

Project Administration Manual

Project Number: 46050
August 2014

People's Republic of China: Hubei Huanggang
Urban Environment Improvement Project

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Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Huanggang municipal government (HMG) and Huanggang Urban Construction Investment Company (HUCIC) are wholly responsible for the implementation of ADB financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by HMG and HUCIC of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the Loan agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Loan Agreement, the provisions of the Loan Agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP) changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.

Abbreviations

| | | |
|-------|---|---|
| ADB | = | Asian Development Bank |
| CQS | = | consultants' qualifications selection |
| DMF | = | design and monitoring framework |
| EIA | = | environmental impact assessment |
| EEM | = | external environment monitor |
| EMP | = | environmental management plan |
| FMA | = | financial management assessment |
| GAP | = | gender action plan |
| GDP | = | gross domestic product |
| GRM | = | Grievance redress mechanism |
| HEMS | = | Huanggang environmental monitoring station |
| HEPB | = | Huanggang Environmental Protection Bureau |
| HMFB | = | Huanggang Municipal Finance Bureau |
| HMG | = | Huanggang municipal government |
| HPFD | = | Hubei Provincial Finance Department |
| HPMO | = | Huanggang project management office |
| HUCIC | = | Huanggang Urban Construction Investment Company |
| HWRB | = | Huanggang Water Resources Bureau |
| ICB | = | international competitive bidding |
| LIBOR | = | London interbank offered rate |
| NCB | = | national competitive bidding |
| NED | = | New Eastern District |
| O&M | = | operation and maintenance |
| PAM | = | project administration manual |
| PIC | = | project implementation consultant |
| PIEC | = | project implementation environment consultant |
| PIU | = | project implementation unit |
| PPMS | = | project performance management system |
| QCBS | = | quality- and cost-based selection |
| RRP | = | report and recommendation of the President |
| SAP | = | social action plan |
| SOE | = | statement of expenditure |

I. PROJECT DESCRIPTION

1. The project aims to promote environmentally sustainable and socially inclusive urbanization in Huanggang, Hubei Province, the People's Republic of China (PRC) through improvements in urban environment. The project will improve the lakes and rivers' water quality, flood-retention capacity, and aesthetic value contributing to economic prosperity and enhanced livability in the lakeside urban area.¹

A. Rationale

2. Huanggang is located on the north bank of the middle reach of the Yangtze River in eastern Hubei Province, 78 kilometers (km) from the provincial capital, Wuhan.² Building on a rural-based economy, Huanggang is one of the poorest municipalities in the province and has a relatively low urbanization rate of 35.7%.³ The Huanggang municipal government (HMG) in its Twelfth Five-Year Plan, 2011–2015 targets to transform its economic structure and facilitate urbanization with expanded secondary and tertiary industries. Huanggang is well positioned to take advantage of national and regional development plans due to its proximity to Wuhan; good connectivity with neighboring cities and provinces; and rich historic, cultural, and human resources.⁴ Huanggang has the potential to play a strategic role in facilitating socioeconomic development in the central region of the PRC. This is envisaged under the national plan.⁵ Furthermore, Huanggang is part of the Wuhan 1+8 megacity cluster, which the PRC government endorsed as a pilot for balanced regional development in the province.⁶

3. Huanggang is on a floodplain, with many lakes and rivers. Protecting the water environment and controlling water pollution in the middle and lower reaches of the Yangtze River, the largest of the seven river basins in the PRC and also the source of a high amount of wastewater, is a key government strategy. One of the urban development constraints of Huanggang is the deteriorating water quality in lakes and rivers, which are silted and blocked with polluted sediments, hindering natural hydraulic circulation, further degrading the water environment and ecology, weakening resilience to floods and droughts, and adversely affecting public health and safety. Huanggang's three major urban lakes—Baitan, Chiye, and Yiai—are severely polluted with organic matter and nutrients. Much of the surface water quality is currently measured as class V or worse.⁷ Realizing the importance of improving water quality for the city's sustainable development, HMG has made plans and increased investments to

¹ The Asian Development Bank (ADB) provided technical assistance to prepare the project. ADB. 2012. *Technical Assistance to the People's Republic of China for Preparing the Hubei Huanggang Integrated Urban Environment Improvement Project*. Manila (TA 8151-PRC).

² As the second most populated municipality in Hubei Province, Huanggang, with its 7.46 million residents, comprises one district (Huangzhou), two county-level cities, seven counties, and a county-level farm.

³ According to the Hubei Poverty Alleviation Office, rural poverty incidence in Huanggang is estimated at 25.2% in 2012. The Hubei Annual Socio-economic Development Report (2012) estimates Wuhan's per capita gross domestic product in 2012 at about CNY79,878, while that of Huanggang at about CNY19,208, the second lowest among 17 municipalities in Hubei Province.

⁴ Huanggang is connected to Beijing, Shanghai, Guangzhou, and Hong Kong with railways, extensive road networks, and several expressways. The Wuhan intercity high-speed railway merges Huanggang "within-30-minute-economic circle" of Wuhan.

⁵ Government of the People's Republic of China. 2004. *The Rise of Central China Plan*. Beijing.

⁶ The Wuhan 1+8 megacity cluster involves Wuhan; together with the municipalities of Ezhou, Huanggang, Huangshi, Qianjiang, Tianmen, Xianning, Xiantao, and Xiaogan in Hubei Province.

⁷ Class I water has the highest quality and class V+ water is the worst. Class IV is suitable for use as a general industrial water supply and for recreational use involving no direct human contact with the water, class V is suitable only for agricultural water supply and general landscaping use, and class V+ is unsuitable for any use (PRC Environmental Quality Standards for Surface Water, GB 3838-2002).

control pollution at the source and to improve the environment.⁸ To date, HMG investment has focused on improving water quality in Yiai Lake in the existing urban area, leaving other lakes and rivers unattended.

4. Limited urban space also constrains the development potential of Huanggang. The existing central urban area in Huangzhou District is dense and inadequate for increasing economic activities.⁹ Limited urban space and inadequate urban infrastructure has slowed economic development and delayed the urbanization process, resulting in Huanggang becoming sidelined from mainstream developments in the province. To address this constraint, the approved Huanggang Municipal Urban Master Plan, 2012–2030 provides for eastward urban expansion by developing the New Eastern District (NED) with adequate urban space, infrastructure, and services; and an environment-friendly and socioeconomically inclusive setting to support sustainable urban development and rural–urban transition.¹⁰

5. Baitan and Chiye lakes and seven associated rivers are in the center of NED, where HMG’s pollution control interventions have not yet reached. Nutrient-laden sediments from agricultural and fish farming have reached levels that affect the lakes’ water quality and hydraulic retention capacity. The seven rivers are blocked due to sediments from erosion of unlined banks reducing their drainage capacity. The increased urban development will create more impervious surfaces, resulting in an increase in surface water runoff.¹¹ HMG is currently improving point source pollution control in NED.¹² The project will complement these interventions, focusing primarily on nonpoint source pollution control. It will adopt an integrated approach to water quality and retention capacity enhancements of the lakes and associated rivers by removing contaminated sediments, constructing wetlands, stabilizing lakes and rivers embankments, and improving hydraulic recirculation. As a result, water quality of Baitan and Chiye lakes will improve from class V to class IV, flood protection will increase, and the lakeside aesthetic and amenity value and health benefit will significantly rise.¹³

6. As part of the project’s capacity development component, a water quality monitoring and forecasting system for the upstream Xingfu River catchment, and Baitan and Chiye lakes will be developed and used by the Huanggang environment protection authorities for systematic and continuing water quality management. The system, which will be based on the hydraulic and water quality model developed during project preparation, has great replication potential. It can be disseminated as a good practice in sustainable pollution control and ecological preservation applicable to polluted and blocked urban lakes in small and medium-sized cities along the Yangtze River, and elsewhere in the PRC.

⁸ Hubei Provincial Water Resources Bureau. 2010. *Chang River Basin Master Plan*. Hubei Province; and Huanggang Municipal Government. 2013. *River and Lake System Rehabilitation Plan for the Baitan Lake and its Surrounding Area*. Huanggang.

⁹ As of 2010, urban residents of Huangzhou District (about 73% of the total district population of 367,000) live in a built-up area of approximately 31 square kilometers, indicating high density. With the enhanced living environment and economic opportunities, and regional development, the population is expected to grow up to 2030.

¹⁰ Huanggang Municipal Government. 2013. *Huanggang Municipal Urban Master Plan, 2012–2030*. Huanggang.

¹¹ Impervious surfaces are artificial surfaces covered by impenetrable materials such as asphalt, concrete, brick, or stone.

¹² PRC national urban wastewater tariff guidelines for wastewater management and cost recovery will be followed. HMG has relocated four out of nine industrial plants outside the NED phase 1 area (Baitan Lake planning area), the remaining five will be relocated by 2020. Capacity expansion of Nanhu wastewater treatment plant, located near NED, and associated sewage network will cover the NED phase 1 area and its surroundings.

¹³ The lakes’ retention capacity and rivers’ hydraulic carrying capacity that reduces the return period of seasonal flooding in NED will increase from 5 years to 20 years.

7. **Strategic fit and lessons.** The project is not a stand-alone investment but plays an integral part of the Huanggang Municipal Urban Master Plan by significantly improving water quality in Baitan and Chiye lakes. The capacity building and institutional strengthening component will add value to the implementation of the master plan. Project design incorporates lessons from Yiai Lake rehabilitation, a recent locally funded initiative, and other Asian Development Bank (ADB)-supported lake and river restoration projects in the PRC.¹⁴ The project design incorporates best international practices: (i) the need to take an integrated approach to water system rehabilitation, and (ii) the importance of using simulation techniques to predict likely outcomes.¹⁵ The project will complement past and ongoing projects that are contributing to reducing pollution in the Yangtze River.¹⁶ Since the drinking water intakes of several cities are downstream from the Yangtze River, the project also contributes to the protection of the vital drinking water source. The project supports environmentally sustainable and inclusive economic growth that is a priority of ADB's Strategy 2020.¹⁷ The project aligns with ADB's country partnership strategy, 2011–2015 for the PRC; ADB Urban Operational Plan, 2012–2020; the Green Cities initiative; and ADB Water Operational Plan, 2011–2020, which encourages integrated water resources management particularly in river basins.¹⁸ It will support economically and socially inclusive urbanization and rural–urban transition in Huanggang and contribute to balanced regional development in the PRC and in Hubei Province, thereby supporting the PRC's Twelfth Five-Year Plan, 2011–2015. The project builds on ADB's experience from urban projects in Hubei Province and in the PRC.¹⁹

B Impact and Outcome

8. The project impact will be socially inclusive and environmentally sustainable urbanization in Huanggang. The project outcome will be an improved urban environment in Huanggang.

