



China, People's Republic of: Anhui Chao Lake Environmental Rehabilitation Project

Project Name	Anhui Chao Lake Environmental Rehabilitation Project	
Project Number	44036-013	
Country / Economy	China, People's Republic of	
Project Status	Closed	
Project Type / Modality of Assistance	Loan	
Source of Funding / Amount	Loan 2941-PRC: Anhui Chao Lake Environmental Rehabilitation Project	
	Ordinary capital resources	US\$ 250.00 million
Strategic Agendas	Environmentally sustainable growth Inclusive economic growth	
Drivers of Change	Gender Equity and Mainstreaming Governance and capacity development	
Sector / Subsector	Agriculture, natural resources and rural development / Rural water policy, institutional and capacity development - Water-based natural resources management Water and other urban infrastructure and services / Urban sewerage	
Gender	Effective gender mainstreaming	
Description	<p>The project will support the Anhui Provincial Government (APG) to implement the Master Plan for Integrated Water Environmental Management in the Chao Lake Basin (2008-2020). The proposal for Asian Development Bank (ADB) financing includes four project outputs: (i) increased municipal point source pollution control; (ii) enhanced non-point source (NPS) pollution control; (iii) improved institutional capacity of Chao Lake Management Authority (CLMA); and (iv) strengthened project management capacity.</p> <p>The project impact will be improved quality of life and sustainable aquatic ecosystem in Chao Lake. The outcome will be improved condition of water resources and environment in Chao Lake and the upstream rivers.</p>	

Project Rationale and
Linkage to
Country/Regional
Strategy

Chao Lake is the fifth largest freshwater lake in the PRC. Its catchment occupies about 10% of the total area of the Anhui province. The lake is important to industrial and agricultural water supply, water transport, tourism, and recreation in Anhui province. Over the last 20 years, the water environment of Chao Lake has been deteriorating due to the adverse environmental effects of rapid economic growth and urban development. During the 2000-2009 period, the urban population in the catchment increased by 30% and gross domestic product increased by 500%.

In 1996, Chao Lake was identified as one of the top three priority lakes in the PRC for environmental rehabilitation due to its poor water quality. Since then, the provincial and concerned local governments, supported by the national government and ADB, have provided large amount of resources to control municipal and industrial pollution in the lake catchment. These investments have reduced industrial and municipal wastewater to a certain extent, but they have not addressed all dimensions of the water quality problem in the lake. The lake continues to receive excessive concentrations of organic matter, nitrogen (N), and phosphorous (P). Particularly during summer times, elevated levels of pollutants and high temperatures result in algal blooms, depletion of oxygen in the water, and the emission of offensive odors.

The present average water quality in the lake is Class IV under the PRC's national environmental water quality standard and 50% of the water monitoring points in the lake are still Class V. This represents a slight improvement over the situation in 2005 when overall water quality in the lake was class V+, but is still far from the government's long term objective of Class III for the lake.

As a result of past investments and regulatory efforts, industrial pollution control in the lake catchment has improved. The two main pollution sources yet to be fully controlled are municipal point sources and non-point source (NPS) emissions. The Anhui Environmental Protection Department estimates that municipal sources account for about 50% of existing organic emissions into the lake, 57% of emissions of N, and 54% of P. Rural NPS emissions are estimated to account for 42% of organic emissions, 38% of N, and 42% of P.

The Anhui Provincial Government understands that a comprehensive approach is required to solve water quality problems in Chao Lake. To support the comprehensive approach, the APG has formulated the Chao Lake Environmental Rehabilitation Master Plan (master plan, 2008-2020), which suggests the need for about CNY50 billion of investments to develop a wide range of structural and non-structural measures, such as strengthened institutional mechanism, expanded and upgraded municipal wastewater treatment plants (WWTPs), extension of sewerage networks, continuation of the industrial wastewater treatment control program, comprehensive rural NPS pollution control, control of other NPS pollution sources through in-stream measures, water conservation, strengthened regulatory supervision, applied research, and public education.

