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An Integrated Approach To Environmental Improvement: Rehabilitation Of Qinhuai River In Nanjing

Nanjing City and Qinhuai River

Nanjing is a historic city in the People's Republic of China (PRC) that intermittently served as the People's Republic of China's (PRC's) capital during several of its ruling dynasties. Today, Nanjing is the capital of Jiangsu province, and is one of the most important industrial, commercial, and cultural centers of the Yangtze River Delta. Nanjing currently has 4.9 million urban inhabitants with a per capita gross domestic product of $6,500, and boasts a total of 500 square kilometers of developed urban area.

Qinhuai River, which is a branch of the Yangtze River, is a major waterway passing through Nanjing. Cultural facilities as well as residential and commercial areas have been developed and redeveloped over centuries along Nanjing's riverbanks. Qinhuai River is not just simply a waterway. It is the center of numerous historical events reflected in the classic masterpieces of literature from the PRC.

Over the past several decades, rapid industrialization and urbanization of this area have been accompanied by increasingly severe water pollution. Qinhuai River and its once glorious riverbanks have thus deteriorated because of discharge of industrial and municipal wastewater, dumping of solid waste, and development of slums along the riverbanks.

Rehabilitation of Qinhuai River

In 2002, the Nanjing municipal government (NMG) attempted to rehabilitate Qinhuai River through a comprehensive program including water replenishment, sewage interception, resettlement, riverbank restoration, and construction of access roads.

Under the Qinhuai River Improvement Project (Phase I), NMG invested CNY3 billion ($400 million) to rehabilitate the river during 2002–2005. Under Phase I, 550 wastewater outlets were intercepted along 16 kilometers of the river. The wastewater treatment plants were largely upgraded to meet the increased load. Ninety-seven polluting factories and 4,365 households were relocated. The old slum area was resettled and rebuilt into parks with 1 million square meters of new trees and more than 10 scenic spots. The river was thoroughly dredged and 13 bridges were refurbished.

JINGMING HUANG

Thanks to the project, the Qiqiaoweng Wetland Park have new blooms to look forward to

Phase I has successfully turned Qinhuai River and its riverbanks into a popular place once again. Today it is a flowing, picturesque, and prosperous river area. In view of the great success achieved, UN Habitat nominated Nanjing as a pilot city in water environment improvement in the Asian Cities Water Program.

ADB and the Qinhuai River Rehabilitation

The PRC Government had earlier requested the Asian Development Bank (ADB) to provide technical assistance (TA) and loan to NMG for environmental improvement of the Qinhuai River under the Quinhuai River Improvement Project (Phase I). The current project forms the second phase of this assistance and is known as the Nanjing Qinhuai River Environmental Improvement Project (the Project).

JINGMING HUANG

Local residents, like this woman, were involved in the project

In 2005, ADB approved a TA grant of $800,000 to help NMG design the Project. Under the TA, an integrated approach to rehabilitating Qinhuai River was jointly developed by ADB and NMG. This included interventions to reduce pollution of Nanjing's surface water, improve flood control, eliminate hazards associated with poor drainage, and improve public health by reducing the incidence of waterborne diseases.

Public–private participation

The Project integrates ADB private sector operations into overall support to NMG's 11th Five-Year Plan to expand the city's water and wastewater treatment capacity. NMG planned to finance capital expenditure requirements for seven new water and wastewater treatment projects in Nanjing by issuing a water bond. As this would be one of the first bonds issued in PRC, ADB implemented an advisory TA for Nanjing Water Utility Long-Term Capital Finance in Commercial Markets and processed the Nanjing Water Utility Development Project, guaranteeing up to 50% of the total amount of the bond issue. The bond itself was issued by Nanjing Public Utilities Company (NPUC), a subsidiary of Nanjing Construction Investment Company (NCIC), which was the implementing agency for the Project's wastewater treatment component.

The advisory TA supported NCIC and NPUC by building institutional capacity, formulating accounting and auditing practices consistent with international best accounting practices, preparing the bond application, and providing shadow ratings of both the bond itself and the issuer. In 2007, the bond was successfully issued for a total amount of $250 million.

This successful bond issue demonstrates that the PRC water utilities sector can raise finance sufficient to meet a significant share of the country's water and wastewater treatment infrastructure investment requirements. By introducing bond guarantees provided by the private sector, this bond issue opens up a new avenue for financing infrastructure projects in the PRC, and demonstrates a public–private sector approach to financing infrastructure projects that can be replicated.

Wetland park

A unique feature of the Project is Qiqiaoweng Wetland Park, which is located in the river's upstream portion. The first urban ecological wetland park in Nanjing, Qiqiaoweng Wetland Park will restore a derelict site into a wetland that ceased to exist about 30 years ago. Created with a total investment of CNY600 million, the park will occupy 33 hectares of land. This initiative, which will contribute to Nanjing meeting its 11th Five-Year Plan targets for green space, will reduce the adverse impact of existing land use patterns; contribute to improvement of water quality, flood storage, and habitat conservation; and provide recreational and educational opportunities to demonstrate emerging conservation technologies.

River diversion and water replenishment

Following the construction of wastewater interception facilities, water flow in Qinhuai River will be replenished with fresh water. Ultimately, the Project will increase Nanjing's wastewater treatment and collection capacity, provide adequate flushing and water exchange, strengthen river embankment foundations, improve flood protection, significantly improve water quality, and improve Nanjing's ecological landscape.

The total investment under the Project is $240 million, including $100 million in proceeds from the ADB loan. Construction of facilities was projected to be completed over 2007–2010. Approximately 34% of total project funds have been expended, and physical progress—which has been smooth—has reached 50%.