C. Outputs

9. The project will have three outputs: urban lake and river enhancement, solid waste management, and capacity development and institutional strengthening.

10. Detailed project scope is described as follows:

¹⁴ These include (i) Wuhan's water quality model to predict water quality in lakes and rivers, and (ii) Nanjing's rehabilitated rivers and created wetlands. ADB. 2011. *Completion Report: Wuhan Wastewater Management Project in the People's Republic of China*. Manila; and ADB. 2012. *Environmental Monitoring Report: Nanjing Qinhuai River Environmental Improvement Project in the People's Republic of China*. Manila.

¹⁵ In the context of urban lake and river enhancement, the social and economic requirements of adjacent urban areas are of major importance. Flood safety and quality of life in proximity of urban lakes and rivers have to be considered along with the ecological and chemical state of water bodies.

¹⁶ ADB projects in Huangshi, Jiujiang, Nanjing, Suzhou, and Wuhan are contributing to pollution reduction in the Yangtze River.

¹⁷ ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank, 2008–2020*. Manila.

¹⁸ ADB. 2012. *Country Partnership Strategy: People's Republic of China, 2011–2015*. Manila; ADB. 2012. *Urban Operational Plan, 2012–2020*. Manila; ADB. 2012. *Green Cities*. Manila; and ADB. 2011. *Water Operational Plan 2011–2020*. Manila.

¹⁹ The project is the sixth urban project in Hubei Province, after three projects in Wuhan, one in Huangshi, and one in Yichang (all approved).

Output 1: Urban lake and river enhancement

1a: Lake enhancement

- (i) **Lake sediment dredging**—removing 539,405 cubic meter (m³) of nutrient laden sediments from Baitan and Chiye lakes and re-establishing natural hydraulic circulation between lakes.

| Lake | Quantity (m ³) |
|--------------|----------------------------|
| Baitan Lake | 404,405 |
| Chiye Lake | 135,000 |
| Total | 539,405 |

- (ii) **Lake embankment, strengthening, and ecological restoration**—constructing 14 km of ecological flood retention embankments with 89 hectare (ha) of vegetated buffer strips, 2.8 km of embankment strengthening in Baitan and Chiye lakes.

| Lake | Embankment strengthening (m ³) | Vegetated buffer strips (m ²) | Aquatic vegetation (m ²) |
|---|---|---|--------------------------------------|
| Baitan Lake embankment and ecological restoration | 9,310 (cement soil mixing pile) 15,000 (concrete retaining wall) | 890,244 | 1,120,000 |
| Chiye Lake ecological restoration | | | 142,800 |
| Total | 24,310 | 890,244 | 1,262,800 |

- (iii) **Surface-flow constructed wetland**—creating 80 ha of surface-flow constructed wetland in Chiye Lake and Chushui River.

- (iv) **Subsurface-flow constructed wetland**—establishing 4 subsurface-flow constructed wetlands with a total area of 3.8 ha and 4 detention basins with a total area of 1.525 ha in Baitan and Chiye lakes.

| Lake | Number of wetland | Subsurface-flow wetland (m ²) | Detention basin (m ²) |
|--------------|-------------------|---|-----------------------------------|
| Baitan Lake | 3 | 33,030 | 13,460 |
| Chiye Lake | 1 | 5,197 | 1,790 |
| Total | 4 | 38,227 | 15,250 |

- (v) **Multiuse nonmotorized pathway and bridges**—constructing 13.3 km of multiuse nonmotorized pathway along the Baitan/Chiye lakeshore and 9 bridges across the rivers.

- (vi) **Sluice gates**—constructing and upgrading 2 sluice gates in Linglong and Jinshui rivers; and

- (vii) **Equipment**—purchasing equipment for waste collection (2 boats).

1b: River enhancement

- (i) **River sediment dredging**—removing 201,000 m³ of nutrient laden sediments from 4 rivers, excavating 343,000 m³ of river bank soil and widening the river course in 7 rivers and re-establish natural hydraulic circulation between lakes and rivers.

| River | Sediment dredging (m³) | Excavation and widening (m³) |
|--------------|--|--|
| Linglong | 51,035 | 62,210 |
| Jinshui | 87,190 | 2,240 |
| Dongtai | 9,295 | 23,113 |
| Qingshui | - | 48,662 |
| Changlang | - | 31,089 |
| Dongchang | - | 158,433 |
| Chushui | 53,482 | 17,714 |
| Total | 201,002 | 343,461 |

- (ii) **Embankment strengthening and ecological restoration**—constructing 21.6 km of ecological embankments with 42.6 ha of vegetated buffer strips, 17.7 ha of aquatic vegetation, and 2.5 km of embankment strengthening in 7 rivers.

| River | Ecological embankment (m) | Embankment strengthening (m³) | Vegetated buffer strip (m²) | Aquatic vegetation (m²) |
|--------------|----------------------------------|---|---|---|
| Linglong | 1,200 | 4,200 | 11,279 | 13,091 |
| Jinshui | 3,460 | 12,250 | 119,436 | 45,170 |
| Dongtai | 3,000 | 10,500 | 74,054 | 21,157 |
| Qingshui | 2,220 | 7,770 | 78,506 | 15,190 |
| Changlang | 2,000 | 7,000 | 24,935 | 8,025 |
| Dongchang | 5,000 | 26,250 | 87,064 | 34,954 |
| Chushui | 4,680 | 16,380 | 31,005 | 39,396 |
| Total | 21,560 | 84,350 | 426,278 | 176,983 |

- (iii) Constructing 3 bridge walkways in Jinshui (1 bridge) and Chushui (2 bridges) rivers.

Output 2: Solid Waste Management

- (i) Constructing a transfer station with 30 ton/day capacity and provision of 260 waste bins around the lakes.
- (ii) Purchasing two vehicles to collect, transport, and compact waste; and
- (iii) Public awareness campaigns on solid waste sorting, reuse, recycling, and safe disposal.

Output 3: Capacity development and institutional strengthening

- (i) Implementation and monitoring support to HMG and Huanggang Urban Construction Investment Company (HUCIC) toward project implementation and monitoring in line with ADB procedures and guidelines; and
- (ii) Institutional strengthening of HMG on wetlands operation and management, water quality monitoring and forecasting including nonpoint source pollution control, and lake ecology and biodiversity.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

| Indicative Activities | 2013 | | | | | | 2014 | | | | | | | | | | | | Who is responsible |
|---|------|---|---|----|----|----|------|---|---|---|---|---|---|---|---|----|----|----|-----------------------------|
| | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | |
| Establish project implementation arrangements | | | | | | | | | | | | | | | | | | | HMG, HPMO, HUCIC |
| Advance contracting actions | | | | | | | | | | | | | | | | | | | HPMO, HUCIC |
| Retroactive financing actions | | | | | | | | | | | | | | | | | | | HPMO, HUCIC |
| Prepare FCUP | | | | | | | | | | | | | | | | | | | HMG, HPDRC |
| Prepare PEOR | | | | | | | | | | | | | | | | | | | HMG, HPFD |
| Review and approval of FCUP and PEOR | | | | | | | | | | | | | | | | | | | MOF, NDRC |
| State Council approval for loan negotiations | | | | | | | | | | | | | | | | | | | MOF, State Council |
| Loan Negotiations | | | | | | | | | | | | | | | | | | | ADB, MOF, HPFD, HMG, HPG |
| ADB Board approval | | | | | | | | | | | | | | | | | | | ADB |
| Loan signing | | | | | | | | | | | | | | | | | | | ADB, MOF |
| Government legal opinion provided | | | | | | | | | | | | | | | | | | | MOF, MOFA, HPDRC, HPFD, HMG |
| Loan effectiveness | | | | | | | | | | | | | | | | | | | ADB, MOF |

ADB = Asian Development Bank, FCUP = Foreign Capital Utilization Plan, HMG = Huanggang municipal government, HPDRC = Hubei Provincial Development and Reform Commission, HPFD = Hubei Provincial Finance Department, HPG = Hubei provincial government, HPMO = Huanggang project management office, HUCIC = Huanggang Urban Construction Investment Company, NDRC = National Development and Reform Commission, MOF = Ministry of Finance, MOFA = Ministry of Foreign Affairs, PEOR = project evaluation opinion report.

B. Overall Project Implementation Plan

| Activities | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | |
|--|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| A. Design and Monitoring Framework | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Urban lake and river enhancement | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a-1. Lake sediment dredging | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Sediment dredging and pre-treatment | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a-2. Lake embankment, strengthening and ecological restoration | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a-3. Wetlands | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a-4. Multiuse nonmotorized pathway and bridges | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1b-1. River sediment dredging, excavation and embankment | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |

| Activities | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | |
|---|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1b-2. Vegetated buffer strips and aquatic planting | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1b-3. Sluice gates | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Equipment installation and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Solid waste collection and transfer system | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| Public awareness campaign and education for solid waste management | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. Capacity development and institutional support | | | | | | | | | | | | | | | | | | | | | | | | |
| Initial project implementation support | | | | | | | | | | | | | | | | | | | | | | | | |
| Project management and consultancy service implementation | | | | | | | | | | | | | | | | | | | | | | | | |
| Conduct training on project implementation, management, and operation and maintenance | | | | | | | | | | | | | | | | | | | | | | | | |
| Water quality model and Xingfu catchment water pollution management plan | | | | | | | | | | | | | | | | | | | | | | | | |
| B. Management Activities | | | | | | | | | | | | | | | | | | | | | | | | |
| Complete EA, IA, and HPMO organizational arrangement | | | | | | | | | | | | | | | | | | | | | | | | |
| Recruit and mobilize implementation support | | | | | | | | | | | | | | | | | | | | | | | | |

| Activities | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | |
|---|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Implementation of monitoring activities (including EMP, GAP, RP, and SAP) | | | | | | | | | | | | | | | | | | | | | | | | |
| Submit progress reports | | | | | | | | | | | | | | | | | | | | | | | | |
| Project completion report | | | | | | | | | | | | | | | | | | | | | | | | |

