuqa and Yordon. In 1920, a total of about 1,200,000 hectares of land were irrigated in the Syrdarya basin.

Over the last 60 years, large-scale irrigation works have been carried out to expand the area of irrigated lands and improve their water supply: Andijan, Shahrihansay, Karasuv and Bozsuv. Along with the renovation and expansion of canals, the Greater Fergana, Shim, which has a complex system of hydraulic structures in the Syrdarya basin. Fergana, Jan. Dozens of large and hundreds of small canals were dug, such as the Fergana, Big Andijan canals, and the Akhunboboyev canal. As a result, the total number of canals in the Syrdarya basin. reached about 65,000 km. Numerous dams and hydroelectric dams have been built in the Syrdarya and its tributaries to provide continuous water to these canals. Uchkurgan on the Naryn River, Kampirravot on the Karadarya River, Teshiktash, Kuyganyor, Farhod in the Syrdarya, Kyzylorda, and Ghazali have been irrigating more and more lands year after year, and some lowlands have become saline and swampy. More than 300 collectors and ditches (32,000 km) have been dug in the Syrdarya basin to drain the waste from such areas and discharge wastewater from irrigation into the rivers. The largest collectors are Shim. Baghdad, Sokh Isfara, Sarijoga, Sariqsuv, Yazyovan, Ulugnor, Zambarkol, Shorkul, Asaka, Shorozak, Central Mirzachul and Karasuv. As a result of water management measures (in the late 1970s), the area of irrigated land in the Syrdarya Basin exceeded 2.4 million hectares (2,887,000 hectares in 2001).

Cotton is mainly grown on irrigated lands in the Syrdarya basin. Grains, vegetables, fruits and melons are also grown. The huge Tokhtagul Reservoir was built on the Naryn River, the Andijan Reservoir on the Karadarya River, the Charvak Reservoir on the Chirchik River, the Kayrakkum Reservoir on the Syrdarya River, and the main irrigation canals such as the Big Namangan and Kyzylkum Canals.

The Syrdarya, especially its tributaries flowing from the high mountains, has large hydropower reserves. Their total potential hydropower reserves are about 22 million tons. kW. 63 hydropower plants have been built in this basin. Their total capacity is 2.8 million. kW.

The Syrdarya and its tributaries supply water to many villages and towns, large factories and factories in the Fergana Valley, Tashkent, Chirchik, Bekabad and Kyzylorda, and a large number of industrial enterprises.

The river, along with many lakes formed on the other side of the river instead of the remaining ones, is also important for the development of fisheries in Uzbekistan and southern

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Kazakhstan. The lower reaches of the Syrdarya, as well as the lakes around Bekabad, Dalvarzin and Arnasay, are particularly important in this area was one of the battlefields. More than 40 species of fish live in Syrdarya.

CONCLUSION

Reservoirs, canals and streams in the Fergana Valley have enabled the development of the Central Fergana Desert in the center of the valley. But the sweat fields continued to expand due to the policy of smuggling. As the river's water level began to rise, the Syrdarya flowed downstream and even dried up, preventing it from filling the Aral Sea. In the late 1970s, this process became commonplace. The ruling party at the time did not take any serious action to increase the cotton harvest. As a result, the "Aral Sea tragedy", which has become a global problem today, was born.

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