

# Policy Brief

Issue 02/2015

## Inter-state cooperation, joint planning and management of transboundary river basins The example of the Isfara river basin



Tortgul Reservoir

### Key Messages

- ≈ A legal basis for the joint management of transboundary rivers is important in order to foster interstate cooperation and sustainable water resources management.
- ≈ Transparent and accurate water flow data is crucial for building trust between riparian countries.
- ≈ Sustainable development of a river basin can only be achieved with well-functioning and properly maintained hydro-technical infrastructure.
- ≈ A common understanding and awareness of Integrated Water Resources Management (IWRM), basin planning, and basin management provides a basis for fruitful cooperation and the implementation of joint basin planning measures.

### Summary

The GIZ Transboundary Water Management in Central Asia programme supports Tajik-Kyrgyz cooperation on the shared Isfara river basin by means of sustainable basin planning and management through capacity building. In addition, the rehabilitation of small-scale infrastructure and automatised flow measurement systems ensure a safe and fair allocation of water resources. As a result, improved water management and infrastructure in the Isfara River contribute to better information and water availability for more than 200,000

agricultural water users across both countries. Alongside already established methods of transboundary cooperation in the basin, which has complicated boundary issues, the hereinafter described measures counteract latent tensions among Tajik and Kyrgyz communities over the limited resource of arable land, which is closely linked to water. The GIZ Transboundary Water Management in Central Asia programme is implemented on behalf of the German Federal Foreign Office and co-funded by the European Union.

# How to strengthen transboundary cooperation in water management?

The Isfara River and its catchment are located in the southwestern part of the Ferghana Valley. The river originates in Kyrgyzstan on the northern slopes of the Turkestan Range and flows northwards into the territory of Tajikistan through the Ferghana Valley towards the Syr Darya. The total catchment area is approximately 3,900 km<sup>2</sup>.

The catchment transcends Batken Oblast (administrative unit) in Kyrgyzstan, Sughd Oblast in Tajikistan, and includes Uzbek territories at the tail-end of the basin. The population of Batken Oblast is mainly ethnic Kyrgyz, with large Tajik and smaller Uzbek minorities. As the basin's water resources are vital for all stakeholders, disputes on water distribution often occur between riparian countries. To increase social welfare for all water users in the basin, and to ensure the project's long-term sustainability, GIZ's intervention addresses the following issues:

## **Joint management of transboundary rivers**

The cross-border nature of the basin is a particularly pertinent issue. The Isfara catchment includes, for example, the Tajik enclave of Vorukh inside Kyrgyz territory. Water resources in the basin were managed individually by each country, and there was a lack of transparency in the allocation of water. Joint water management bodies and shared strategies for basin management and planning did not exist.