EA = executing agency, EMP = environmental management plan, GAP = gender action plan, IA = implementing agency, HPMO = Huanggang project management office, RP = resettlement plan, SAP = social action plan.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

| Project Implementation Organizations | Management Roles and Responsibilities |
|--|--|
| Huanggang municipal government (Executing agency) | <ul style="list-style-type: none"> • Overall project implementation, including finance and administration, technical and procurement matters, monitoring and evaluation, and safeguard compliance |
| Project Leading Group | <ul style="list-style-type: none"> • Oversee the preparation and implementation of the project • Provide overall project direction during the project preparation and implementation • Headed by the Executive Vice Mayor of Huanggang, and includes representatives from Huanggang municipal government, Huanggang Development and Reform Commission, finance bureau, land resources bureau, housing and construction commission, water resources bureau, transport bureau, audit bureau, supervision bureau, environmental protection bureau, Huanggang Urban Construction and Investment Company, urban and rural planning bureau, aquatic products bureau, forestry bureau, sanitary bureau, and Huangzhou district government • Meets regularly, discuss and take actions, if necessary, to ensure smooth project implementation |
| Huanggang project management office | <ul style="list-style-type: none"> • On behalf of Huanggang municipal government, manage all implementation works during preparation and implementation • Communicate and coordinate with Asian Development Bank • Coordinate with all involved agencies, departments, and institutes for project implementation • Direct project preparation activities • Submit project implementation progress reports, safeguards monitoring reports, project annual audit reports to Asian Development Bank • Implement capacity development component of the project • Carry out project performance and compliance monitoring • Supervise project procurement including the engagement of the procurement agent • Review and submit bidding documents to Asian Development Bank for necessary approval on bidding documents that are subject to prior review, bid evaluation report, draft contract and other necessary documentation prepared by the Huanggang Urban Construction and Investment Company with support of procurement agent • Appoint all consultants (project start-up consultants and project management and capacity development consulting services) and the external safeguards monitors (environment, and resettlement and social) • Review withdrawal applications and supporting documents |

| Project Implementation Organizations | Management Roles and Responsibilities |
|--|--|
| Hubei Provincial Financial Department | <ul style="list-style-type: none"> • Establish and operate imprest account |
| Huanggang Urban Construction Investment Company (Implementing agency) | <ul style="list-style-type: none"> • Responsible for day-to-day project implementation activities for all infrastructure components • Engage qualified design institutes • Procure works and goods under all infrastructure components, and administer and monitor the contractors and suppliers • Prepare bidding documents, conduct bid opening and bid evaluation, prepare bid evaluation report, and award and sign the contracts with support of procurement agent • Undertake contract management, construction supervision and quality control • Implement land acquisition and resettlement activities • Prepare and update environmental management plan, procurement plan, and other project documents • Monitor and report on project activities and progress to Huanggang project management office • Keep project accounting record • Arrange for the timely provision of counterpart funding |
| Operating Units | <ul style="list-style-type: none"> • Operation and maintenance of the completed project facilities as assigned by Huanggang municipal government |
| Asian Development Bank | <ul style="list-style-type: none"> • Provide support to Huanggang municipal government and Huanggang Urban Construction Investment Company in project administration and in compliance with obligation and responsibilities in accordance with Asian Development Bank policies and procedures • Monitor and review the project progress and impact • Review and approve procurement, contract awards, and other reports • Approve withdrawal applications and disburse loan proceeds |

B. Key Persons Involved in Implementation

Executing Agency

Huanggang municipal government

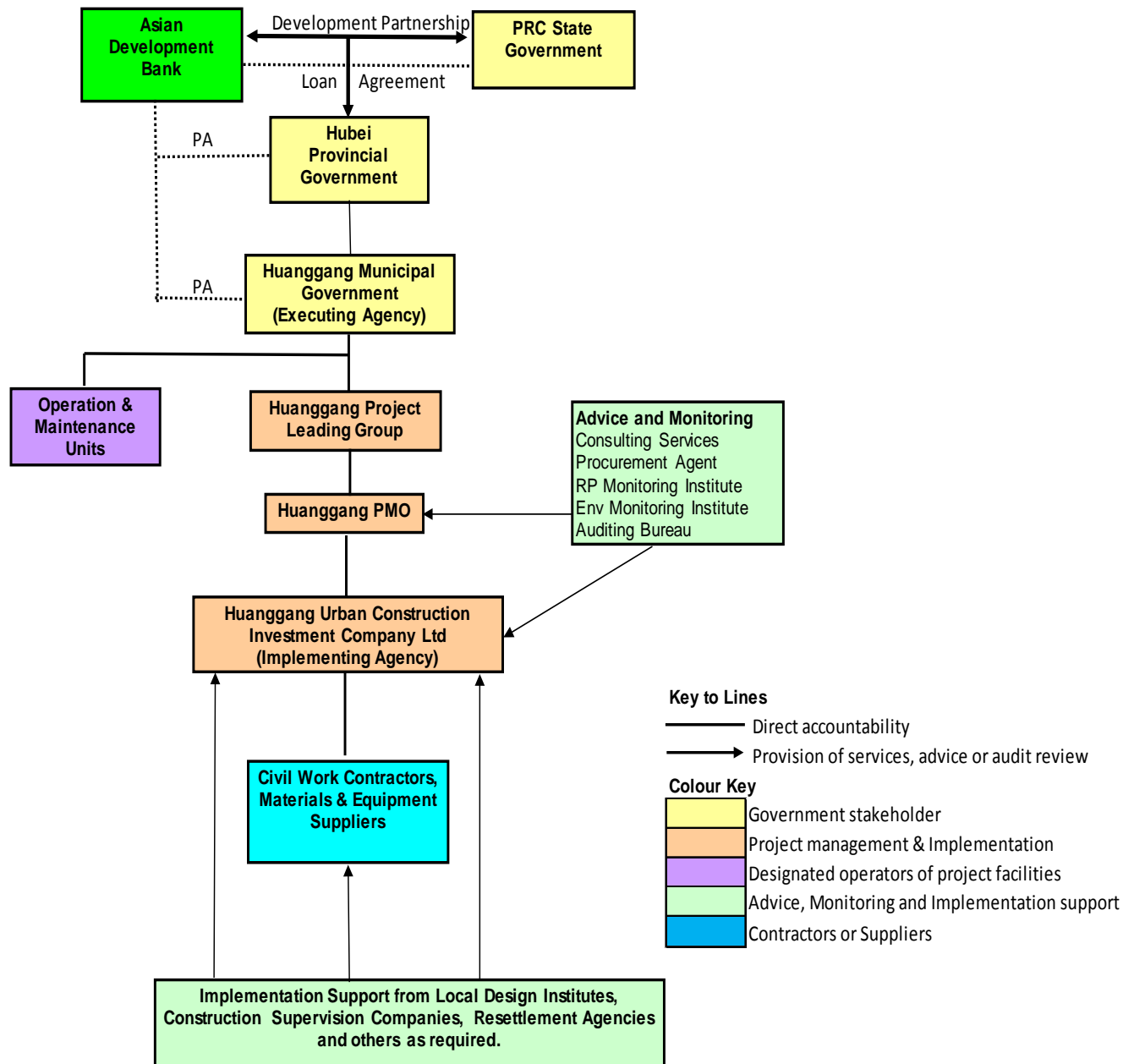
Officer's Name: Mr. Cui Yonghui
Position: Executive Vice Mayor
Telephone: +86 0713 8618 826
Office Address: No.8, Qiyi Road, Huangzhou District
Huanggang 438000, Hubei Province

Officer's Name: Mr. Zhang Xinjia
Position: Deputy Secretary General
Telephone: +86 0713 8618 598
Email address: zhang.xinjia@163.com
Office Address: No.8, Qiyi Road, Huangzhou District
Huanggang 438000, Hubei Province

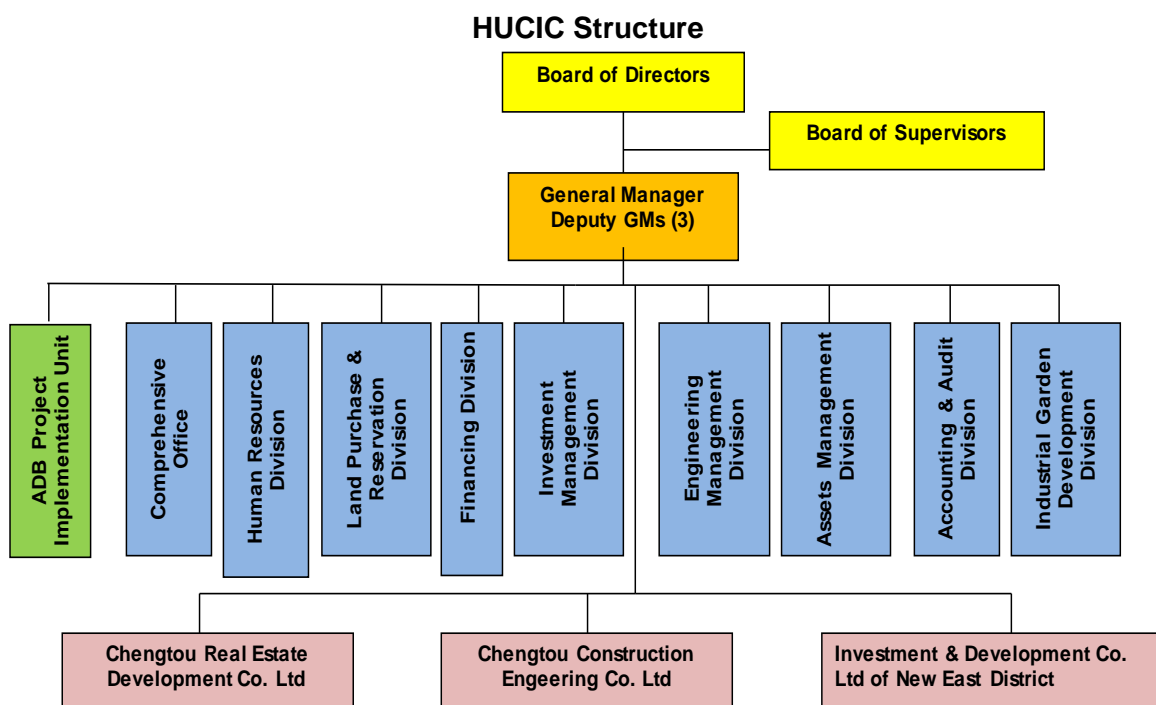
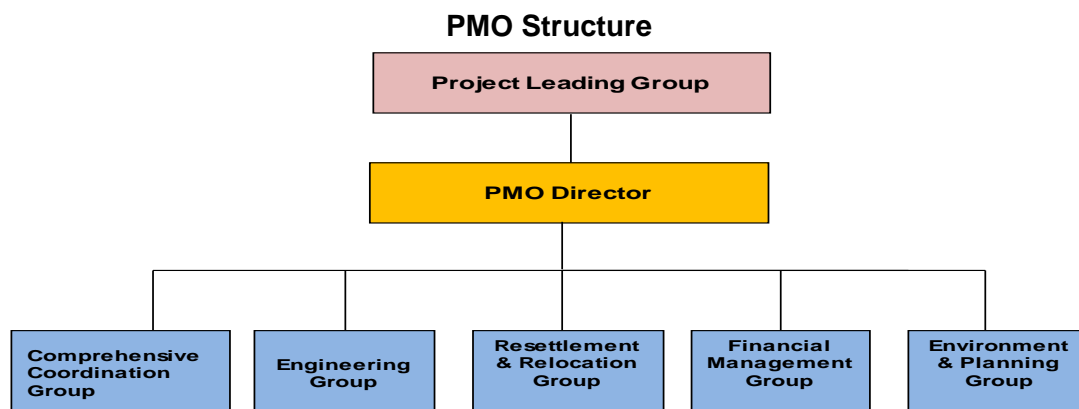
| | |
|--|---|
| | <p>Officer's Name: Mr. Jiang Guanhua Position: Deputy Director of Financial Development and Cooperation Office Telephone:+86 0713 8453 155 Email address: jgh1166@163.com Office Address: No.8, Qiyi Road, Huangzhou District Huanggang 438000, Hubei Province</p> |
| Implementing Agency | |
| Huanggang Urban Construction Investment Company | <p>Officer's Name: Mr. Xu Hongjia Position: Vice President Telephone:+86 0713 8616 558 Email address: xyh970208@163.com Office Address: No.33, Huangzhou Avenue Huanggang 438000, Hubei Province</p> <p>Officer's Name: Mr. Lu Bing Position: Vice President Telephone:+86 0713 8671 635 Email address: 675328688@qq.com Office Address: No.33, Huangzhou Avenue Huanggang 438000, Hubei Province</p> |
| ADB | |
| East Asia Department Urban and Social Sectors Division | <p>Staff Name : Diwesh Sharan Position: Director Telephone No.: +63 2 632 6730 Fax No.: +63 2 636 2407 Email address: dsharan@adb.org</p> |
| Mission Leader | <p>Staff Name: Hinako Maruyama Position: Urban Development Specialist Telephone No.: +63 2 632 4224 Fax No.: +63 2 636 2407 Email address: hinakomaruyama@adb.org</p> |

