

**PROJECT INFORMATION DOCUMENT (PID)
CONCEPT STAGE**

Report No.: AB4066

Project Name	Xinjiang Turfan Water Conservation Project
Region	EAST ASIA AND PACIFIC
Sector	Irrigation and drainage (50%); General water, sanitation and flood protection sector (50%)
Project ID	P111163
Borrower(s)	CHINA XINJIANG TURFAN PREFECTURE GOVERN Xinjiang Turfan Prefecture Government Xinjiang Uygur Autonomous Region China
Implementing Agency	Xinjiang Turfan Prefecture Project Management Office Xinjiang Uygur Autonomous Region China
Environment Category	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
Date PID Prepared	August 3, 2008
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Estimated Date of Board Approval	February 19, 2010

1. Key development issues and rationale for Bank involvement

1.1 The Turfan Prefecture is located in the eastern part of Xinjiang Uygur Autonomous Region, one of the poorest and most remote provinces in the western area of China. The Prefecture has a total area of about 70,000 km² and a population of nearly 600,000, of whom 78% belong to ethnic minorities. The annual per capita net income is around USD 440 for the Prefecture, ranking eighth from the bottom on the national rural income list. Given the extremely low average annual precipitation (less than 16 mm) on the plains, most of its water resources (both surface and ground water) are derived from mountain snowmelt. The Prefecture currently has four development issues, which are closely related to water resources development and management:

- (a) The flood from mountain snowmelt often causes serious disasters to life and property in the downstream urban and agricultural areas (e.g., the extraordinary flood disaster in 1996 brought great suffering to the cities and large rural areas, resulting in direct economic losses of about USD 67 million, and thousands of people being made homeless due to inundation and collapse of their houses); meanwhile, most of the flood water, instead of being stored and utilized, is largely wasted through non-beneficial evaporation as it flows to downstream deserts. There are no reservoirs upstream at the outlets of the main river valleys to control and store the flood water during the flood season;

- (b) The economic value of water resources is very low at present. Irrigated agriculture consumes about 94% of the total available water but contributes only about 10% of the GDP of the Prefecture. The Prefecture is rich in natural resources, including crude oil, metal ores and coals and has excellent potential for industrial development. The mineral and service industries currently consume about 6% of the total available water but contribute about 90% of the GDP of the Prefecture;
- (c) The efficiency of water use in irrigation is extremely low (about 30-40% on average), due to the result of serious seepage of the aging canal systems and poor water application in the field; water productivity (agricultural yield or value per unit of water) is also very low (about 0.8 kg/m³ compared to 1.8 kg/m³ in other parts of China) because of low yields and poor quality of the crops with a large amount of non-beneficial evapo-transpiration (ET) in the field; and
- (d) The current use of water resources in the Prefecture is not sustainable, which causes an increasing degradation of ecological environment. Groundwater resources in particular are seriously overexploited because of the overuse of this resource for extensive agricultural production. Over exploitation of groundwater have not been fully controlled. The ancient Kariz system primary for agriculture and village water supply, regarded for its culture heritage significance in Xinjiang Uygur Autonomous Region, has in places dried up and becomes damaged largely due to the declining groundwater tables (about 1.5 -2.0 m/yr. on average).

1.2 The eleventh five-year plan on social and economic development of the Prefecture has put the highest priorities on water resources planning and management, i.e.: flood disaster mitigation; development of intensive irrigated agriculture for a higher water-productivity; and allocation of more water for urban and rural industrial development. The proposed project is designed to be an integral part of the plan, enhanced with a new concept and innovative approach of the integrated planning and management of water resources on a river basin basis to directly address the government's priorities and development issues. To address the four development issues as mentioned in paragraph 1.1, the proposed project would support the construction of essential water infrastructure (three reservoirs) at the outlets of the three main river valleys upstream to mitigate the flood disasters and to supply water for both industry and agriculture in addressing the development issues (a) and (b); regarding development issue (c), the project would support the rehabilitation of irrigation systems and the application of integrated agricultural water-saving technologies in the downstream agricultural areas to increase irrigation efficiency and water productivity; more importantly, the project would strongly support addressing development issue (d) with the innovative approach focusing on monitoring, control and management of ET in the river basin to reduce the groundwater overdraft and help mitigate eco-environment degradation.

