

# Towards Better Water Management in the Amu Darya River Basin

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M.Ya. Makhramov, G.K. Tilyavova, A.G. Sorokin

## POLICY BRIEF

One of the effects of climate change is the change in river runoff. Over the past 15 years, the average river runoff in the Amu Darya Basin turned to be 2% lower than the average annual runoff of the Amu Darya River over the whole period of measurements. Major contribution to such reduction was from the Pyanj River, the runoff of which lowered by 7%, whereas the runoff of the Vakhsh River increased by 5%. The frequency of dry years (75% probability and more) increased 1.3 times. At the same time, humid years (25% probability and less) and very humid years (10% probability and less) became more frequent 1.2 times and 2.5 times, respectively. The “depth” of particularly dry years (i.e. deviation of the average runoff in dry years from the average runoff over the period) increased 1.5 times.

Today, despite political will, the lack of understanding and trust at a technical level hampers cooperation. In order to achieve consensus at different levels, the regional programs could be improved for rapprochement of differing views and positions. Moreover, international mechanisms should work consistently for establishment and enhancement of transboundary cooperation.

The control over the whole water management system along transboundary rivers of the Amu Darya Basin is established through main gauging stations (the so called hydroposts) that belong to different national agencies:

### Republic of Tajikistan:

**Pyanj River** – Khirmanjou, Lower Pyanj.

**Vakhsh River** – Nurek HEPS, Tigrovaya Balka.

**Kafirnigan River** – Tartki.

### Republic of Uzbekistan:

**Amu Darya River** – Termez, Tuyamuyun, Tashsaka, Beruniy, Kipchak, Kyzketken, Samanbai, Kyzyljar, Porlatau

### Turkmenistan:

**Amu Darya River** – Kelif, Mukry, Atamyrat, Turkmenabat, Birata.

### BWO's hydroposts:

Along the interstate canals 170 hydroposts are on the books of the Basin Water Organization, of which  
Upardik – 96 hydroposts,  
Upper Darya division – 16 hydroposts,  
Middle Darya division – 29 hydroposts,  
Lower Darya division – 29 hydroposts..



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For better results in water management, first of all, we need **to tackle a problem of water accounting in the region.**

This problem must be addressed at all levels and chains of water management. While doing that, responsibilities of actors for accuracy of water accounting should be considered as well.

The second point relates to hardware and facilities of the existing sites where water accounting is taken.

Each state should be interested in better and more accurate water accounting. First, this will put things in order in water use, and, second, will help to avoid unnecessary tension and conflicts that could arise in context of imperfect water accounting facilities and methods and due to lack of timely information.

As estimated by experts, considerable degradation of the common regional water observation and monitoring system has been observed in the last decade.