C. Project Organization Structure

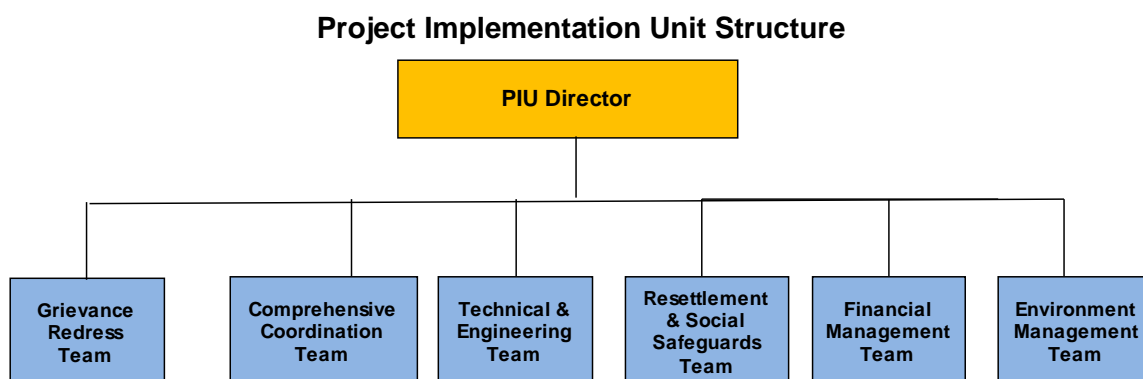
Implementation Overview



PA = Project Agreement (signed jointly by Hubei Province & Huanggang)



Note: The Project Implementation Unit (PIU) is being established as a temporary unit headed by a Deputy GM.



IV. COSTS AND FINANCING

1. The project is estimated to cost \$252.6 million (Table 1). Loan proceeds will be disbursed according to the *Loan Disbursement Handbook* (2012, as amended from time to time) of the Asian Development Bank (ADB), and subject to the provisions of the Loan Agreement.

Table 1: Project Investment Plan
(\$ million)

| Item | Amount ^a |
|---|---------------------|
| A. Base Cost^b | |
| 1. Output 1a: Lake enhancement | 151.5 |
| 2. Output 1b: River enhancement | 44.5 |
| 3. Output 2: Solid waste management | 1.2 |
| 4. Output 3: Capacity development and institutional strengthening | 1.9 |
| Subtotal (A) | 199.0 |
| B. Contingencies^c | 33.9 |
| C. Financing Charges During Implementation^d | 19.6 |
| Total (A+B+C) | 252.6 |

Note: Numbers may not sum precisely because of rounding.

^a Includes taxes and duties of \$6.8 million to be financed from government and Asian Development Bank (ADB) loan resources. The following principles were followed in determining taxes and duties to be financed by ADB: (i) the amount is within reasonable country thresholds and does not represent an excessive share of the project investment plan, (ii) taxes and duties apply only to ADB-financed expenditures, and (iii) the financing of the taxes and duties is relevant to the success of the project. The tax rate on civil works is 3.4% and on equipment 17%.

^b In mid-2013 prices.

^c Physical contingencies computed at 7% of base cost. Price contingencies computed on foreign exchange costs were -1.6% for 2013, 2.3% for 2014, 1.0% for 2015, and 1.4% for 2016–2019. Price contingencies computed on local currency costs are 2.5% for 2013, 2.7% for 2014, and 3.0% for 2014–2019.

^d Includes interest and commitment charges. Interest during construction for the ADB loan has been computed at the 5-year US dollar fixed swap rate plus a spread of 0.50% and a maturity premium of 0.10%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount. Interest during construction for the domestic bank loan has been computed at the domestic rate of 6.55%.

Source: Asian Development Bank estimates.

2. The government has requested a loan of \$100 million from ADB's ordinary capital resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years, a straight-line repayment option, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per year, and such other terms and conditions set forth in the draft loan and project agreements.¹ Based on this, the average loan maturity is 15.25 years and the maturity premium payable to ADB is 0.10% per annum. The loan will finance 39.6% of the project cost, including works, goods, and institutional strengthening. The loan will also finance taxes and duties for eligible ADB-financed expenditures, and transportation and insurance costs. Huanggang municipal government (HMG) will provide counterpart funding equivalent to \$71.3 million from its budget, which will finance 28.2% of the project cost. The implementing agency, Huanggang Urban Construction Investment Company has requested a loan of about \$81.3 million from a domestic bank for the remaining counterpart fund to cover 32.2% of the project cost, and has received a commitment letter from the bank.

¹ The interest and other charges during construction will not be capitalized in the loan and will be financed by HMG.

Table 2: Financing Plan

| Source | Amount (\$ million) | Share of Total (%) |
|-----------------------------------|----------------------------|---------------------------|
| Asian Development Bank | | |
| Ordinary capital resources (loan) | 100.0 | 39.6 |
| Government | | |
| Domestic bank | 81.3 | 32.2 |
| Huanggang municipal government | 71.3 | 28.2 |
| Total | 252.6 | 100.0 |

Source: Asian Development Bank estimates.

3. The People's Republic of China (PRC) is the borrower of the loan. The PRC will relend the entire loan to the Hubei provincial government, which will onlend the loan proceeds to the HMG on the same terms and conditions as those of the ADB loan. As the end-borrower, the HMG will assume foreign exchange and interest rate variation risks for the ADB loan. The PRC, Hubei provincial government, and HMG have assured ADB that counterpart funding and domestic bank loan proceeds will be provided in a timely manner, including any additional counterpart funding required for any shortfall of funds or cost overruns.

A. Detailed Cost Estimates by Expenditure Category

| Item | (CNY million) | | | (\$ million) | | | % of Base Cost |
|---|------------------|----------------|----------------|------------------|----------------|--------------|----------------|
| | Foreign Currency | Local Currency | Total Cost | Foreign Currency | Local Currency | Total Cost | |
| A. Investment cost^a | | | | | | | |
| 1. Civil works | 185.4 | 741.5 | 926.9 | 30.1 | 120.6 | 150.7 | 75.7 |
| a.1. Lake enhancement | 146.2 | 584.8 | 731.0 | 23.8 | 95.1 | 118.9 | 59.7 |
| a.2. River enhancement | 38.2 | 152.8 | 191.0 | 6.2 | 24.8 | 31.1 | 15.6 |
| b. Facility for solid waste management | 1.0 | 3.9 | 4.9 | 0.2 | 0.6 | 0.8 | 0.4 |
| 2. Mechanical and equipment | 7.7 | 5.2 | 12.9 | 1.3 | 0.8 | 2.1 | 1.1 |
| 3. Consulting services and capacity building | 12.0 | 0.0 | 12.0 | 1.9 | 0.0 | 1.9 | 1.0 |
| a. Project management support | 8.1 | 0.0 | 8.1 | 1.3 | 0.0 | 1.3 | 0.7 |
| b. Institutional strengthening | 3.2 | 0.0 | 3.2 | 0.5 | 0.0 | 0.5 | 0.3 |
| c. Solid waste public awareness | 0.6 | 0.0 | 0.6 | 0.1 | 0.0 | 0.1 | 0.1 |
| 4. Land acquisition and resettlement | 0.0 | 165.4 | 165.4 | 0.0 | 26.9 | 26.9 | 13.5 |
| 5. Environmental management | 0.0 | 16.3 | 16.3 | 0.0 | 2.6 | 2.6 | 1.3 |
| 6. Survey, design, and supervision | 0.0 | 90.6 | 90.6 | 0.0 | 14.7 | 14.7 | 7.4 |
| Subtotal (A) | 205.1 | 1,019.0 | 1,224.1 | 33.4 | 165.7 | 199.0 | 100.0 |
| B. Contingencies | | | | | | | |
| 1. Physical | 14.4 | 71.3 | 85.7 | 2.3 | 11.6 | 13.9 | 7.0 |
| 2. Price | 10.5 | 112.2 | 112.7 | 1.7 | 18.2 | 20.0 | 10.0 |
| Subtotal (B) | 24.8 | 183.6 | 208.4 | 4.0 | 29.8 | 33.9 | 17.0 |
| C. Financing charges during implementation | | | | | | | |
| 1. Interest during construction (ADB) | 0.0 | 29.6 | 29.6 | 0.0 | 4.8 | 4.8 | 2.4 |
| 2. Commitment charges | 0.0 | 1.8 | 1.8 | 0.0 | 0.3 | 0.3 | 0.1 |
| 3. Interest during construction (domestic loan) | 0.0 | 89.4 | 89.4 | 0.0 | 14.5 | 14.5 | 7.3 |
| Subtotal (C) | 0.0 | 120.7 | 120.7 | 0.0 | 19.6 | 19.6 | 9.9 |
| Total project cost (A+B+C) | 230.0 | 1,323.3 | 1,553.2 | 37.4 | 215.2 | 252.6 | 126.9 |

Note: Numbers may not sum precisely because of rounding.