1.3 The proposed project also strongly supports the Bank's China Country Partnership Strategy (CPS) to reduce poverty, inequality and social exclusion (pillar 2) and to manage resource scarcity and environmental challenges (pillar 3). The project would play an important role in the construction of essential water infrastructure and the application of irrigated agricultural water-saving technologies to improve the livelihood of the rural poor. The value added by the Bank will be its ability to bring world best practice to address the sustainability issues on water resources scarcity and environment challenges. Also, we can apply our recent

successful experience and lessons from Bank funded projects in China such as the Tarim Basin II Project, Water Conservation Project, GEF Hai Basin Integrated Water and Environment Management Project and Wanjiazhai Water Transfer Project and the recently completed AAA studies on economic value of water and water rights administration.

2. Proposed objective(s)

2.1 The project development objective (PDO) would be to (a) reduce the risk of flooding and provide reliable, equitable and stable water supply for industry and agriculture; (b) increase water productivity for irrigated agricultural production; and (c) reduce groundwater overexploitation through the improved water resources planning and management with the added innovative concept of evapo-transpiration (ET) management for sustainable use of water resources and ecological environment protection in Turfan Prefecture. The primary target beneficiaries of this project are the dominant population of the ethnic minority rural poor in the project areas. The accomplishment of the above objective would result in a fundamental change in economic growth pattern of the Prefecture from the current unsustainable pattern relying on overexploiting groundwater resources and devastating ecological environment to a sustainable pattern supported with a sound water resources planning and management.

3. Preliminary description

3.1 The PDO would be achieved by successful implementation of the following components: (a) construction of infrastructure: it would include the construction of three small or medium mountain-valley reservoirs with storage capacities ranging from 8 to 46 million cubic meters, and the construction or rehabilitation of the main irrigation canals; (b) irrigated agricultural water savings: it would include the development of water-saving areas of 270,000 mu (18,000 ha.) with various water-saving technologies as mentioned in the paragraph 3.2 below; (c) Kariz restoration: it aims at the restoration of three selected Kariz systems to protect the historical culture heritage value of these ancient systems; (d) development of an integrated river basin management approach for each of the three independent river systems for initial water rights allocation to increase economic value of water and mitigate degradation of the ecological environment; (e) institutional capacity building: it would include the consulting services, WUA, M&E, O&M, management information system (MIS), training, project replication and mainstreaming for sustainability, office equipment and off-road working vehicles; and (f) project management: it would include the preparation of the project-related documents and daily management of the project.

3.2 The traditional approach, which focuses on infrastructure construction and the installation of water-saving equipment in the field only, has been rejected in favor of a more innovative approach, based on the principles of integrated river basin management and including a strong reform element linked to the traditional investment elements of the project. Therefore, this new approach would not only focus on the enhancement of water storage capacity for flood control and increased water supply, modernization of irrigation and agricultural production systems, but also focus on the ET-based water resources planning and management on a river basin basis supported with the remote-sensing (RS) based ET measuring technology. The project would also consider the impact of climate change on the project activities with the introduced approach and concept from the similar Bank project in China, based on which "what if" scenarios may be

considered in the project design with some necessary adaptive measures to mitigate the possible impact of climate change, e.g.: the impact of climate change on the snowmelt from the mountains and its consequences.

4. Safeguard policies that might apply [*Guideline: Refer to section 4 of the PCN. Which safeguard policies might apply to the project and in what ways? What actions might be needed during project preparation to assess safeguard issues and prepare to mitigate them?*]

The initial assessment is that the following safeguard policies may apply: environmental assessment, cultural property, indigenous peoples, involuntary resettlement, and dam safety. A fuller assessment of the policies would be made during project preparation. The Prefecture is committed to carrying out the necessary actions including consultation and information disclosures in accordance with the Bank safeguard policies as mentioned in more detail in the ISDS.

5. Tentative financing

Source:		(\$m.)
Borrower		80
International Bank for Reconstruction and Development		100
	Total	180

6. Contact point

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