## **Fair and transparent water allocation**

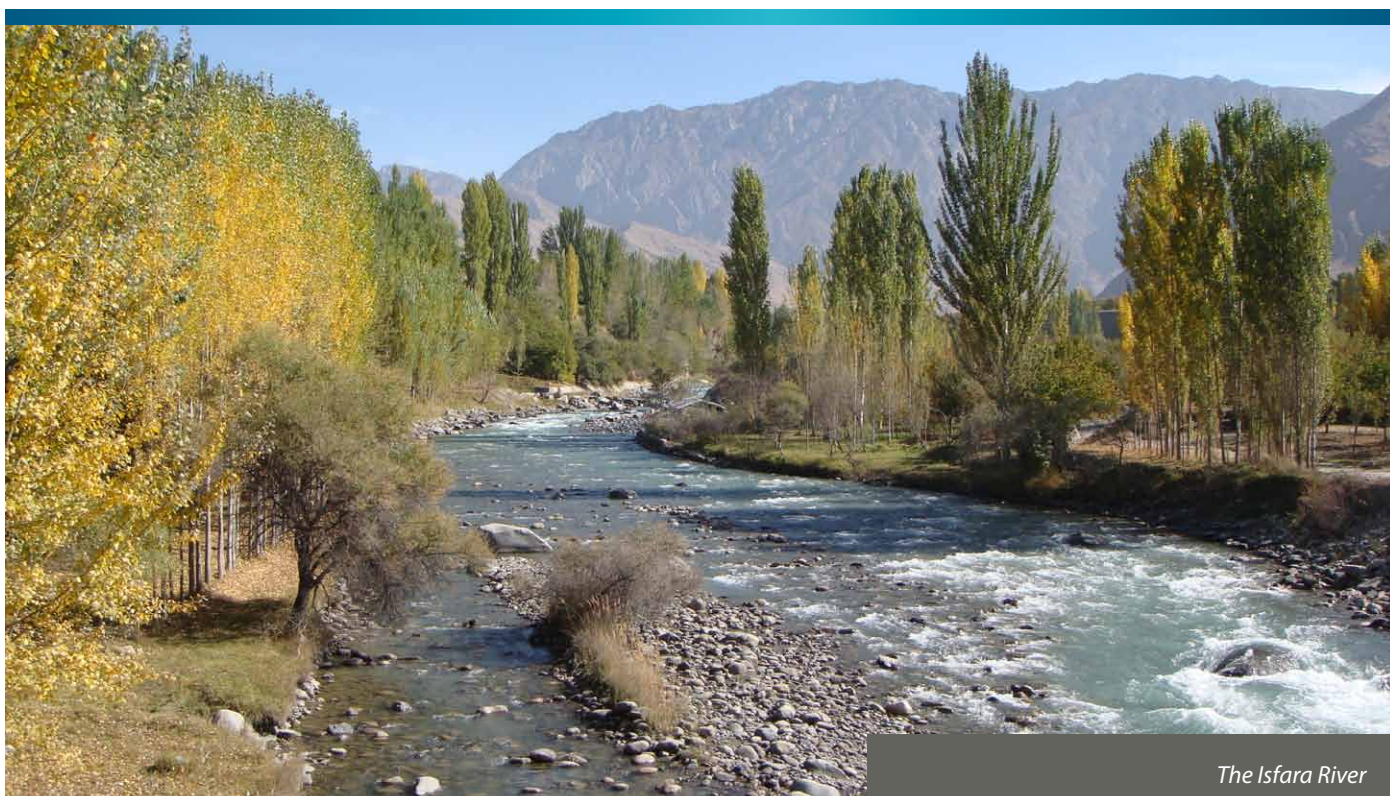
In the Isfara river basin, flow measurements were often conducted manually and recorded on paper. As a result, the data could be inaccurate and could cause disputes among riparian countries and local water users about how water was being allocated.

## **Well-functioning infrastructure**

Most of the water infrastructure in the Isfara river basin was built at the end of the 1960s and has not been rehabilitated since. Over the past decades, the technical conditions drastically deteriorated and parts of the infrastructure were in a critical state. Consequently, the basin lacked a wholly safe and transparent system through which to allocate water resources.

## **Improved capacities in basin planning**

Among staff from both countries working on the Isfara river basin, basin planning and basin management capacities were weak. Different approaches and administrative procedures led to difficulties in cooperation between neighbouring water management structures. There was no practice of joint meetings or on-the-job training.