^a In mid-2013 prices.

Source: Asian Development Bank estimates.

B. Allocation and Withdrawal of Loan Proceeds

| Category | | | | ADB Financing |
|--------------|--|---|-------------|--|
| Number | Item | Total Amount Allocated for ADB Financing (\$) | | Percentage and basis for withdrawal from loan account ^a |
| | | Category | Subcategory | |
| 1 | Civil works | 95,952,440 | | 63.66% of total expenditure |
| 2 | Equipment and materials ^b | 2,097,560 | | 100% of total expenditure |
| 3 | Capacity development and institutional strengthening | 1,950,000 | | 100% of total expenditure |
| Total | | 100,000,000 | | |

^a Includes taxes and duties.

^b Includes insurance and transportation costs.

C. Detailed Cost Estimates by Financier

| (\$ million) | | | | | | | |
|---|------------------------|--------------------|--------------------------------|--------------------|---------------|--------------------|------------|
| | Asian Development Bank | | Huanggang municipal government | | Domestic bank | | |
| Item | Amount | % of Cost Category | Amount | % of Cost Category | Amount | % of Cost Category | Total Cost |
| A. Investment cost ^a | | | | | | | |
| 1. Civil works | 96.0 | 63.7 | 25.6 | 17.0 | 29.2 | 19.4 | 150.7 |
| a.1. Lake enhancement | 75.7 | 63.7 | 20.2 | 17.0 | 23.1 | 19.4 | 118.9 |
| a.2. River enhancement | 19.8 | 63.7 | 5.3 | 17.0 | 5.9 | 19.4 | 31.1 |
| b. Facility for solid waste management | 0.5 | 63.7 | 0.1 | 17.0 | 0.2 | 19.4 | 0.8 |
| 2. Mechanical and equipment | 2.1 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 |
| 3. Consulting services and capacity building | 1.9 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.9 |
| a. Project management support | 1.3 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 |
| b. Institutional strengthening | 0.5 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 |
| c. Solid waste public awareness | 0.1 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 |
| 4. Land acquisition and resettlement | 0.0 | 0.0 | 26.9 | 100.0 | 0.0 | 0.0 | 26.9 |
| 5. Environmental management | 0.0 | 0.0 | 0.0 | 0.0 | 2.6 | 100.0 | 2.6 |
| 6. Survey, design, and supervision | 0.0 | 0.0 | 0.0 | 0.0 | 14.7 | 100.0 | 14.7 |
| Subtotal (A) | 100.0 | 50.2 | 52.5 | 26.4 | 46.6 | 23.4 | 199.0 |
| B. Contingencies | | | | | | | |
| 1. Physical | 0.0 | 0.0 | 0.0 | 0.0 | 13.9 | 100.0 | 13.9 |
| 2. Price | 0.0 | 0.0 | 0.0 | 0.0 | 20.0 | 100.0 | 20.0 |
| Subtotal (B) | 0.0 | 0.0 | 0.0 | 0.0 | 33.9 | 100.0 | 33.9 |
| C. Financing charges during implementation | | | | | | | |
| 1. Interest during construction (ADB) | 0.0 | 0.0 | 4.0 | 82.3 | 0.9 | 17.7 | 4.8 |
| 2. Commitment charges | 0.0 | 0.0 | 0.3 | 100.0 | 0.0 | 0.0 | 0.3 |
| 3. Interest during construction (domestic loan) | 0.0 | 0.0 | 14.5 | 100.0 | 0.0 | 0.0 | 14.5 |
| Subtotal (C) | 0.0 | 0.0 | 18.8 | 95.7 | 0.9 | 04.3 | 19.6 |
| Total project cost (A+B+C) | 100.0 | 39.6 | 71.3 | 28.2 | 81.3 | 32.2 | 252.6 |

Note: Numbers may not sum precisely because of rounding.

^a In mid-2013 prices.

Source: Asian Development Bank estimates.

D. Detailed Cost Estimates by Outputs/Components

(\$ million)

| Item | Total Cost | Lake enhancement (1a) | | River enhancement (1b) | | Solid waste management (2) | | Consulting services & capacity building (3) | |
|---|--------------|-----------------------|--------------------|------------------------|--------------------|----------------------------|--------------------|---|--------------------|
| | | Amount | % of Cost Category | Amount | % of Cost Category | Amount | % of Cost Category | Amount | % of Cost Category |
| A. Investment cost^a | | | | | | | | | |
| 1. Civil works | 150.7 | 118.9 | 78.9 | 31.1 | 20.6 | 0.8 | 0.5 | 0.0 | 0.0 |
| a.1. Lake enhancement | 118.9 | 118.9 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| a.2. River enhancement | 31.1 | 0.0 | 0.0 | 31.1 | 100.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| b. Facility for solid waste management | 0.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 100.0 | 0.0 | 0.0 |
| 2. Mechanical and equipment | 2.1 | 1.9 | 90.7 | 0.0 | 0.0 | 0.2 | 8.1 | 0.0 | 0.0 |
| 3. Consulting services and capacity building | 1.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 1.8 | 94.9 |
| a. Project management support | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.3 | 100.0 |
| b. Institutional strengthening | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 100.0 |
| c. Solid waste public awareness | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 100.0 | 0.0 | 0.0 |
| 4. Land acquisition and resettlement | 26.9 | 15.5 | 63.3 | 9.9 | 36.7 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5. Environmental management | 2.6 | 2.1 | 79.0 | 0.5 | 20.3 | 0.0 | 1.0 | 0.0 | 0.0 |
| 6. Survey, design, and supervision | 14.7 | 11.6 | 79.0 | 3.0 | 20.3 | 0.1 | 1.0 | 0.0 | 0.0 |
| Subtotal (A) | 199.0 | 151.5 | 76.1 | 44.5 | 22.3 | 1.2 | 0.6 | 1.8 | 0.9 |
| B. Contingencies | | | | | | | | | |
| 1. Physical | 13.9 | 10.6 | 76.1 | 3.1 | 22.3 | 0.1 | 0.6 | 0.1 | 0.9 |
| 2. Price | 20.0 | 15.9 | 79.5 | 3.7 | 18.8 | 0.1 | 0.6 | 0.3 | 1.2 |
| Subtotal (B) | 33.9 | 26.5 | 78.1 | 6.9 | 20.2 | 0.2 | 0.6 | 0.4 | 1.1 |
| C. Financing charges during implementation | | | | | | | | | |
| 1. Interest during construction (ADB) | 4.8 | 3.7 | 77.6 | 0.9 | 19.8 | 0.0 | 0.8 | 0.1 | 1.9 |
| 2. Commitment charges | 0.3 | 0.2 | 77.6 | 0.1 | 19.8 | 0.0 | 0.8 | 0.0 | 1.9 |
| 3. Interest during construction (domestic loan) | 14.5 | 11.4 | 78.5 | 3.0 | 20.4 | 0.1 | 0.6 | 0.1 | 0.5 |
| Subtotal (C) | 19.6 | 15.4 | 78.3 | 4.0 | 20.2 | 0.1 | 0.6 | 0.2 | 0.8 |
| Total project cost (A+B+C) | 252.6 | 193.4 | 76.6 | 55.3 | 21.9 | 1.5 | 0.6 | 2.4 | 0.9 |

Note: Numbers may not sum precisely because of rounding.

^a In mid-2013 prices.

Source: Asian Development Bank estimates.

E. Detailed Cost Estimates by Year

(\$ million)

| Item | Total Cost | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---------------|--------------|--------------|--------------|--------------|--------------|--------------|
| A. Investment cost^a | | | | | | | |
| 1. Civil works | 150.72 | 0.00 | 39.56 | 58.44 | 27.03 | 20.33 | 5.35 |
| a.1. Lake enhancement | 118.87 | 0.00 | 26.98 | 46.60 | 19.61 | 20.33 | 5.35 |
| a.2. River enhancement | 31.06 | 0.00 | 12.27 | 11.55 | 7.24 | 0.00 | 0.00 |
| b. Facility for solid waste management | 0.79 | 0.00 | 0.31 | 0.30 | 0.18 | 0.00 | 0.00 |
| 2. Mechanical and equipment | 2.10 | 0.00 | 0.00 | 1.54 | 0.55 | 0.00 | 0.00 |
| 3. Consulting services and capacity building | 1.95 | 0.00 | 0.35 | 0.34 | 0.34 | 0.59 | 0.33 |
| a. Project management support | 1.33 | 0.00 | 0.24 | 0.23 | 0.23 | 0.40 | 0.22 |
| b. Institutional strengthening | 0.53 | 0.00 | 0.09 | 0.09 | 0.09 | 0.16 | 0.09 |
| c. Solid waste public awareness | 0.10 | 0.00 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| 4. Land acquisition and resettlement | 26.90 | 18.83 | 8.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5. Environmental management | 2.64 | 0.00 | 0.69 | 1.03 | 0.47 | 0.36 | 0.09 |
| 6. Survey, design, and supervision | 14.73 | 0.00 | 3.86 | 5.71 | 2.64 | 1.99 | 0.52 |
| Subtotal (A) | 199.05 | 18.83 | 52.54 | 67.07 | 31.05 | 23.26 | 6.29 |
| B. Contingencies | | | | | | | |
| 1. Physical | 13.93 | 1.32 | 3.68 | 4.69 | 2.17 | 1.63 | 0.44 |
| 2. Price | 19.95 | 0.80 | 3.60 | 6.53 | 4.01 | 3.78 | 1.23 |
| Subtotal (B) | 33.89 | 2.12 | 7.28 | 11.23 | 6.18 | 5.41 | 1.67 |
| C. Financing charges during implementation | | | | | | | |
| 1. Interest during construction (ADB) | 4.81 | 0.00 | 0.10 | 0.61 | 1.26 | 1.80 | 1.03 |
| 2. Commitment charges | 0.29 | 0.00 | 0.11 | 0.11 | 0.06 | 0.02 | 0.00 |
| 3. Interest during construction (domestic loan) | 14.53 | 0.00 | 0.58 | 2.54 | 3.99 | 4.80 | 2.62 |
| Subtotal (C) | 19.63 | 0.00 | 0.79 | 3.26 | 5.31 | 6.62 | 3.65 |
| Total project cost (A+B+C) | 252.56 | 20.95 | 60.61 | 81.56 | 42.54 | 35.28 | 11.61 |
| % Total project cost | 100.00 | 8.30 | 24.00 | 32.29 | 16.84 | 13.97 | 4.60 |