The project supports the PRC's sustainable development agenda for the establishment of an environmental-friendly, resource-efficient, and harmonious society, as outlined in the PRC's 12th Five-Year Plan 2011-2015. The project will support the master plan and the PRC's 12th Five-Year Plan for Chao Lake environmental protection, and introduce an integrated approach to overcoming current constraints on the lake environment restoration. The project is aligned with the PRC country partnership strategy, 2011-2015, in supporting environmental sustainability and inclusive growth.

Impact	Improved quality of life and sustainable aquatic ecosystem in Chao Lake
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Project Outcome

Description of Outcome	Improved condition of water resources and environment in Chao Lake and the upstream rivers
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Progress Toward Outcome	The project is physically completed. The achievement of outcome indicators will be evaluated at the PCR mission.
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Implementation Progress

Description of Project Outputs	Output 1. Increased municipal point source pollution control Output 2. Enhanced non-point source pollution control Output 3. Improved institutional capacity of Chao Lake Management Authority Output 4. Strengthened project management capacity
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Status of
Implementation
Progress (Outputs,
Activities, and Issues)

Output 1: Increased municipal point source pollution control. Structural interventions were supported to reduce the pollutant discharge into Chao Lake: (i) a total of 627 kilometers of wastewater collection network including 16 pump stations with incremental collection capacity of 540,400 cubic meters per day (m³/day) have been constructed to serve developed urban areas which were previously un-sewered and to intercept sewer discharges that flow directly and untreated into tributaries of Chao Lake; and (ii) 10 WWTPs of Class 1A design with a total design compacity of 176,000 m³/day have been constructed for active nutrient removal.

Output 2: Enhanced NPS pollution control.

Structural and nonstructural interventions were implemented: (i) dredging, embankment works, and vegetated buffer zones to reduce re-suspension of polluted sediments and nutrient emissions into the lake, have been carried out over a total length of 109 km river courses, with sediments dredging of about 3.23 million cubic meters (m³); (ii) two solid waste collection and transfer stations with the total capacity of 120 ton/day were constructed and 3,270 trash collection bins were distributed in Feidong county to control drifting objects in the area; (iii) five artificial wetlands with a total area of 430 hectares at estuaries have been constructed to trap the nutrient loads from rivers and channels to the lake; and (iv) a pilot rural NPS pollution control activity focusing on the control of agricultural pollution sources has been conducted including the implementation of an eco-compensation program to promote chemical fertilizer reduction and nutrient recycling between animal and crop farming.

Output 3: Improved institutional capacity of Chao Lake Management Authority.

Consulting services, training, and equipment were provided to improve institutional capacity of CLMA, including (i) 16 training programs for CLMA with a total of 433 person times participation, and 14 domestic study tours and three international study tours to strengthen the capacities on water resources management, eco-compensation, gender action plan implementation, and environment improvement; (ii) a range of equipment for monitoring and laboratory test; (iii) studies and systems development on: (a) spatial land use management of Chao Lake catchment based on water quality functional zoning; (b) early-warning system for algal bloom outbreaks; and (c) water environment intelligent supervision and GIS system development; and (iv) UNESCO-IHE was invited in 2013-2014 through an ADB knowledge partnership program to provide advisory services in terms of institutional framework, training needs, integrated water resources management, and peers' networking.

Output 4: Strengthened project management capacity.

Support to project management offices (PMOs) was provided through consulting services to assist in engineering design review, procurement, and project management and supervision. Twenty-two training seminars were organized and a total of 1,145 person times of project management staff were trained on financial management, disbursement, procurement, contract management, safeguards, project performance management system (PPMS), project completion review, wastewater services and tariff, and water environment and ecology management.