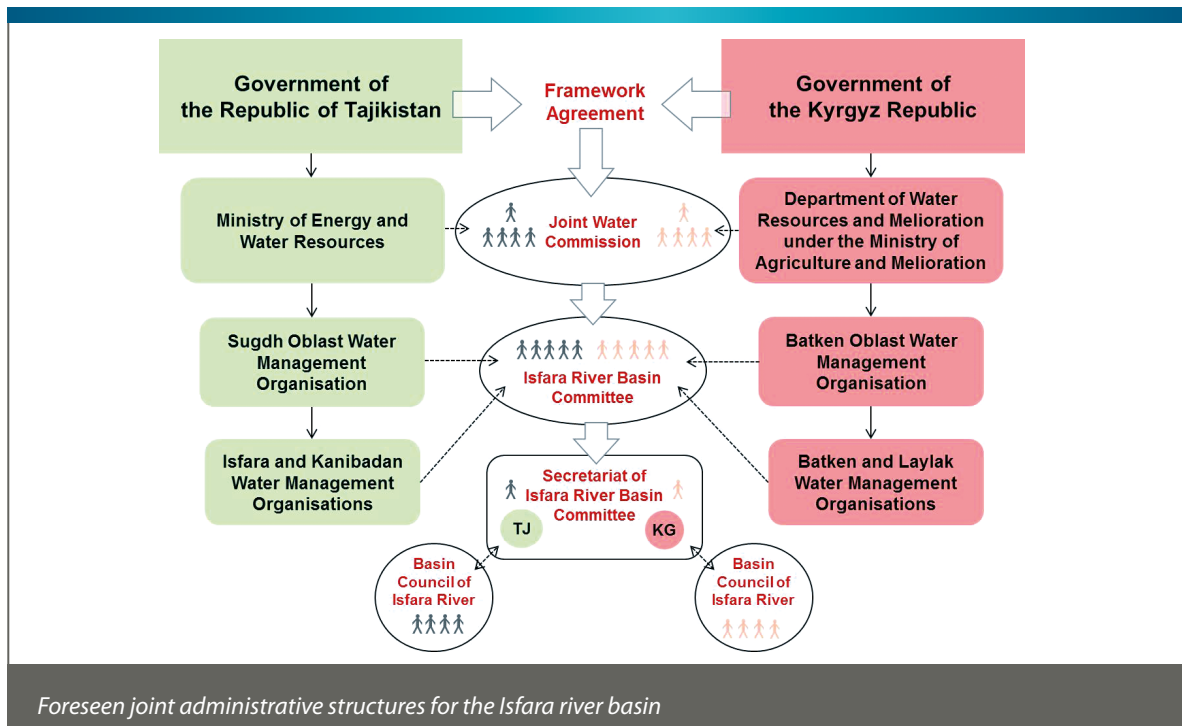
*The Isfara River*

# Institutionalised cooperation on transboundary rivers

Since the largest part of the Isfara river basin is shared by Kyrgyzstan and Tajikistan, bilateral cooperation between the two countries is pivotal to its sustainable management. In 2007, both countries took important first steps towards improving cooperation through creating an Inter-Ministerial Working Group to bring together the heads of national, provincial, and district water agencies of both countries. Over a series of joint meetings, involving up to 12 competent governmental institutions from both sides and with direct support from the GIZ Transboundary Water Management in Central Asia programme, a draft version of the Framework Agreement on Cooperation on the Joint Use of Water Resources from International Rivers was elaborated.

## Conceptualising necessary water administrations for the Isfara river basin

The Framework Agreement will form the basis for coordinated planning and management of transboundary water resources between Kyrgyzstan and Tajikistan. It also provides for the establishment of joint institutions for river basin planning and sets standards for the development of joint management plans and the implementation of joint investment projects in transboundary river basins.



At the time of writing the policy brief at hand, however, the Framework Agreement is still being refined and is pending signature from both sides. Nevertheless, the good level of collaboration within the Inter-Ministerial Working Group along with the agreed draft Framework Agreement both demonstrate an improvement in Kyrgyz-Tajik cooperation over transboundary water resource management and the potential for further developments.

Although the joint administrative structures are yet to be established, two Small Basin Councils for the Kyrgyz and Tajik parts of the basin were set up with the support of the Regional Environmental Center for Central Asia (CAREC). As of February 2013, the Small Basin Councils are mandatory, advisory bodies and meet on a regular basis. Council members are stakeholders from different water-related sectors as well as representatives from the general public.