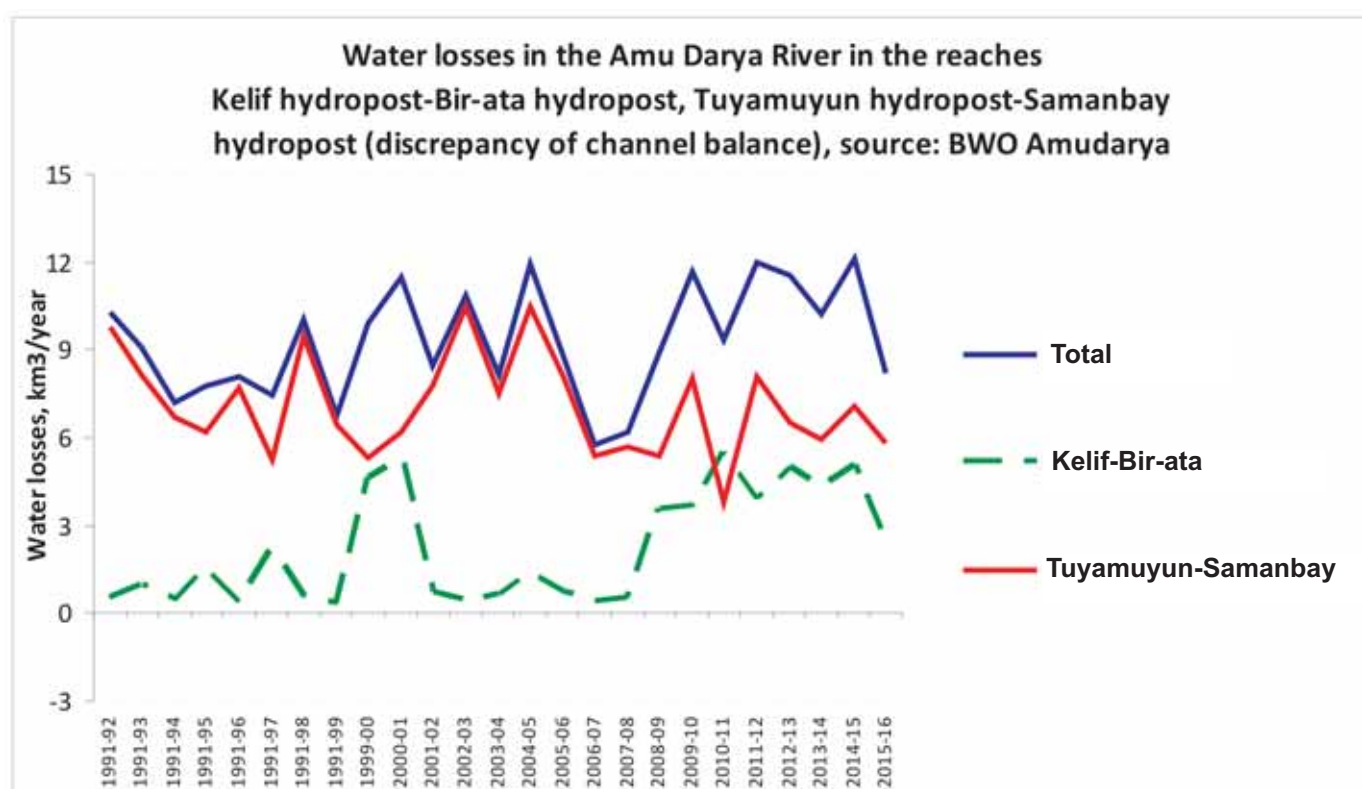
The network of hydrometeorological stations, hydroposts, and observations shows continuous shrinkage because of deterioration of equipment, devices and other infrastructure.


The single metrological support is also needed.

Currently, estimation and accounting of water availability in the Amu Darya River Basin conventionally are made based on the given flow in the supposed Atamyrat gauge section upstream of Garagumdarya (former Karakum Canal). The flow in this section is taken equal to measured flow in this Atamyrat section plus water diversions to Karshi Canal, Karakum Canal, and water diversions upstream of Karakum canal to the border with Surkhandarya province. For the Surkhandarya province the flow is taken as a sum of all water diversions, including the Amu-Zang pumping station. In addition, accumulation or drawdown of Nurek reservoir is considered in the total flow along the Amu Darya. Such complex and rough estimation of river flow leads to mismatch of the data on losses and flow rates.

Among the most topical challenges is reaching agreement among the riparian countries concerning assessment of losses, principles and procedure of water allocation in the context of climate change (severe drought, catastrophic floods), and measures for optimal operation of large reservoirs and hydropower stations in the basin in order to meet demands of all sectors, including the natural environment.

**In this context, there is a need to revise the channel balance and make more accurate determination of losses, including assessment of siltation and the actual regulation capacity of the reservoirs in the Amu Darya basin.**





The national adaptation strategy can be implemented successfully provided that the actions of all actors in the water governance system of Amu Darya are coordinated and mutually beneficial. To this end, currently the basin needs for the uniform rules of water management. The main aim is to have a well-ordered system of management in the Amu Darya Basin and sustainable and equitable water distribution and supply.

This calls for elaboration and approval of common methods for assessment of usable water resources, the mechanisms for planning and control of water distribution on the basis of channel balance and relevant analytical tools (computer models).

