

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

Report No.: AB5413

<b>Project Name</b>	Sustainable Management and Biodiversity Conservation of the Lake Aibi Basin
<b>Region</b>	EAST ASIA AND PACIFIC
<b>Sector</b>	General agriculture, fishing and forestry sector (100%)
<b>Project ID</b>	P110661
<b>GEF Focal Area</b>	Biodiversity
<b>Borrower(s)</b>	XINJIANG AUTONOMOUS REGION
<b>Implementing Agency</b>	<p>PRC-GEF Partnership for Land Degradation in Dryland Ecosystems (GEF-OP12), No. 12 Heilongjiang Road Urumqi Xinjiang China</p> <p>Xinjiang@gefop12.cn Xinjiang Project Executive Office No. 12 Heilongjiang Road Urumqi Xianjian 830000 Tel: (86-991) 581-8587      Fax: (86-991) 581-3241 Xinjiang@gefop12.cn</p>
<b>Environment Category</b>	<input type="checkbox"/> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
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1. Key development issues and rationale for Bank involvement

Over the last two decades China has seen unprecedented economic growth but this has been achieved at the cost of considerable and varied natural resource destruction. This has alerted Chinese policy makers and society to give sustainable natural resource management a much higher priority and this is clearly articulated in the 11<sup>th</sup> FYP (2006-2010), which aims to sustain the rapid and steady development of China's "socialist market economy" while achieving important balances<sup>1</sup>. The World Bank's Country Partnership Strategy (CPS) for 2006-2010 aims to support China in this direction with its third pillar specifically focusing on "managing resource scarcity and environmental challenges" to improve the management of natural resources.

<sup>1</sup> Between rural and urban development, interior and coastal development, economic and social development, people and environment, etc.

Lake Aibi in Bortala Prefecture, western Xinjiang Uygur Autonomous Region (XUAR), sits in an internally-draining, salt-rich basin which experiences high winds for about half the year. Average annual precipitation is variable, but very low (about 40 mm) and most of its water resources (both surface and ground water) are derived from glacier and snow melt. Much of this is retained behind dams and is released according to the needs of downstream urban and agricultural areas. The irrigated agriculture is a major water user – more than 98% of the total water use in the Bortala Prefecture. Over 95% of crops are field crops including wheat, cotton, maize, grassland plus some vegetables. Agricultural water productivity is very low - around 1.0 kg/m<sup>3</sup> for wheat compared with 1.8 kg/m<sup>3</sup> on average in other parts of China. With the rapid increase in water consumption for irrigated agriculture in the upstream, wetland around Lake Aibi is shrinking rapidly. The water surface of the lake has been reduced to around 500 km<sup>2</sup> from more than 800 km<sup>2</sup> in 1950's. The large area of exposed sediments resulting from reduced water coverage is reportedly an important source of wind-blown dust affecting eastern China and beyond. Furthermore, Lake Aibi has globally-significant biodiversity (primarily migratory water birds). However, the management of Lake Aibi National Wetland Reserve (NWR), and of the adjacent Ganjiahu National Nature Reserve, is currently focused more on livestock production than on biodiversity conservation.

In order to restore the ecosystem of the lake, the prefecture government set up the water targets - the lake inflow to increase by 200 million m<sup>3</sup> and lake water surface by 330 km<sup>2</sup> by 2020. In addition, the industrial water consumption will increase by 60 million m<sup>3</sup> and domestic water consumption by 20 million m<sup>3</sup> for the prefecture by 2020. In other words, the prefecture is now facing the water shortage of 280 million m<sup>3</sup> in total to be filled out in order to meet the targets by 2020. However, the traditional approach adopted focuses on increase of irrigation efficiency which could result in reduced seepages/ return flows to groundwater aquifers and further reduce the inflow to Lake Aibi.

The proposed project directly supports GOC's 11<sup>th</sup> FYP and the World Bank's CPS by aiming to i) manage water resources sustainably in the Lake Aibi catchment, ii) reduce land degradation caused by wind blown salt and silt from the exposed bed of Lake Aibi, and iii) conserve biodiversity in and around the Lake Aibi National Wetland Reserve (NWR).

The Government of XUAR demonstrated its commitment to the project through the US\$4 million counterpart funding provision. The project is envisaged as a pilot for water and biodiversity conservation under XUAR's Tien Shan Mountains Restoration Project to be funded by the central government.

The Bank is well positioned to assist the client given its ability to bring global best practice to address both biodiversity management and the sustainable land and water resources management. The Bank has a long history of successful water and soil conservation, as well as irrigation management projects in China. The proposed project will build upon the experience of delivering environmental flows through the Tarim Basin II Project in southern Xinjiang, the Water Conservation Project, and GEF Hai Basin Integrated Water and Environment Management Project. Lessons on conservation management will also be learnt from GEF-financed projects in China, such as UNDP's Wetland Biodiversity Conservation and Sustainable

Use Project, and the Bank's Nature Reserves Management Project, Sustainable Forestry Development Project, and Guangxi Integrated Forestry Development and Conservation Project, which have helped develop participatory and locally-managed systems for conservation, management, and sustainable use of natural resources and their associated biodiversity. The experience of the Gansu and Xinjiang Pastoral Development Project will also be relevant for management of rangelands within the project area.