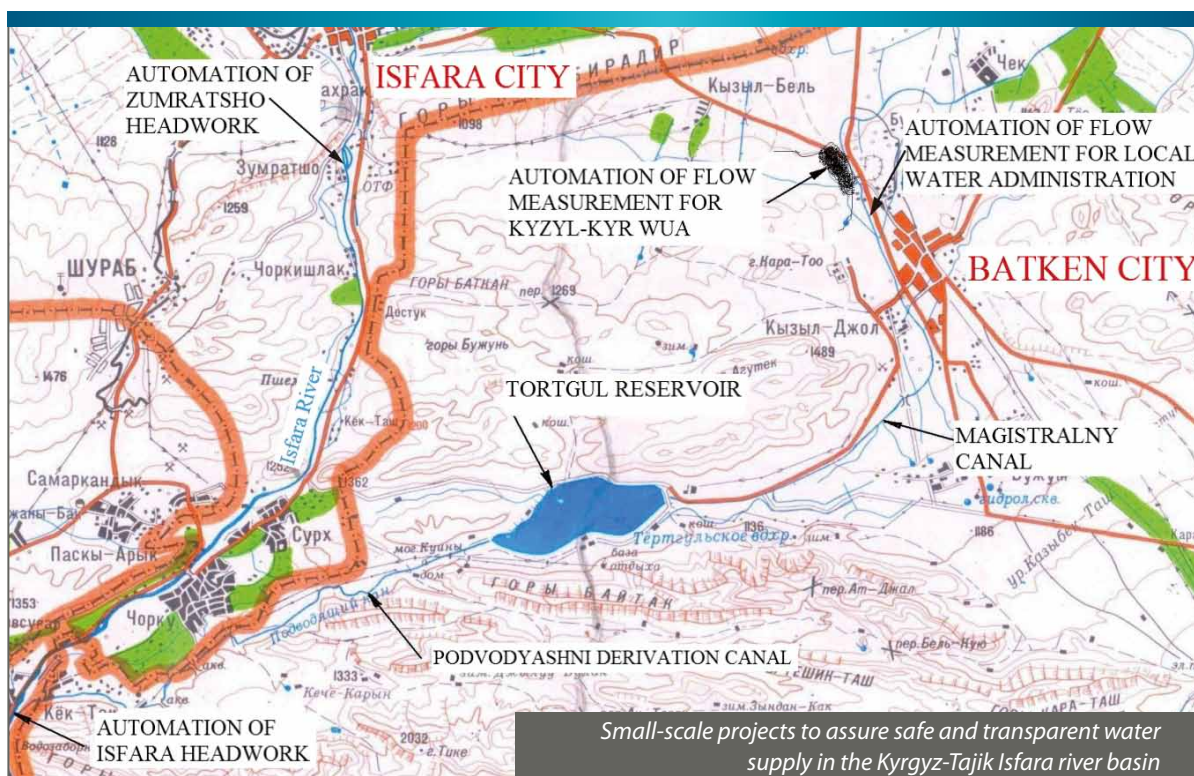
# Safe water infrastructure and transparent allocation of water resources

In transboundary river basins, accurate data and automatised water flow measurement systems are crucial for fostering trust-based cooperation, not only between riparian countries, but also between local water users and local water administrations. Several small-scale projects were implemented to improve the fair distribution of water resources and the safe operation of hydro-technical infrastructure.

## Automatised flow regulation and measurement at the Isfara Headwork in Batken District, Kyrgyzstan

The Isfara Headwork is located 15 kilometres west of Batken City and regulates the abstraction of irrigation water from the Isfara River to the Tortgul Reservoir through the Podvodyashni Derivation Canal. The facility was constructed in 1971 and was in dire need of technical improvement. Staff operating the headwork had no proper equipment with which to accurately measure and control the water flow in the Podvodyashni Derivation Canal, and all measurements were conducted manually and recorded on paper, which led to disputes among water users in both countries.

