



# Basin Water Organization “Syr Darya”



Tashkent 2017





This brochure is published with the financial support of OSCE

The Syr Darya basin covers the territories of sovereign Central Asia states, such as the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tajikistan, and the Republic of Uzbekistan. The length of the Syr Darya River is 2,337 km from the confluence of the Naryn and Karadarya rivers to the Aral Sea, and 2,790 km together with the Naryn River. The area of the basin is 150,000 km<sup>2</sup>.

The average long-term flow of the Syr Darya basin is 40.8 km<sup>3</sup>/year, including up to the Shardara reservoir - 38 km<sup>3</sup>/year. Five key reservoirs are located along the Syr Darya River and its tributaries:

- 1. Toktogul** –  
total volume 19.5 km<sup>3</sup>,  
useful capacity 14 km<sup>3</sup>.
- 2. Andizhan** –  
total volume 1.9 km<sup>3</sup>,  
useful capacity 1.5 km<sup>3</sup>.
- 3. Bakhri Tojik** –  
total volume 4.16 km<sup>3</sup>,  
useful capacity 2.5 km<sup>3</sup>.
- 4. Charvak** –  
total volume 2.05 km<sup>3</sup>,  
useful capacity 1.5 km<sup>3</sup>.
- 5. Shardara** –  
total volume 5.4 km<sup>3</sup>,  
useful capacity 4.5 km<sup>3</sup>.

In the present context, water withdrawals directly from the Syr Darya River by the Central Asian republics are as follows (in percentage):

Republic of Kazakhstan – 41.5 %

(including water supply to the Aral Sea);

Kyrgyz Republic – 0.82 %;

Republic of Tajikistan – 7.44 %;

Republic of Uzbekistan – 50.24 %.

The total republican use of water from the Naryn and Syr Darya rivers averaged 25.27 km<sup>3</sup>/year in the recent years.

BWO Syr Darya is responsible for transboundary water management and interstate water allocation from the Toktogul reservoir to the border of the Republic of Kazakhstan (the Shardara reservoir).

BWO Syr Darya:

- drafts and implements decisions of the Interstate Commission for Water Coordination (ICWC) regarding water resources management;
- operates hydroschemes and intake structures;
- distributes water resources and transports them along the main canals;
- takes measures for environmental improvement and water quality monitoring;
- monitors (together with national Hydromet services in Central Asia) the flow regime of the Naryn, Karadarya, Chirchik, and Syr Darya rivers from the Uchkurgan HPS and Andizhan HPS to the Shardara reservoir;

- performs real-time operations control of water and water-energy resources (together with CDC “Energy”) in the Syr Darya Basin;

- performs real-time control over observance of water withdrawal limits.

The complete information on the current water use is submitted to ICWC members every month.

Besides, BWO Syr Darya monitors quality of river water in the Syr Darya, Karadarya, Naryn, and Chirchik rivers and in the Charvak reservoir.

The organization commands head intake structures along the Syr Darya and its main tributaries: Uchkurgan hydroscheme on the Naryn River with the carrying capacity of 3,000 m<sup>3</sup>/s; Kuyganyar hydroscheme on the Karadarya River with the carrying capacity of 1,400 m<sup>3</sup>/s; Upper-Chirchik hydroscheme on the Chirchik River with the carrying capacity of 1,800 m<sup>3</sup>/s and others, as well as the interstate canals (first of all, the Dustlik Canal and head reach of the Big Fergana Canal).

Additionally, 198 hydro-structures, of which 21 ones are located along the main streams of the Naryn, Syr Darya, Karadarya, and Chirchik rivers are in charge of the BWO. The carrying capacity of the structures varies from 20 to 3,000 m<sup>3</sup>/s, and the discharge at the Dustlik Canal, the BFC and the SGC

canals reaches 350 m<sup>3</sup>/s.

The main water consumer in the Syr Darya region is irrigated agriculture, which occupies an area of 3.38 Mha. The irrigated land on 1.73 Mha receives water directly from the river. Besides, water is delivered for industrial, utility, environmental, and ecological purposes and to the Aral Sea. Accounting of water intake from the rivers and subordinated canals is done at 445 points, including 21 head intakes, 36 stationary pumping stations, and 172 temporal pumping units. Surface water accounting is undertaken mainly by Hydromet services directly along the rivers and by the BWO Syr Darya and water organizations of the neighboring countries at water intake structures.

The water system governed by BWO Syr Darya is operated mainly for transportation of normal, guaranteed flow and also under extreme conditions, i.e. in case of extraordinary low-water and for trouble-free routing of high flood in extremely high-water years.

To ensure this, the BWO takes into account river flow, water use plans (limits), and water storage in reservoirs in given period of time.