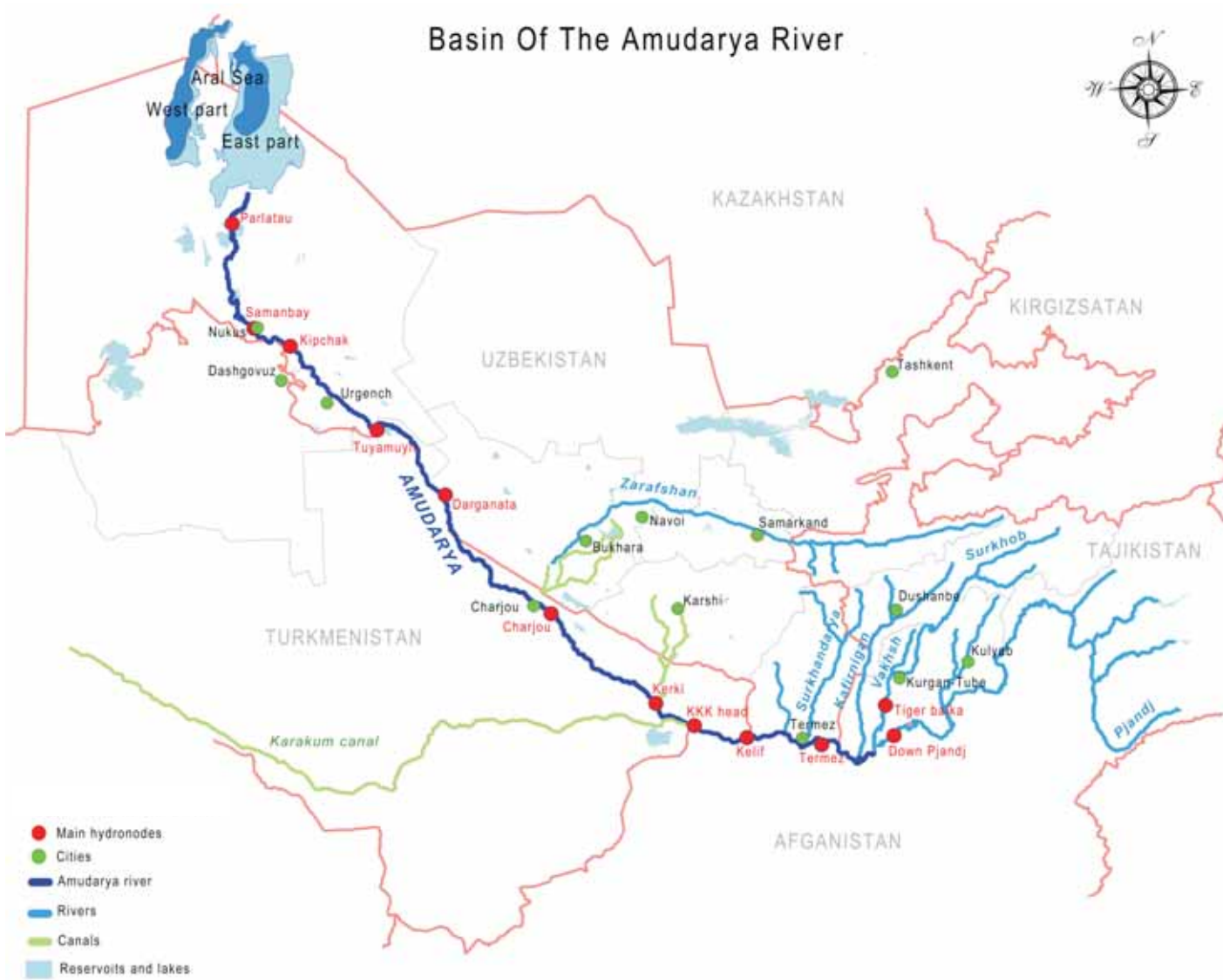
During dry years the basin experiences complex situation in the lower reaches. This requires appropriate decision making for strengthening of cooperation and for additional institutional and legal actions, e.g. to extend the operating area of BWO and enhance its legal status. In our opinion, the Amu Darya lower reaches should be viewed as the main indicator of whether water management is successful or not as exactly by the lower reaches one may judge about the effectiveness of basin management as a whole through such measures as equitability, water availability, supply sustainability, and productivity.

For water resources management to be sustainable, it is necessary to elaborate a long-term water strategy that will be based on water use and climate change scenarios, adaptation measures, runoff regulation by hydropower cascades, and environmental demand.

Moreover, appropriate tools should be created to further raise awareness and interest of the public in water. To this end, special campaigns with the involvement of training and information centers and mass media can be organized.



**And, ultimately, water implies the care of the current generation of the future ones. Therefore, the understanding of a need to save and preserve water should be raised from childhood.**



This Policy Brief is prepared as part of the Project “Transboundary water management adaptation in the Amudarya basin to climate change uncertainties”.

The Project objective is studying in a holistic manner transboundary water management issues in the Amudarya basin for the long run under conditions of climatic and other changes along with the national plans on irrigated agriculture and hydropower development.

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#### Contact information

#### Scientific-Information Center ICWC

Address: 3, Asaka street, Tashkent, 100 000,  
Republic of Uzbekistan  
Phone: (998 71) 268 97 23  
vdukhovniy@gmail.com  
sic.icwc-aral.uz    www.cawater-info.net