Geographical Location	Changfeng Xian, Chao Lake, Chaohu, Chaohu River, Feidong Xian, Feixi Xian, Fengle River, Lintou, Lujiang Xian, Qingxi River, Tongyang River, Xiage, Yuxi River, Zhegao, Zhongpai
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Safeguard Categories

Environment	A
Involuntary Resettlement	A
Indigenous Peoples	C

Summary of Environmental and Social Aspects

Environmental Aspects	The project classification for environment is category A. A consolidated environmental impact assessment (EIA) report and an environmental management plan (EMP) were prepared following ADBs Safeguard Policy Statement (2009).
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Involuntary Resettlement	The project is classified as Category A for involuntary resettlement. Although the impacts of land acquisition on most of the 3,200 affected people are minor, more than 50 people will be affected by house demolition and around 200 people will suffer significant loss of agricultural land. Resettlement plans have been prepared.
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Indigenous Peoples	In accordance with the Safeguard Policy Statement, the project is classified as Category C for indigenous peoples. The population in the project area is ethnically homogenous mainstream Han. There are no impacts on ethnic minorities/indigenous peoples groups in the project area.
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Stakeholder Communication, Participation, and Consultation

During Project Design

During Project Implementation

Business Opportunities

Consulting Services	All consultants to be financed under the ADB loan are selected in accordance with ADB's Guidelines on the Use of Consultants 2013. ADB will finance three teams of consultants under the project for a total of 345 person-months (72 international, 273 national) to: (i) facilitate project management and implementation; (ii) implement a pilot project for NPS pollution control; and (iii) capacity development for CLMA. Consulting services for the individual packages are estimated at 125 person-months (25 international and 100 national) for project management, 65 person-months (all national) for NPS pollution control, and 155 person-months (47 international and 108 national) for capacity building for CLMA. The consultants will be selected and engaged following the quality and cost-based selection method, with a quality-cost ratio of 80:20, using full or simplified technical proposal, in accordance with ADB's Guidelines on the Use of Consultants (2010, as amended from time to time).
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Procurement All procurement to be financed under the ADB loan are carried out following ADB's Procurement Guidelines 2015. Contracts for civil works valued at over \$40 million and contracts for goods and related services valued at over \$3 million will be procured through international competitive bidding procedures. Contracts for civil works valued at \$40 million or less but over \$200,000, and contracts for goods and related services valued \$3 million or less but over \$100,000 will be procured through national competitive bidding procedures. National competitive bidding will be undertaken following the PRC Tendering and Bidding Law (1999), subject to modifications agreed with ADB. Contract packages for civil works and for goods valued at \$100,000 or less will be awarded through shopping procedure. Procurement will be centralized and a procurement agency that is familiar with ADB procurement procedures will be engaged by APG to undertake procurement of works, goods, and services under the project on behalf of the implementing agencies.

Responsible ADB Officer Shen, Xin
 Responsible ADB Department East Asia Department
 Responsible ADB Division PRC Resident Mission (PRCM)
 Executing Agencies *Anhui Provincial Government*

Timetable

Concept Clearance	10 Dec 2010
Fact Finding	23 Mar 2012 to 31 Mar 2012
MRM	13 Jun 2012
Approval	16 Nov 2012
Last Review Mission	-
Last PDS Update	27 Sep 2021

Loan 2941-PRC

Milestones

Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
16 Nov 2012	06 Feb 2013	26 Apr 2013	30 Sep 2018	31 Mar 2021	31 Jan 2022

Financing Plan

Loan Utilization

	Total (Amount in US\$ million)	Date	ADB	Others	Net Percentage
Project Cost	432.11	Cumulative Contract Awards			
ADB	250.00	21 Dec 2022	250.00	0.00	100%
Counterpart	182.11	Cumulative Disbursements			
Cofinancing	0.00	21 Dec 2022	250.00	0.00	100%

Status of Covenants

Category	Sector	Safeguards	Social	Financial	Economic	Others
Rating	-	Satisfactory	Satisfactory	Satisfactory	-	Satisfactory

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