Modern water flow meters and other technical devices were installed to improve flow control and distribution, and to remotely operate the water gates. In parallel, staff received training to ensure that the automated hydro-facility was operated correctly. Computer-based data is collected, analysed and distributed to the relevant authorities of the riparian states, ensuring greater transparency.



Isfara Headwork in Batken District, Kyrgyzstan

Small-scale projects to assure safe and transparent water supply in the Kyrgyz-Tajik Isfara river basin

## Transparent water allocation for the Kyzyl-Kyr Water Users' Association (WUA), Batken Oblast

Members of the Kyzyl-Kyr WUA abstract water from the Isfara River through the local water administration's off-farm network. During the irrigation season in particular, the lack of transparency in the allocation and abstraction of water led to frequent financial disputes between farmers and the local water administration. The payment of abstraction charges by the WUA was often delayed, which had a negative impact on the reliability of water supply.

To demonstrate how transparent water allocation and abstraction helps to build mutual trust and understanding between water suppliers and users, modern equipment to measure and control water flow was installed and a database workspace set up at the Kyzyl-Kyr WUA and the local water administration. In addition, local staff were trained on how to operate, analyse, and distribute digital data, whilst farmers are now invoiced on the basis of actual, verified withdrawals. Such measures also helped to reduce water loss and to increase agricultural yields.

## Safe operation of the Tortgul Reservoir

The Tortgul Reservoir is located in Batken District, 12 kilometres west of Batken City. It stores a total of 90 million cubic meters of water and supplies water to 9,000 hectares of irrigated land. The reservoir is fed by diverting water from the Isfara River.

The reservoir has several serious technical issues such as a malfunctioning piezometric network and high water losses. Furthermore, the hydro-mechanical equipment in the two tower outlets has severely deteriorated, making the operation of the reservoir's gates a life-threatening exercise.

In the course of 2013-2014, designs have been drawn up for the restoration of the piezometric network and the rehabilitation of hydro-mechanical equipment, including strengthening the eastern tower's service bridge. The implemented construction works were designed to ensure that gates in both of the reservoir's outlet towers can be operated safely. The rehabilitated gates now improve the reservoir's water retention rate, and contribute to a fairer system of water allocation between the neighbouring countries.

## Rehabilitation of Zumratsho Headwork in Sughd District, Tajikistan

The Zumratsho Headwork is located in Tajikistan, 3 kilometres north of Isfara City and approximately 15 km downstream from the automated Isfara Headwork in Kyrgyzstan. It regulates the supply of irrigation and drinking water and distributes water between two Ta-

jik districts. Built in 1960, it has since suffered significant deterioration. Seasonal floods and mudslides filled the headwork structure with soil, stones and gravel, destroying its concrete base and gates. This resulted in a decrease in the headwork's water intake and, consequently, the amount of available irrigation and drinking water has gradually fallen.

The main objectives of the rehabilitation works were: to establish an uninterrupted water flow into the main canal; to prevent runoff from solids; and to improve water flow control and overall operating conditions. The repaired headwork is now able to serve more than 100,000 people in the Lakon Valley and has improved its water supply capacity by over 2,000 hectares of arable land, thus enhancing the livelihoods of the local population.



Measurement of water discharge in the off-farm network

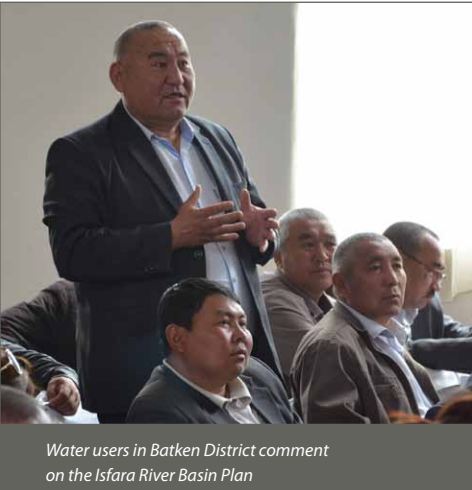
# A common strategy for water resources management



Kyrgyz working group on basin planning



Public hearings in Batken City, Kyrgyzstan



Water users in Batken District comment on the Isfara River Basin Plan

Joint planning and management of trans-boundary water resources requires a common understanding on water issues and complementary strategies for water management. Basin planning is a comprehensive process of water management, with the objective of protecting and improving a river basin and its surrounding environment. It follows the main principles of Integrated Water Resources Management (IWRM) including inter-sectoral cooperation, public participation and strengthening human capacities.

