



Integrated river basin Management

From Concepts to Good Practice

Case Study 3

Tarim River Basin and the Tarim Basin
Water Resources Commission,
People's Republic of China

Acknowledgments

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Name of Organization:
Tarim Basin Water Resources
Commission (TBWRC)



History of Establishment:

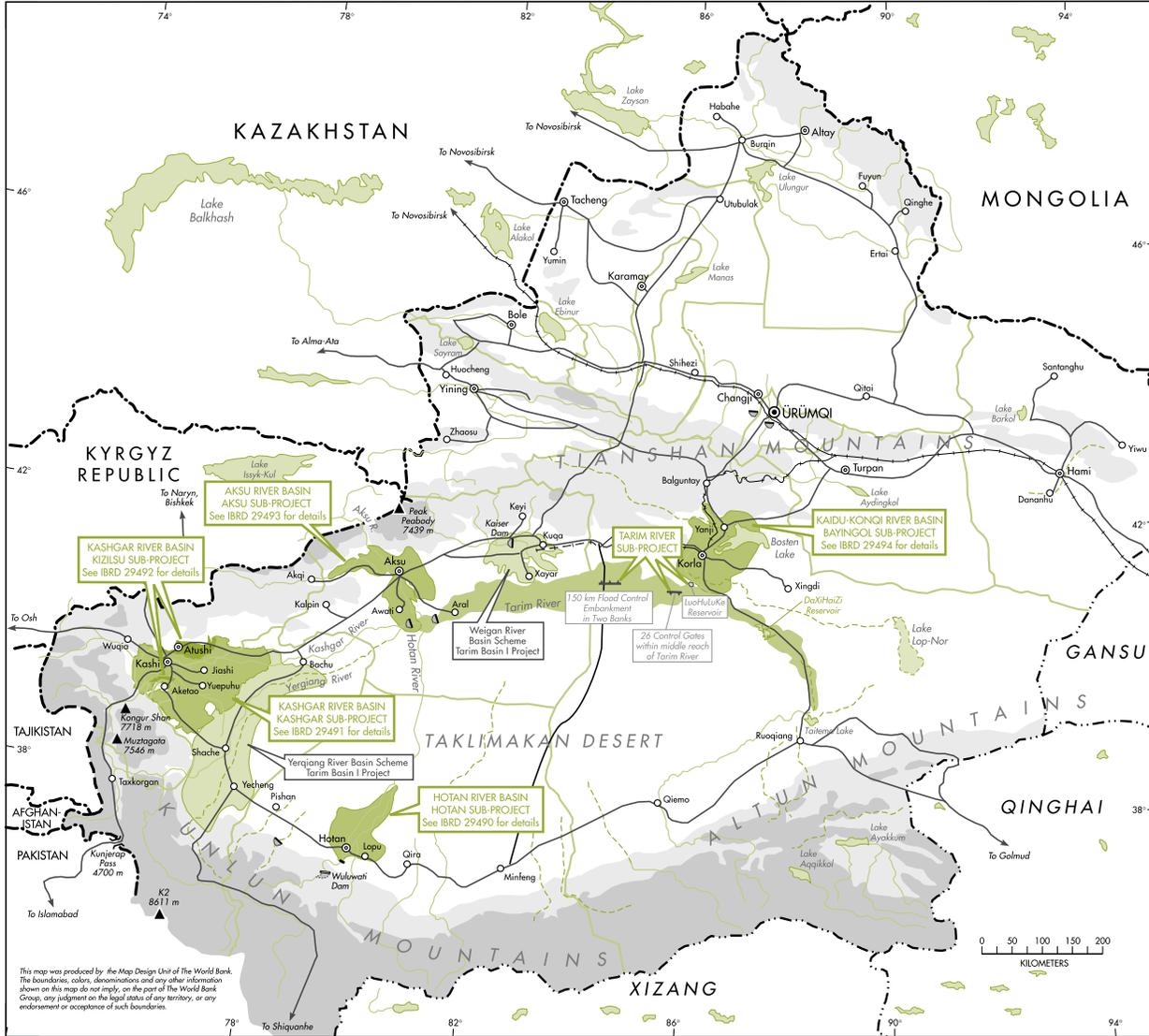
Before 1990, water management and administration were carried out exclusively by the Regional (Provincial) Water Resources Bureau (RWRD) and the prefecture and lower-level water departments and stations. In 1992, supported by the World Bank Tarim I project, the Xinjiang Uygur Autonomous Region (XUAR) government established the Tarim Basin Management Committee and Management Bureau of the Tarim Basin. The World Bank Tarim Basin II project supported upgrading and strengthening these institutions and established the Tarim Basin Water Resources Commission (TBWRC) under the set of regional government regulations formally approved in 1997.

Basin Characteristics:

The Tarim River Basin is located in the southern half of the Xinjiang Uygur Autonomous Region, People's Republic of China (PRC). It is surrounded by mountains on three sides and is a closed basin, with no outlet to the sea. Most of the inner area of the basin comprises the Taklamakan Desert. From the confluence of its three main contributing tributaries, the Tarim River mainstream extends some 1300 km to Taitema Lake. Numerous other rivers coming down from the mountains disappear into the desert. Average precipitation is 50 mm per year in the basin floor. However, precipitation in some spots in the mountainous areas surrounding the basin can exceed 1,000 mm per year and is mostly in the form of snowfall. The three tributary river systems that contribute flows to the Tarim River (Aksu, Hotan, and Yerkand) join just above the Aler gauging station, where the Tarim River begins. In addition, the Kaidu-Konque River Basin, which is hydrologically separate from the Tarim River, contributes water to the Tarim River by means of a man-made transfer channel (see figure 3.1).