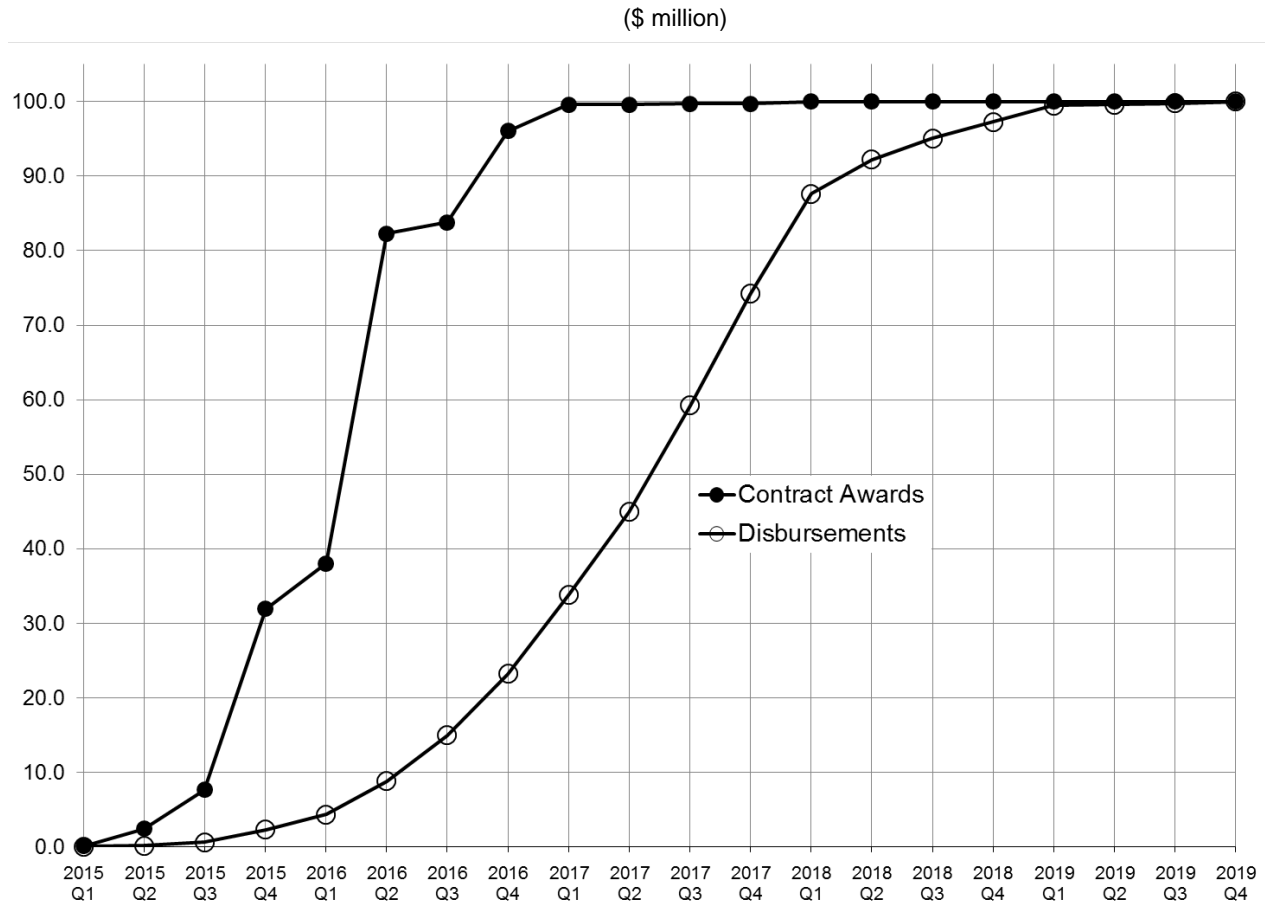
Note: Numbers may not sum precisely because of rounding.

^a In mid-2013 prices.

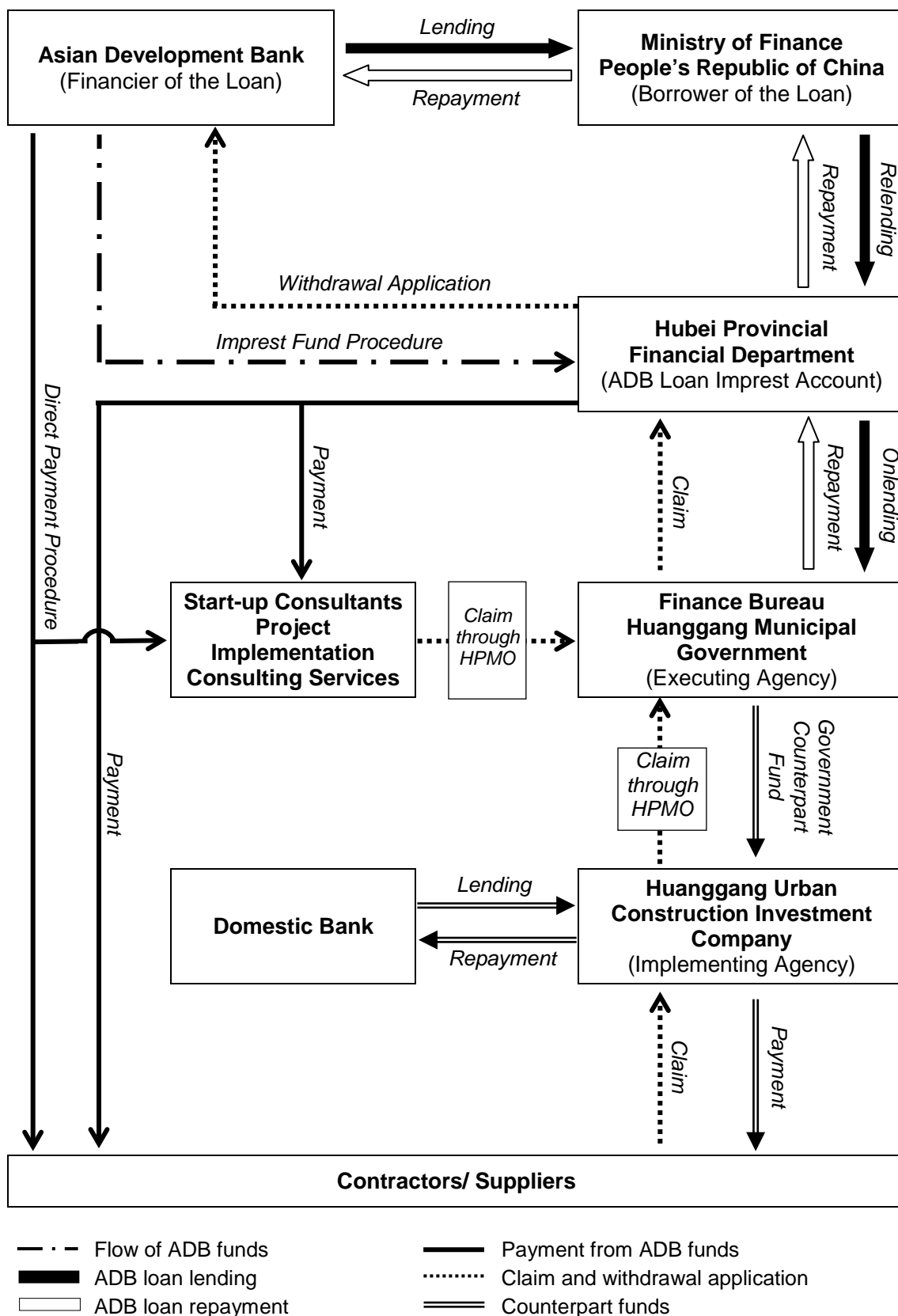
Source: Asian Development Bank estimates.

F. Contract and Disbursement S-curve

| (\$ million) | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
|-----------------|------|------|------|------|------|-------|
| Contract Awards | 31.9 | 64.2 | 3.6 | 0.3 | 0.0 | 100.0 |
| Disbursements | 2.3 | 20.9 | 51.1 | 23.0 | 2.7 | 100.0 |



G. Fund Flow Diagram



V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

1. A financial management assessment has been conducted for the project in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects and Financial Due Diligence—A Methodology Note.¹ The financial management assessment focused on the financial management arrangements of Huanggang Municipal Finance Bureau (HMFB) on behalf of Huanggang municipal government (HMG) as the end borrower of ADB funds, and on Huanggang Urban Construction Investment Company (HUCIC) as the project implementing agency, including funds-flow arrangements, staffing, accounting policies and procedures, internal and external auditing arrangements, reporting and monitoring, and financial information systems. The assessment identified that (i) there are established accounting and financial management policies and procedures in the People's Republic of China (PRC) for exercising financial stewardship of Asian Development Bank (ADB) projects, and (ii) HMG and HUCIC have sound accounting and financial management capability and are experienced in managing large projects. However, the project will be ADB's first loan to Huanggang, which has limited experience in managing multilateral financed projects. The assessment on HMG revealed that there is generally adequate financial management capacity for it to assume its core role in the financial management supervision of the project. The assessment on HUCIC concluded that HUCIC can achieve adequate capacity for financial management in accordance with ADB policies and procedural requirements, if appropriate capacity building support is provided and at least one more suitably qualified financial staff is recruited. Since the Huanggang project management office (HPMO) will only play a supportive role in project financial management, it was not subjected to a financial management assessment. The financial management assessments were documented in the financial analysis.