## An inter-sectoral approach to basin planning

An inter-sectoral working group was established for each of the two countries. They comprised representatives from agencies and organisations responsible for water resources, climate change, the environment, health, natural hazards, socio-economic development, regional and investment planning, local government and other beneficiaries. The two working groups – with mutual attendance assured – met on a regular basis to discuss and develop the basin plans for their parts of the basin.

## Public participation in basin planning

To ensure greater public participation in the drafting of the basin plan, both countries held public hearings, in which the plan's goals and objectives were presented. The hearings were attended by representatives from different communities, as well as representatives of government authorities, water management organisations, civil society organisations, NGOs, etc. This exercise was particularly useful for informing the wider public about the content of the newly-developed Isfara River Basin Plan, the ongoing activities in the basin, and the potential role that the basin's residents can play. In the future, public participation will be maintained through both countries' newly-established Basin Councils. Through this inclusive, multi-stakeholder approach, public opinion is now taken into account in the water management organisation's decision making.

## Integrated Water Resources Management (IWRM)

is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Global Water Partnership (2000): Integrated Water Resources Management. Global Water Partnership TAC Background Paper Series No. 4, p.22

# Improved basin planning capacity

## Transferring know-how to establish a basin plan for the Isfara river basin

The development of a basin plan calls for thorough knowledge in all fields related to water management. A training module on the stages of basin planning, conducted by the programme in cooperation with the Regional Environmental Center for Central Asia, equipped the working groups' members with methodologies for the analysis and assessment of river basins so that they could address existing problems. Experts from the Central Asian Waters (CAWa) scientific network further introduced modern technologies to analyse the current basin situation, map landscapes, assess existing risks of natural hazards, climatic developments in the basin, and its implications on water flow formation based on a long-term climate change assessment. With their newly-acquired knowledge, local experts from both working groups conducted comprehensive analyses of the legislative and institutional frameworks in terms of basin planning, the state of the environment and natural resources, and the socio-economic development of the Isfara river basin.

By the end of the final training session, the working groups had, based on their analysis and conclusions, developed basin plans for their respective sides of the Isfara river basin. This approach ensures local ownership and sustainable processes. It enables state institutions, as well as stakeholders and representatives at a local level, to plan, implement and monitor the basin planning process unassisted.

Each country's working group included representatives from the other country in order to ensure transparency, coordination and compatibility in their basin planning processes right from the beginning.



