

A Source of Peace - Transboundary Water Management in Central Asia

Supporting Integrated Water Resources Management in Turkmenistan

Context

Turkmenistan's water resources are limited due to extremely low precipitation. The Turkmen lowland receives just 100-150 mm annual precipitation and is subject to high evaporation. Even the high mountains in the Kopet Dag and Balkan ranges do not supply permanently running rivers. Thus, only the Murgab and Tedjen rivers formed in the neighbouring countries of Afghanistan and Iran are relevant. However, the main source of water is the Amu Darya River. It supplies water to the northern part of the country and, through the Karakum Canal, the southern part of the country between Mary and Ashgabat.



Turkmenistan's main rivers

The permanent water supply led to the formation of a fertile oasis where the population now lives and grows cultures such as wheat, cotton, melons and vegetables. Here, 90% of the water resources are channelled into large irrigation areas. Beyond these alluvial plains, due to low water availability, very little vegetation exists. Large areas of Turkmenistan are covered by natural deserts, often forming impressive sand dunes. Ground water reserves are small

Project name	Transboundary Water Management in Central Asia
Commissioned by	German Federal Foreign Office (Auswärtiges Amt)
Project region	Murgab basin in Mary velayat, Turkmenistan
Main partner	Ministry of Water Economy of Turkmenistan, Marysuwhojalyk (the branch of the Ministry of Water Economy in Mary velayat)
Duration	January 2012 – December 2014

and, due to high evaporation, are mostly highly saline. A drainage system with smaller on-field and larger off-field collectors discharges the saline and partially polluted water into Lake Turkmen, formed in the Karakum Desert. Smaller groundwater resources in the pre-mountain area prior to the Karakum Canal construction were utilised by the traditional karez water supply system. Only few of these karez sites are still operating, mostly having been replaced by the Karakum Canal. Looking from the view of amount and also requirements for maintaining the tunnel and shaft system of the karez, the Karakum Canal has certain advantages. However, from the view of long-term sustainability and excellent water quality the karez is one of the superior water use opportunities based upon only local water resources.

Objective

The Transboundary Water Management in Central Asia Programme implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (German Society for



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- 1) A karez at Yangala, Kopet Dag Mountains
- 2) A karez in Shahriddag, Gokdepe etrap



A water inspection boat procured for a partner in Mary velayat

International Cooperation) is the most extensive element of the German Federal Foreign Office's Central Asia Water Initiative (Berlin Process). The Berlin Process supports five Central Asian states in water management and aims to establish a basis for regional cooperation in the water sector.

The programme implements capacity building and sustainable water management measures in selected transboundary river basins in all five states.

In Turkmenistan, the Murgab river basin is the focus of the programme's activities. The programme aims to improve water management in the Murgab basin by applying the Integrated Water Resources Management (IWRM) approach - in particular, basin planning principles. Moreover, the programme aims to increase the capacity of related water institutions by providing technical support.

Measures

IWRM focused on basin planning and basin management is introduced at the Murgab river basin and the technical capacity of the Marysuwhojalyk in Mary velayat is being improved. In this context, the programme procures technical equipment for the local partner, and prepares and designs exploratory works.

Results to date

Assessment report of the traditional karez water supply system

The programme funded a study that outlines the purpose and functioning of a karez system. Further, it gives an overview of the history of the karez system of existing karez sites in the country and makes recommendations for possible rehabilitation measures.

Preparation of design and exploratory work for further reconstruction of hydropost at the Soltanbent reservoir

The programme has supported the Ministry of Water Economy in preparing design and exploratory works for further reconstruction of the hydropost at the Soltanbent reservoir. Observation has revealed the importance of urgent reconstruction of the hydropost, since heavy flood discharge (100-400m³/s) occurs in the Murgab River during the spring flood. The river spreads to a width of more than 100 metres.

The Turkmen State Water Scientific Production and Design Institute, Turkmenyvylymtasma, has completed the preparation and exploratory work for reconstructing the hydropost at the Soltanbent reservoir. The Ministry of Water Economy can now use the outcome in constructing the hydropost in accordance with all state rules and regulations.

Procurement of one off-road vehicle

Further support was provided to the Marysuwhojalyk to procure one off-road vehicle. It is used to visit and monitor distant water sites in the Murgab basin, such as hydroposts and hydropower stations located within Mary velayat.

Procurement of radio telecommunication facilities

Radio telecommunication facilities were procured to improve communication between the Soltanbent reservoir water resources administration and the Marysuwhojalyk. These facilities establish immediate contact for any management and maintenance measures from the reservoir dispatch centre.

Procurement of water inspection boats

Two boats were handed over to the Marysuwhojalyk in order to improve the management and inspection works. The boats replace previous inspection facilities and significantly improve water engineers' day-to-day work.

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