2. **Risk analysis.** A financial management internal control and risk management assessment were conducted. Risk was assessed as moderate in large part as the assessed agencies were inexperienced in managing multilateral financed projects. A particular weakness of HMFB, HPMO, and HUCIC is their limited understanding of the financial management policies and procedures of ADB. Analysis on risks and proposed mitigation measures are summarized in the Risk Assessment and Risk Management Plan. The mitigation measures (especially training and mentoring) also apply to HPMO where appropriate.

3. **Risk mitigation.** Actions proposed to be undertaken by the HMFB, HPMO, and HUCIC before loan effectiveness include (i) clear definition and description of the responsibilities of all financial staff, (ii) recruiting an additional accountant to strengthen the HUCIC financial department, (iii) the training of financial staff in ADB procedures, and (iv) preparing a financial management procedures manual for the project. Actions proposed to be undertaken during the implementation of the project include (i) close liaison among HMFB, HPMO, HUCIC, and ADB to ensure that ADB guidelines are followed; (ii) regular interagency coordination at all levels to discuss the project implementation progress and performance; (iii) training on ADB's disbursement policies and on the maintenance of project accounts in accordance with the PRC Ministry of Finance guidelines for ADB financed projects; (iv) independent audit of project accounts; (v) preparation of progress reports on project implementation and performance; and (vi) close monitoring of loan covenants and compliance status, including submission of audited project accounts and the annual audit report to ADB.

¹ ADB. 2005. *Financial Management and Analysis of Projects*. Manila; ADB. 2009. *Financial Due Diligence: A Methodology Note*. Manila.

4. **Specific action required.** The assessment indicates that the following actions should be taken in the following areas.

(i) **To be undertaken in advance of loan effectiveness:**

- a. designate HUCIC and HPMO project finance staff,
- b. provide training on ADB disbursement procedures and ADB project accounting and financial reporting requirements,
- c. complete financial policies and procedures manual to be developed by HPMO in order to guide staff activities and ensure staff accountability,
- d. prepare and or revise job descriptions for HPMO and HUCIC project implementing unit (PIU) staff, and
- e. provide external financial management assistance through the project start-up consulting service (see Section VI).

(ii) **To be undertaken during implementation of the proposed project:**

- a. regular coordination between HMG, HUCIC, and ADB to ensure that ADB guidelines are followed;
- b. regular interagency coordination at all levels to be put in place to discuss the performance of the project;
- c. separate accounts to be maintained for all project outputs, whether financed by ADB or the government;
- d. annual project accounts and underlying working papers prepared on a timely basis in preparation for the annual financial statement audit, and these to be audited by a qualified independent auditor or the recognized state audit agency as arranged by the China National Audit Office;
- e. prompt reporting to project stakeholders after the end of each accounting period;
- f. submission of progress reports on project implementation and operation;
- g. compliance with loan covenants monitored, including submission of audited project accounts;
- h. accounting duties to be rotated, whenever feasible; and
- i. an annual training plan to be prepared and implemented for accounting staff that includes training in the following:
 - (i) any revised government financial regulations,
 - (ii) any changes in relevant ADB policies or procedures, and
 - (iii) the management of foreign exchange risk.

B. Disbursement

5. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time), and detailed arrangements agreed upon between the government and ADB.² Pursuant to ADB's Safeguard Policy Statement (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Annex 5 of the ADB's Safeguard Policy Statement (2009).

6. A combination of direct payment, reimbursement, and imprest fund procedures are likely to be used for disbursement of the loan. Responsibilities for different disbursement activities can

² Available at: [http://www.org/Documents/Handbooks/Loan Disbursement/ loan-disbursement-final.pdf](http://www.org/Documents/Handbooks/Loan%20Disbursement/loan-disbursement-final.pdf)

be summarized, as follows: (i) HPMO will submit project level disbursement projections to ADB based on projections prepared by HUCIC; (ii) HUCIC be responsible for arranging counterpart financing or requesting budgetary allocations for counterpart funding, as appropriate; (iii) HUCIC will prepare disbursement claims and collect supporting documents, which will then be passed to HPMO for review and endorsement before onward transmission to HMFB; (iv) HMFB is responsible for initiating payments by Hubei Provincial Financial Department (HPFD); and (v) the HPFD is responsible for sending loan withdrawal applications to ADB to initiate either imprest account replenishment or, where appropriate, to initiate direct payments by ADB to consultants or suppliers.

7. Before the submission of the first withdrawal application, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is \$100,000 equivalent under reimbursement and imprest fund procedures, unless otherwise approved by ADB. Individual payments below this amount should generally be paid from the imprest account or by the executing agency and subsequently claimed to ADB through reimbursement. ADB reserves the right not to accept withdrawal applications below the minimum amount. Withdrawal applications and supporting documents will demonstrate, among other things that the goods, and/or services were produced in or from ADB members, and are eligible for ADB financing.

8. To facilitate project implementation through timely release of loan proceeds, HPFD will establish an imprest account promptly after loan effectiveness at a commercial bank acceptable to ADB.³ The maximum ceiling of the imprest account will not exceed 10% of the loan amount. The imprest account is to be used exclusively for the ADB's share of eligible expenditures. The currency of the imprest account will be US dollars. HPFD, who will establish the imprest account in its name, is accountable and responsible for proper use of advances made to the imprest account. The initial and additional advances to the imprest account may be requested based on 6 months estimated expenditures to be financed through the imprest account. The imprest account will be established, managed, and liquidated in accordance with ADB's Loan Disbursement Handbook and detailed arrangements agreed by the Government and ADB. ADB's Loan Disbursement Handbook describes which supporting documents should be submitted to ADB and which should be retained by the government for liquidation and replenishment the Imprest account.

9. To expedite funds flow and simplify the documentation process, the ADB statement-of-expenditure (SOE) procedure will be used for liquidation and replenishment of the imprest account, and for reimbursement of eligible expenditures not exceeding \$200,000 equivalent per individual payment. The payments in excess of the SOE ceiling will be reimbursed, liquidated, or replenished based on full supporting documentation. SOE records should be maintained and made readily available for review by ADB's disbursement and review mission or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.⁴

10. Counterpart funds mobilized from HUCIC's internal cash will be disbursed to contractors and service providers by HUCIC following its internal approval procedures, which are based on the stipulations of relevant HMG authorities, notably HMFB and Huanggang state and local tax bureaus. After the domestic loan agreement is signed, the domestic bank will disburse the loan

³ The bank charges incurred in the operation of the imprest account may be financed from the loan proceeds.

⁴ Checklists for SOE procedures and formats are available at Appendix B of the Loan Disbursement Handbook.

proceeds to HUCIC, who will disburse payments to contractors, consultants, suppliers, etc., in accordance with the project progress.

C. Accounting

11. The HMG will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project. The HMG will prepare consolidated project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices.⁵

D. Auditing and Public Disclosure

12. The HMG will cause the detailed consolidated project financial statements to be audited in accordance with International Standards on Auditing and with the Government's audit regulations, by an independent auditor acceptable to ADB. The audited project financial statements will be submitted in the English language to ADB within six months of the end of the fiscal year by the HMG.

13. The annual audit report for the project accounts will include an audit management letter and audit opinions which cover (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan and grant proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project; (iv) use of the imprest fund procedure; and (v) the use of the statement of expenditure procedure certifying to the eligibility of those expenditures claimed under SOE procedures, and proper use of the SOE and imprest procedures in accordance with ADB's Loan Disbursement Handbook and the project documents.

14. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

15. The Government and HMG have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.⁶ ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the

⁵ Applicable laws, regulations and guidelines include:

- The Accounting Law of the PRC (2000).
- State-owned Construction Enterprise Accounting Control Regulations.
- Capital Construction Financial Control Regulations.
- Accounting Methods for Projects Financed by the World Bank.

⁶ ADB Policy on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six months, requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.
- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

16. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).⁷ After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

⁷ Available from <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>

VI. PROCUREMENT AND CONSULTING SERVICES

1. **Procurement capacity assessment.** As procurement of goods and works will be undertaken by Huanggang Urban Construction Investment Company (HUCIC), and procurement of consulting services will be undertaken by the Huanggang project management office (HPMO), both were subjected to a procurement capacity assessment. It was identified that this is the first Asian Development Bank (ADB) project for HUCIC and HPMO. For HUCIC, there is a department of three experienced staff and have a 6-year track record of successful domestic procurement. One staff with a 10-year procurement experience has been assigned for HPMO, who will work in collaboration with two staff from project implementation unit of HUCIC for procurement and technical matters at the beginning of the project, which is considered acceptable. A procurement agent, experienced in ADB procurement guidelines and procedures will be appointed to advise both organizations to mitigate resultant risks. In addition to HUCIC and HPMO, Huanggang Bidding Center and the Huanggang Discipline and Inspection office will be involved in bidding process in a fiduciary capacity. The proposed procedures will ensure that procurement will be in full compliance with ADB procedures.

A. Advance Contracting and Retroactive Financing

2. All advance contracting and retroactive financing will be undertaken in conformity with the ADB's Procurement Guidelines (2013, as amended from time to time)¹ and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).² The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The borrower, Huanggang municipal government (HMG), and HUCIC have been advised that: (i) advance contracting includes the advertisement, bidding documents, (not prequalification), evaluation of bids and up to the recommendation of contracts award; and, that all steps will require ADB's no objection; (ii) approval of advance contracting and retroactive financing does not commit ADB to finance the project; and (iii) where advance contracting is approved, ADB's approval must be sought for the draft bidding documents before they are issued and for bid evaluation reports.

3. To expedite project implementation, the government requested ADB to approve advance contracting and retroactive financing of consultant and works packages. Use of retroactive financing of eligible expenditures will be restricted to 20% of the loan amount. When undertaking implementation activities under the ADB retroactive financing facility, it is the responsibility of HMG to ensure that all relevant aspects of the ADB Safeguard Policy Statement (2009) and project specific safeguard plans are fully adhered to.

4. Advance contracting will include (i) tendering and bid evaluation for civil works packages, (ii) preparation of tendering documents for procurement of materials and equipment, and (iii) recruitment of consultants. The issuance of invitations to bid under advance contracting will be subject to ADB approval. Five civil works contracts and six consulting services contracts will be procured through advance contracting. In preparing the bidding documents under the advance contracting arrangement, HMG, via the HPMO must ensure that the provisions of all loan assurances agreed at loan fact-finding (or as modified at loan negotiations) are incorporated in their latest form. These assurances include monitoring and reporting requirements placed on contractors, compliance with labor laws and regulations, specific measures on environmental management plan (EMP), social action plan (SAP), and gender action plan (GAP).