Given the multiyear flow regulation, according to the Naryn-Syrdarya cascade project, reservoirs are drawn down during a series of years, depending on availability of water resources, needs for water and probable changes in operation

regimes of the Naryn-Syrdarya water tract. Therefore, in such cases, control of water resources is performed by year to maintain the guaranteed operation regime of the reservoir cascade. Rare floods are carried along the Syr Darya River through 'cutting' of flood peaks by surcharge storage, which equals 0.8 km<sup>3</sup> per the Toktogul, Bakhri Tojik, and Shardara reservoirs. First, non-regulated flow of the Karadarya River, Fergana Valley's rivers and induced water releases from the Toktogul reservoir are handled. The project was designed in such a way that the Toktogul reservoir was to ensure compensatory regulation, i.e. make additional releases of water in case of its shortage in the Syr Darya main stream for irrigation purposes during low-water periods. The compensatory regulation proceeds from carrying capacities of river hydroschemes and the river channel itself in different reaches. The Bakhri Tojik reservoir transforms flood and balances its water releases, based on channel capacity of the Syr Darya. The Shardara reservoir regulates water releases from the Bakhri Tojik reservoir and flood flows of the Syr Darya's tributaries at the reach Bakhri Tojik – Shardara. Such system guarantees safe and failure-free operation of rivers' hydroschemes, intake structures, and main canals.

Based on river water availability forecasts for the non-growing and growing seasons and the water

storage in the reservoirs of the Naryn-Syrdarya cascade, BWO Syr Darya prepares the operation regime of the reservoir cascade and the limits of republican water withdrawals and submits them for approval by the ICWC. The approved limits present the basis for implementation of the interstate water allocation through canals and pumping stations. Those limits of water withdrawal may be corrected depending on the actual water-related situation. If the correction exceeds 10 % of the total amount, the limits are revised at ICWC meetings.

The approved limits of water withdrawal for republics, canals, and pumping stations, with decade-wise division in each month, are brought for fulfillment by territorial divisions of BWO Syr Darya. Water accounting along the Naryn, Syr Darya, Karadarya, Chirchik rivers, as well as small rivers is performed through control gauging stations by republican Hydromet Services. As to the main canals that divert the river water, water accounting is kept through head hypoposts served by BWO Syr Darya, including the main Dustlik Canal and the BFC. Operational water management is performed by the BWO from the master station that is connected with territorial divisions and hydroscheme administrations.

The regular monitoring of surface water in the Syr Darya basin

is provided by river gauging stations under responsibility of the republican Hydromet services in Central Asia and by hypoposts of BWO Amu Darya at intake structures. Downstream of the

Shardara reservoir, similar work is undertaken by the BWO "Aral – Syrdarya" at the Committee of Water Resources of the Kazakh Ministry of Agriculture and Water Resources.



## STRUCTURE OF BWO SYR DARYA

The institutional structure of BWO Syr Darya is comprised of **three levels**: central office in the city of Tashkent, territorial divisions, and local control and monitoring units.



The **BWO's central office** governs the overall work through the territorial divisions, based on the operation regime of the Naryn-Syrdarya cascade of reservoirs and the water withdrawal limits established by the ICWC for the non-growing and growing seasons of each hydroeconomic year. The territorial

divisions regulate water supply in line with plans at the canals' headwork structures.

The central office prepares information on water availability and calculates water needs, plans water distribution among the four states and water supply to the Aral Sea and Prearalie, with account of each intake from the Syr Darya and the interstate canals, plans operation of the Naryn-Syrdarya cascade, and collects information on river water quality. Operational water management is performed through the master station of the BWO, which is connected with territorial divisions and hydroschemes.

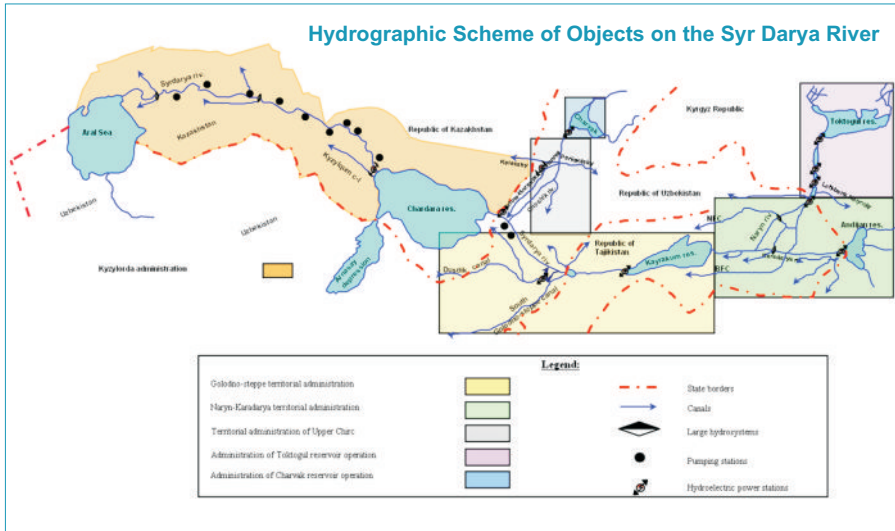
### BWO Syr Darya includes the following territorial divisions:

- Naryn-Karadarya hydroscheme and canal administration in Kuyganyar;
- Gulistan administration for hydroschemes and the Dustlik Canal in Gulistan;
- Upper Chirchik hydroscheme administration in Chirchik;
- Charvak reservoir administration in Charvak.