## 2. Proposed objective(s)

The project's development objective is to provide an enabling framework for sustainable management of Lake Aibi basin. This will be achieved through development of management strategies and mechanisms, pilot testing of good practice approaches and capacity development. The project would ultimately contribute to conservation of wetland ecosystem and globally threatened biodiversity in Lake Aibi Basin. Measureable reductions of land degradation by wind-blown salt and silt are the higher level objective to which the project will also contribute.

## 3. Preliminary description

The proposed project will adopt integrated ecosystem management approach to address interlinked problems of water, land and biodiversity loss. Interventions will be structured through four main components: (a) water resources assessment and optimized allocation; (b) sustainable land management practices; (c) biodiversity conservation management and rehabilitation in Lake Aibi NWR; (d) monitoring, technical support and capacity building. The expected costs will amount to US\$7.2 million, with US\$3,228,000 million from the GEF (\$1,580,000 for biodiversity and \$1,648,000 for land degradation), and US \$4 million from XUAR Government. It is expected that the project will be implemented over a 3-year period.

### **Component 1 - Water Resources Assessment and Optimized Allocation.**

The purpose of this component would be to carry out comprehensive water consumption analysis of the Lake Aibi Basin based on integrated river basin management approaches, and pilot water saving technologies and approaches. An evapotranspiration (ET) -based consumption analysis for the Lake Aibi Basin will be prepared with the objective to allocate the consumptive uses among different water-use sectors with remote sensing based ET measurement technology, including industrial, domestic, agricultural and ecological water uses. Based on the results of the consumption analysis a supplementary plan to the Prefecture's exiting plan on irrigated agricultural water savings will be prepared. The objective is to adjust the Prefecture's existing plan based on the concept of real water savings. Finally, four pilot subprojects (drip irrigation with surface system, drip irrigation with groundwater system, land leveling improvements and change of cropping pattern to grassland) will be designed and set up in accordance with the above supplementary plan, and the water savings will be monitored and evaluated with RS-based ET measurement technology. Based on the demonstration results, a replication plan will be prepared for the rest of the irrigated areas of the Prefecture to be financed by the government after the project.

### **Component 2 - Sustainable Land Management Practices**

Under this component support will be provided for carrying capacity assessment of natural grasslands/ rangelands (government has already signed a contract for this activity), thus the project will provide incremental support. The purpose is to ensure that the grazing management is lead by known limits. Obviously different regimes will need to be developed for grazing outside of NWR and conservation-oriented grazing regimes in flooded meadows. In addition, pilot rehabilitation of natural grasslands and protection and restoration of desert rangelands will be carried out with an aim of adopting cost-effective means of bringing grasslands/ rangelands under sustainable management.

### **Component 3 - Biodiversity Conservation Management and Rehabilitation in Lake Aibi NWR**

The purpose of this component is to develop and implement a realistic, effective and adaptive management plan for biodiversity conservation and the rehabilitation of degraded land. It would include investments for provision of habitat for Relict Gulls and other threatened water birds; and the development and implementation of a sustainable use plan that optimizes the cutting regime of reeds, benefits globally-significant biodiversity, and explores added value options. The component would also finance the development and partial implementation of Lake Aibi Basin ecotourism plan, possibly the production of a multi-lingual tourist guidebook to Lake Aibi wildlife and ecology, establishment of an ornithological club, ‘Friends of Lake Aibi’; and the production of a film on the ecological benefits of Lake Aibi. In addition, alternatively livelihood opportunities for herders in and around Lake Aibi NWR will be explored.

### **Component 4 – Monitoring, Technical Support and Capacity Building**

Under this component Monitoring and Evaluation System will be developed, which should be able to monitor biodiversity, water and land changes, as well as project impact on those resources. Research Fund for financing action-oriented research covering topics such as Xinjiang salamander, impacts of artificially ‘rain-making’, how different management regimes (e.g. grazing of flood meadows, artificial islands) might increase the biodiversity value of Lake Aibi NWR, will be established. The aim is to better understand ecosystem dynamics and human-ecosystem interactions and feed the acquired knowledge into the project’s activities. Training and capacity building for different stakeholders, as well as environmental education programs will be developed.

#### 4. Safeguard policies that might apply

Safeguards policies on Environmental Assessment, Natural Habitat, Indigenous Peoples and Involuntary Resettlement will apply. Partial Environmental Assessment will be prepared. In addition, Social Assessment, followed by Ethnic Minorities Development Plan and Resettlement Action Plan will be prepared to assess all safeguards issues and provide mechanisms to mitigate or minimize any potential negative impacts.

#### 5. Tentative financing

Source:	(\$m.)
BORROWER/RECIPIENT	4
Global Environment Facility (GEF)	3.56
Total	7.56

6. Contact point

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