Members of the working group elaborate activities to implement the basin plan



Tajik working group on basin planning

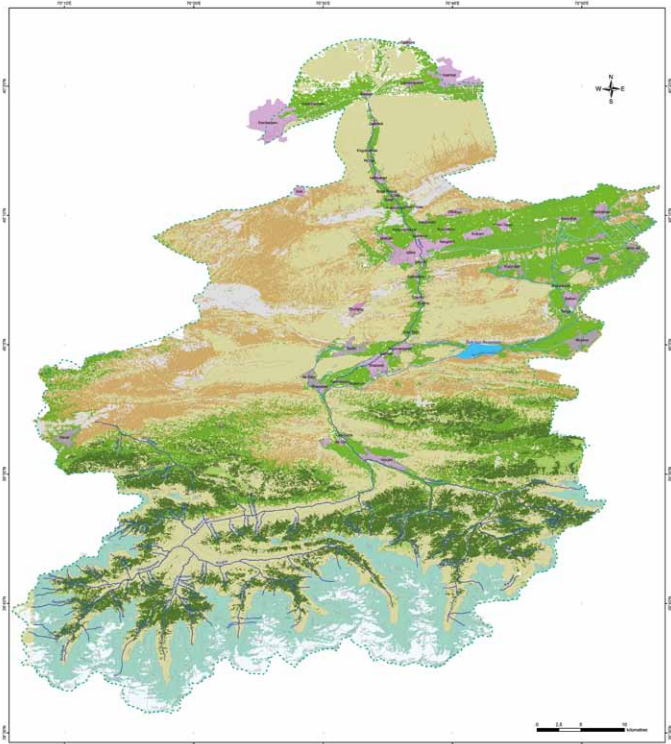


Kyrgyz working group on basin planning



Training sessions and expert evaluation for the preparation of the Isfara River Basin Plan

# Improved basin planning capacity



## Legend

- - - Basin borders
  - Rivers
  - Interfarm canal
  - Onfarm canal
  - Reservoirs
  - Settlements
- The Isfara river basin area: 383 281 hectares.

Land use map of the Isfara river basin

## Data management and processing in water management

Decisions surrounding water management draw upon a large amount of data and information. The programme, with support from the Scientific Information Center of the Interstate Commission for Water Coordination, the International Water Management Institute, and scientists from the University of Würzburg, delivered comprehensive training to members of the working groups on data handling, databases, geo-information systems, the use of accessible remote sensing tools, understanding climate model outputs, and how to use these tools to support water resource management.

Database systems were established at local Kyrgyz and Tajik water administrations. These digitally collect and store data on water use, hydro-technical facilities, and hydrological, economic, and administrative conditions in the region. Members of the working groups were trained in mapping water and land resources using ArcGIS software, and taught how to use Google Earth's open source remote sensing data. Access was possible via mobile internet connections in both countries. Preliminary topographic, land-use, and mudflow risk zones maps of the Isfara river basin were produced, which constitutes a main outcome of the programme's activities. Additionally, local specialists received continuous on-the-job training.

## This Policy Brief was prepared by

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This issue is based on experiences and outcomes of the "Transboundary Water Management in Central Asia" Programme implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. GIZ is responsible for the content of this publication.

### Please cite this Brief as:

Dusik E., Nurmamedova M. 2015. Inter-state cooperation and joint planning and management of transboundary river basins – The example of the Isfara river basin. Policy Briefs of the German Water Initiative for Central Asia No. 2. DOI: 10.2312/5.4.2015.002e

You can find the Policy Briefs in Russian and English languages in the download area at the website [www.cawa-project.net](http://www.cawa-project.net) [www.waterca.org](http://www.waterca.org)

## Acknowledgements

The German Federal Foreign Office has provided support for the described project activities and the preparation of this Policy brief in the frame of the "German Water Initiative for Central Asia" (the so-called "Berlin Process").

## Picture credits

Tortgul reservoir, Elisabeth Dusik, p.1 / Isfara River, Günther Schorcht, p.2 / The heads of the Kyrgyz-Tajik Inter-Ministerial Working Group, Alimjan Jorobaev, p.3 / The Isfara Headwork, Elisabeth Dusik, p.4 / Rehabilitated hydro-post of Kyzyl-Kyr WUA, Rustam Madumarov, p.5 left / Automated measurement of water discharge in the off-farm network, Elisabeth Dusik, p.5 right / Working group on basin planning, Maria König, p.6 above / Public hearings in Batken City, Kyrgyzstan, Elisabeth Dusik, p.6 middle / Water users in Batken District comment on the Isfara River Basin Plan, Elisabeth Dusik, p.6 below / Members of the working group elaborate activities to implement the basin plan, Elisabeth Dusik, page 7 above / Tajik working group on basin planning, Zarrina Mirzoboeva, p.7 middle / Kyrgyz working group on basin planning, Elisabeth Dusik, p.7 below

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