The territorial divisions control structures, monitor observance of water withdrawal limits, operate and maintain water infrastructure,

and also monitor river water quality and how the environmental demands are met. The territorial divisions are responsible for water resources management in the

reaches of the Syr Darya River and its tributaries, such as the Naryn, Karadarya, and Chirchik.



The **third level** of institutional structure is represented by the control and monitoring units that include head intake structures, dams, pumping stations, and hydroposts.

The **Naryn-Karadarya Division** has 4 operational sub-divisions and covers the system of the Naryn River basin from the Uchkurgan HPS to the confluence with the Syr Darya River, the Karadarya River basin from the Andizhan reservoir to the confluence with the Syr Darya River, and the Syr Darya River basin from the confluence of the Naryn and

Karadarya rivers to the Akjar hydropost.

The **Gulistan Division** consists of 6 sub-divisions and is responsible for the system in the reach of the Syr Darya River from the Akjar hydropost to the Shardara reservoir, as well as for the Dustlik Canal and the head reach of the South Golodnostepkiy Canal. Besides, this Division controls distribution of water resources among Uzbekistan, Kyrgyzstan and Tajikistan along the Isfara River.

The **Upper Chirchik Division** has 3 hydrosites, distributes water



between Uzbekistan and Kazakhstan, and controls the reach of the Chirchik River from the Charvak reservoir to the confluence with the Syr Darya River and the Bozsu diversion canal.

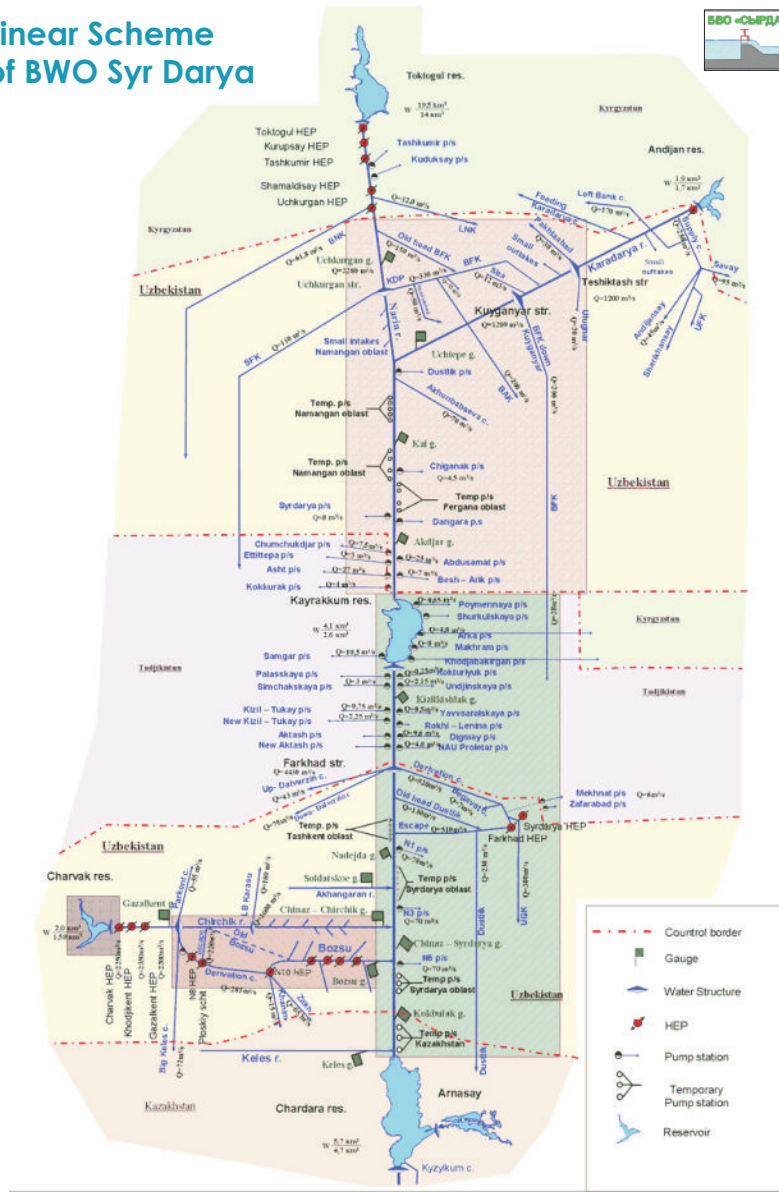
The [Charvak reservoir administration](#) includes 4 reference stations and is responsible for control of water quality, protection of water resources and the reservoir area with adjacent water-protection

zone from pollution, and maintenance of good sanitary conditions.

The total staff number of all divisions of BWO Syr Darya is 701 by 2017. Major staff is the operating personnel, which ensures direct control over water intakes, operation of hydrostructures, limits-based distribution of water, and repairs.



# Linear Scheme of BWO Syr Darya







## CONTACTS

BWO Syr Darya

address: Karasu – 4/11, Tashkent  
100 187, Republic of Uzbekistan

phone: (+998 71) 265 82 42  
(+998 71) 265 82 46

email: [bvosyrdarya@mail.ru](mailto:bvosyrdarya@mail.ru)

