

A Source of Peace - Transboundary Water Management in Central Asia

Rehabilitation of the 'Zumratsho' headwork in Isfara, Tajikistan

Context

The Isfara River originates in Kyrgyzstan on the northern slopes of the Turkestan Range and flows north into Tajikistan through the Ferghana Valley, towards the Syr Darya River. It measures about 120 km in total.

The catchment area covers Batken Oblast (administrative district) in Kyrgyzstan and Sughd Oblast in Tajikistan, and includes Uzbek territories at the tail-end of the basin. The river, historically a tributary of the Syr Darya, merges at its mouth with the Great Fergana Canal. Currently, the canal's water is exploited almost entirely for irrigation by the local population before it actually reaches the Syr Darya. Seasonal mudflows that result from the annual snowmelt in spring threaten the local population's livelihood and the operation of infrastructure.



Map of the Isfara River basin

The Isfara headwork 'Zumratsho' is located three kilometres above Isfara city. It regulates the supply of irrigation and drinking water for the populations of Isfara city and Lakkon Valley. Furthermore, it distributes water between the Isfara and Koni-bodom districts.

Project name	Transboundary Water Management in Central Asia
Commissioned by	German Federal Foreign Office (Auswärtiges Amt)
Project region	Isfara city, Tajikistan
Main partner	Ministry of Energy and Water Resources of the Republic of Tajikistan, Agency of Melioration and Irrigation under the Government of the Republic of Tajikistan
Duration	December 2012 - May 2014

The headwork regulates the intake of water into the bypass canal, which then supplies fields with water for irrigation needs in Lakkon Valley. The headwork controls the entry of silt, stores water for a short period of time and reduces fluctuations in the supply of water to the canal.

The Isfara headwork was built in 1960 and initially served 10,000 ha of arable land. Due to constant operation and the long absence of rehabilitation measures, it has significantly deteriorated and currently serves about 8,000 ha of land.

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. Consequently, the amount of water available for irrigation and drinking has gradually fallen. Recently, the headwork's technical condition was rated as critical. A number of structures were not operational. The lower spillway dam, the concrete lining of the upper and lower sections and the metal parts of the closures required immediate rehabilitation.



L. to r.:

- 1) Segment water gates
- 2) Gates to the bypass gallery

Objective

The project aimed to improve the area's hydraulic infrastructure, which would promote rational water use. It would also allow adjustment and distribution of the water on an hourly basis to the population for drinking and irrigation. Rehabilitation of the headwork aimed to establish uninterrupted water flow into the main canal, prevent solid runoff, and improve water flow control and overall operating conditions.

Measures

The rehabilitation measures were carried out in several stages in order to completely repair the parts of the headwork structure. The following activities took place:

1. Cleaning the bypass canal by installing a temporary dam
2. Rehabilitating the existing dam and water intake via the bypass canal
3. Construction measures in the lower section of the headwork
4. Cleaning and rehabilitating the water gallery for offtake of bedloads
5. Construction measures in the upper section of the headwork
6. Rehabilitating the bypass gallery
7. Rehabilitating and repairing the headwork's electrical components

Results

The headwork's rehabilitation enhanced its irrigation water supply capacity by over 2,000 ha of arable land, which returned it to its initial capacity of 10,000 ha. In terms of drinking water supply, the repaired headwork is now able to serve more than 100,000 people in the Lakkon Valley, including Isfara city. The rehabilitation of the headwork and other agronomic activities contribute to high crop yields. Consequently, the headwork's rehabilitation is enhancing the local population's living conditions.

Published by Deutsche Gesellschaft für
Internationale Zusammenarbeit (GIZ) GmbH

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Layout ST. Art Ltd

Printed by ST. Art Ltd

As at May 2014

In cooperation with



Commissioned by German Federal Foreign Office (Auswärtiges Amt)

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