Figure 3.1. The Tarim River Basin

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MAY 1998

Area: 1,035,500 km², covering parts of five prefectures or administrative areas

River Basin Flow: The total flow in the rivers and tributaries is estimated to be about 35 billion m³. Because of extensive irrigation development and large natural evaporation losses in the tributaries, actual annual contributions to the Tarim River under existing conditions are estimated to be 2.9 billion m³ for Aksu, 1.2 billion m³ for Hotan, 0.1 billion m³ for Yerkand, and 0.15 billion m³ for Konque, for a total of 4.35 billion m³.

Population: 8,256,600, of which 6,410,900 are in agriculture

Economy: The Gross Regional Product is approximately \$US4.3 billion.

Main Economic Activities: Agriculture (cotton, wheat, horticulture, sheep, cattle, forage crops, corn)

Main Water Management Concerns:

Poor water usage and conservation practices in the upper basin have severely reduced flows to the lower river, leading to the degradation of the fragile Green Corridor. The result has been the encroachment of desert on this important environmental area. The challenge has been to reduce water diversions in the upper basin and define allocations as legally enforceable water quotas, thus

allowing more flows downstream to rejuvenate the lower Green Corridor. At the same time, water distribution and water use efficiency improvements and new crop technology must be introduced in the upper reaches of the basin so that productivity can be maintained, even though gross water diversions have been reduced.

Type of Organization:

The Tarim Basin Water Resources Commission is a participative river basin commission comprising regional government water-related agencies, the five prefecture-level administrations (Aksu, Bayingol, Hotan Kashgar, and Kizilsu), and the central government-controlled State Farms in the basin, all in an equal partnership. There is a high-level policy and strategic decision-making Standing

Committee, an Executive Committee that has delegated power from the Standing Committee to make policy and urgent decisions between the periodic meetings of that Committee, and a working office and a technical secretariat (the Tarim Management Bureau), the latter undertaking the technical program of the Commission and carrying out water management.



1. Conceptual and Institutional Issues

The Tarim Basin regulations quite clearly define the responsibilities and powers of the organization. These regulations are the first in China to stipulate by law the requirement to establish and enforce water quotas for each prefecture. The basin organization has responsibility to act in regard to a wide range of basin water-related activities under the authority of the high-level Standing Committee. Though the organization is in the early stages of development, the establishment and enforcement of annual water allocations – and as a consequence, the delivery of greater water flow downstream to the Green Corridor – has been successfully carried out for several years, which is an impressive achievement. However, much remains to be done in terms of understanding the natural resources of the basin and how they react to increasing development stress.

2. Systems for Water-related Data

Data sharing is not systematic among the various agencies working in the basin. The Tarim Management Bureau realizes that some form of data sharing agreement needs to be established and is in the early stages of developing options for how the data and information is to be shared. More importance (especially by the Standing Committee) needs to be given to this, as well as developing a comprehensive suite of models to test the impacts of various policy and strategy initiatives. One recommendation is to identify this as a key priority over the next three years in the organizational strategic plan. Similarly, a sufficiently detailed natural resource inventory of the basin has not been done for thorough understanding of the sensitive or critical resource areas that need careful study and monitoring.

3. Basin-wide Policies and Strategies

Though good progress has been made in defining water allocation/quota policies and in implementing these, other areas of strategic water-related policy will need greater attention in coming years. This is to be expected, however, as the prime focus for the last three years has been to invest heavily in water efficiency improvements and productivity measures to generate the water savings necessary to meet downstream water environmental requirements, as well as maintain or improve agricultural water productivity. The regulations provide for formal notification, consultation, and evaluation of new projects. The specific procedures to underpin the regulations and ensure that notification occurs effectively have yet to be developed.

4. Communication and Participation

China has awareness programs in the water and environmental area but these are mainly responses to international awareness events such as World Water Day or World Environment Day. New programs to raise the awareness of basin issues in the Tarim and to involve the basin stakeholders and water users in a consultative and participative approach are yet to be developed. Farmers are already showing a real willingness to be involved through farmer self-managed irrigation and drainage districts (SIDDs) and lower-level participatory land and water management plans that have been tried at the county level in the basin.

5. Monitoring and Assessing Sustainability

Performance indicators are not yet in place for assessing the ongoing sustainability of the river basin or the performance of the basin organization and its member prefectures with respect to achieving improvements in resource management.

Tasks of the Organization and Staff Complement:

There are about 200 staff. Functions of the TBWRC include policy, coordination, regulation, monitoring, and enforcement of prefecture-level water allocations, oversight of prefecture performance in all aspects covered by the Tarim Basin regulations, data collection and management, project design and construction/ implementation management, financing through supervision of central government grants, abstraction/discharge permitting through oversight of the prefecture's performance, managing the operating agreements for prefecture control of hydraulic structures, and control of key basin wide projects.

The organization of the Commission is presented in figure 3.2.

Figure 3.2. TBWRC Organization







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