

## **WATER RESOURCES IN THE LOWER REACHES OF THE AMUDARYA RIVER**

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The largest river in Central Asia, the Amudarya, is formed as a result of the confluence of the Page and Vakhsh rivers, which provide the bulk (85-87%) of its annual flow. The few tributaries of these rivers, which form in the Pamir Mountains, are fed by glaciers or snow. This determines the tendency of the Amu Darya to have glacial-snow types of nutrition.

The exchange of precipitation that falls in winter within the water-constructed area of the Amu Darya basin is marked by the abundance of water in the river during the period of melting snow and glaciers. At the same time, the mixed glacial-snow feeding of the Amu Darya determines the presence of two leashes: spring, formed from the melting of seasonal snow on the spillways of Kunduzdarya, Kafringan, Surkhandarya, Kyzylsu and Yanez, which comes in the months of April-May and summer from the melting of eternal snows and glaciers in the upper reaches of the Vakhsh, Page and their channels, taking place in the months of June-August.

The hydrograph of the leads is characterized by multi-vertex with pronounced peaks, the number of which can reach 11-12 or more.

The low season on the Amu Darya lasts from October to March and April, when intensive snow melting begins on the lower tier of the mountains.

The minimum water flow between them is observed in the period from December to March.

After the declaration of independence of the Republic, the Amudarya River was considered transboundary to the independent states of Tajikistan, Turkmenistan and Uzbekistan, and the upper gauging stations that determined a more accurate forecast of

the river's water content were located in Tajikistan, which makes it difficult to determine the water content of the entire Amudarya River basin and especially in its lower reaches.[1]

The lower part of the Amudarya River begins from the Tuyamuyun reservoir to the Aral Sea, which covers about 1 million hectares of irrigated land, where 4.5 million people live.

The main water consumers are the Tashauz region of Turkmenistan, the Khorezm region and Karakalpakstan.

The main industry is agriculture, which accounts for 70% of GDP, mainly engaged in cotton growing, grain growing, rice growing, livestock farming and fish farming. Here, over the past 20 years, there has been a partial repetition of low-water years, which is directly related to the economic development of the region.

For example, in 1995, 1997, 2000, 2001, 2007, 2008 and 2010, low water years were observed on the lower reaches of the Amu Darya River.

As long-term practice in water resource management shows, the main thing is water management problems. The Amudarya River is concentrated in the lower reaches, which suffer from acute water shortages in dry years. Despite the efforts made to distribute water resources, it is always possible to avoid disproportion of water consumption between the middle and lower reaches of the river between water users, even within the same state. The lower reaches of the Amudarya River are particularly difficult areas for water resource management.[2]

It should be noted that in conditions of severe shortage of water resources, the basin states carefully follow their neighbors as to who will receive how much water. In order to maintain the uniformity of regulated water resources in such conditions, it is necessary to switch to proportional water separation, based on the available water resources.

In order to effectively distribute water resources, remove unnecessary tension in the issue of water separation, increase trust between water consumers of the river, water managers of Turkmenistan and Uzbekistan based on the need for optimal management

of river flow and prompt resolution of issues of water distribution in the lower reaches of the Amudari River on May 21, 2007 in the city of Urgench adopted an agreement on the joint use of water resources of Turkmenistan and the Republic of Uzbekistan in the lower reaches of the Amu Darya River.

For example: as of January 1, 2012, a total of 64 meetings of the joint commission on water allocation in the lower reaches of the river were held, with the participation of the heads of the p/o “Doshoguzsuvkhodzhalik” (Turkmenistan) NABUIS (Karakalpakstan and Khorezm) BVO Amudarya and Uzbekistan TMGU. At these meetings, the operating mode of the TMGU was developed and water resources were distributed according to the agreement reached. This approach to the distribution of water resources in the lower reaches of the river suits all parties. Nevertheless, the dynamics of changes in the water resources of the Amudarya River over the past 11 years (2000-2011) show that in dry years the water supply in the lower reaches of the river was 2000-2001. 51.4%, 2007-2008 55%, 2009-2011 47.7% of the established limit, and in the average, upper reaches, low-water years amounted to 93%, 88.4%, and 85%, respectively.[3 ]

This process infringes on the rights of water users in the lower reaches of the Amu Darya and especially in the Republic of Karakalpakstan.

The drought brought huge losses to the republic's agriculture, which is one of the main sources of its national income.

The area of irrigated land has sharply decreased. Due to insufficient

Due to the implementation of leaching irrigation, the salinity of irrigated lands increased.

Area of land subject to strong and very strong salinization in 1999-2002. increased from 42.7 to 64.5 thousand hectares. At the same time, the area of slightly saline lands decreased from 248 to 169.7 thousand hectares. The increase in the area of saline lands resulted in a reduction in agricultural production.

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