¹ Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>

² Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>

5. HMG was informed that as a general rule, retroactive financing is permitted only if (i) it is specifically agreed by ADB and the borrower; (ii) the goods, works, services, and consultants for which it is requested are procured in accordance with ADB's Procurement Guidelines (2013, as amended from time to time) and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time); (iii) the amount to be retroactively financed does not exceed 20% of the loan amount; and (iv) the expenditures must have been incurred before effectiveness of the relevant loan but, generally, no earlier than 12 months before signing of the Loan Agreement. In either instance, detailed assessments (due diligence) on each retroactive financing proposal must demonstrate that (i) the expenditures incurred are genuine, reasonable, and material to getting the project off the ground; and (ii) they were incurred for proper reasons, in a transparent manner over a reasonable period of time. Retroactive financing will include four consulting service packages in Table 9.

B. Procurement of Goods, Works and Consulting Services

6. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines (2013, as amended from time to time). International competitive bidding (ICB) will be used for civil works contracts estimated to cost \$10 million and above. National competitive bidding (NCB) will be used for civil works contracts estimated to cost over \$100,000 equivalent up to \$10 million. For goods and equipment, ICB will be used for values exceeding \$1 million, while NCB will be used for goods and equipment from over \$100,000 to below \$1 million equivalent. For NCB, the first draft English language of the procurement documents (prequalification, bidding documents, and draft contract) should be submitted for ADB approval regardless of the estimated contract amount. Subsequent procurements are subject to post review. All ICB contracts are subject to prior review and approval of ADB of the procurement documents (bidding, contract) is required.

7. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in **Section C**.

8. All consultants financed by ADB will be recruited according to ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).³ The terms of reference for project implementation consulting service and start-up consulting service are detailed in **Section D**. An estimated 161 person-months (14 international, 147 national) of consulting services are required to (i) facilitate project management and implementation, (ii) provide capacity building and institutional strengthening, and (iii) provide external monitoring.

C. Procurement Plan

Table 1: Basic Data

| | |
|--|---|
| Project Name: Hubei Huanggang Urban Environment Improvement Project | |
| Country: People's Republic of China | Executing Agency: Huanggang municipal government |
| Loan Amount: \$100 million | Loan Number: xxxx |
| Date of First Procurement Plan: 18 December 2013 | Date of this Procurement Plan: 12 August 2014 |

³ Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation/>

1. Process Thresholds, Review and 18-Month Procurement Plan

a. Project Procurement Thresholds

9. Except as ADB may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Table 2: Procurement of Goods and Works

| Method | Threshold |
|--------------------|--|
| ICB for works | ≥ \$10 million or more |
| ICB for goods | ≥ \$1 million or more |
| NCB for works | More than \$100,000 but less than \$10 million |
| NCB for goods | More than 100,000 but less than \$1 million |
| Shopping for works | Below \$100,000 |
| Shopping for goods | Below \$100,000 |

ICB = international competitive bidding, NCB = national competitive bidding.

b. ADB Prior or Post Review

10. Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Table 3: ADB Prior or Post Review

| Table of ADB Prior or Post Review | | |
|---------------------------------------|-------------------|----------------------------|
| Procurement Method | Prior or Post | Comments |
| Procurement of Goods and Works | | |
| ICB Works | Prior | |
| ICB Goods | Prior | |
| NCB Works | Post ^a | |
| NCB Goods | Post ^a | |
| Shopping for Works | Post | |
| Shopping for Goods | Post | |
| Recruitment of Consulting Firms | | |
| QCBS | Prior | Quality- cost ratio: 80:20 |
| CQS | Prior | |
| Recruitment of Individual Consultants | | |
| ICS | Prior | |

CQS = consultants' qualifications selection, ICB = international competitive bidding, ICS = individual consultant selection, NCB = national competitive bidding, QCBS = quality- and cost-based selection.

^a The first batch of national competitive bidding procurement documents for each of these procurement methods should be submitted for ADB's prior review and approval. The subsequent national competitive bidding procurement documents are subject to post review.

Source: Asian Development Bank estimates.

c. Goods and Works Contracts Estimated to Cost More Than \$1 Million

11. The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

Table 4: Goods and Works Contracts Estimated to Cost More Than \$1 Million

| Ref. No. | Description | Contract Value (\$ million) | Procurement Method | Advertisement Date (quarter/year) | ADB Review |
|--------------------|--|--------------------------------|--------------------|--------------------------------------|--------------------|
| Civil Works | | | | | |
| HGH-C1.1 | Chiye Lake dredging | 1.32 | NCB | Q4/2014 | Prior ^a |
| HGH-C1.2 | Baitan Lake dredging | 8.99 | NCB | Q4/2015 | Post |
| HGH-C1.3 | Chiye Lake embankment and strengthening | 8.29 | NCB | Q1/2015 | Post |
| HGH-C1.4 | Baitan Lake embankment and strengthening | 23.23 | ICB | Q1/2015 | Prior |
| HGH-C1.5 | Baitan Lake vegetated buffer strips - North area | 9.59 | NCB | Q3/2015 | Post |
| HGH-C1.6 | Baitan Lake vegetated buffer strips - South and East area | 19.01 | ICB | Q3/2015 | Prior |
| HGH-C1.7 | Surface-flow constructed wetlands (80 ha) and subsurface-flow constructed wetlands (3.8 ha) | 27.56 | ICB | Q3/2015 | Prior |
| HGH-C1.8 | Aquatic planting in Baitan and Chiye lakes | 15.17 | ICB | Q1/2016 | Prior |
| HGQ-C1.9 | Civil works - Linglong and Jinshui rivers | 8.40 | NCB | Q2/2015 | Post |
| HGQ-C1.10 | Civil works - Qingshui, Changlang, Dongtai and Dongchang rivers | 6.43 | NCB | Q2/2015 | Post |
| HGQ-C1.11 | Vegetated buffer strips and Aquatic planting - Jinshui, Linglong, Qingshui, Changlang, Dongtai, and Dongchang rivers | 13.97 | ICB | Q3/2015 | Prior |
| HGQ-C1.12 | Civil works and vegetated buffer strips - Chushui River | 4.05 | NCB | Q2/2016 | Post |
| HGH-C1.13 | Electrical installation | 3.91 | NCB | Q3/2016 | Post |
| Goods | | | | | |
| HGH-M1.1 | Linglong and Jinshui sluice gates | 1.54 | ICB | Q4/2015 | Prior ^b |

ha = hectare, ICB = international competitive bidding, NCB = national competitive bidding, Q = quarter.

^a This contract is scheduled to be the first NCB works contract and therefore subject to prior review.

^b This contract is scheduled to be the first NCB goods contract and therefore subject to prior review.

Source: Asian Development Bank estimates.

d. Consulting Services Contracts Estimated to Cost More Than \$100,000

12. The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

Table 5: Consulting Services Contracts Estimated to Cost More Than \$100,000

| Ref. No. | Description | Contract Value (\$ million) | Procurement Method | Advertisement Date (quarter/year) | Comments |
|----------|--|-----------------------------|--------------------|-----------------------------------|---------------|
| HTA-2.1 | Public awareness campaigns and education for solid waste management | 0.10 | CQS | Q1/2017 | National |
| HTA-3.1 | Project implementation management support | 1.33 | QCBS | Q4/2014 | International |
| HTA-3.2 | External resettlement and social monitoring | 0.10 | CQS | Q4/2014 | National |
| HTA-3.4 | Water quality model and Xingfu catchment water pollution management plan | 0.30 | QCBS | Q3/2017 | International |

CQS = consultants' qualifications selection, Q = quarter, QCBS = quality- and cost-based selection.

Source: Asian Development Bank estimates.

e. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000

13. The following table groups smaller-value goods, works, and consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

Table 6: Smaller Value Goods, Works, and Consulting Services Contracts

| General Description | Value of Contracts (\$ million) (Cumulative) | Number of Contracts | Procurement/ Recruitment Method | Comments |
|---------------------|--|---------------------|---------------------------------|----------|
| Goods | 0.55 | 1 | NCB | |
| Works | 0.79 | 1 | NCB | |
| Consulting Services | 0.12 | 4 | CQS/ICS | |
| Total | 1.46 | 6 | | |

CQS = consultants' qualifications selection, ICS = individual consultant selection, NCB = national competitive bidding.
Source: Asian Development Bank estimates.

2. Indicative List of Packages Required Under the Project

14. The following table provides an indicative list of all procurement (goods, works, and consulting services) over the life of the project. Contracts financed by the Borrower and others should also be indicated, with an appropriate notation in the comments section.

Table 7: Summary of Indicative List of All Contracts

| General Description | Estimated Cumulative Value (\$ million) | Estimated Number of Contracts | Procurement Method | Domestic Preference Applicable | Comments |
|---------------------|---|-------------------------------|--------------------|--------------------------------|----------|
| Works | 98.94 | 5 | ICB | No | |
| | 51.78 | 9 | NCB | No | |
| Goods | 1.54 | 1 | ICB | No | |
| | 0.55 | 1 | NCB | No | |
| Total | 152.81 | 16 | | | |

| General Description | Estimated Cumulative Value (\$ million) | Estimated Number of Contracts | Recruitment Method | Type of Proposal | Comments |
|----------------------------|--|--------------------------------------|---------------------------|-------------------------|-----------------|
| Consulting | 1.88 | 5 | QCBS/CQS | FTP/STP | |
| Service | 0.07 | 3 | ICS | | |
| Total | 1.95 | 8 | | | |

CQS = consultants' qualifications selection, FTP = full technical proposal, ICB = international competitive bidding, ICS = individual consultant selection, NCB = national competitive bidding, QCBS = quality- and cost-based selection, STP = simplified technical proposal.

Source: Asian Development Bank estimates.

Table 8: Detailed Indicative List of All Contracts

| Ref. No. | General Description | Contract Value (\$ million) | Procurement method | Comments |
|----------------------------|---|------------------------------------|---------------------------|-------------------|
| WORKS | | | | |
| HGH-C1.1 | Chiye Lake dredging | 1.32 | NCB | Output 1a |
| HGH-C1.2 | Baitan Lake dredging | 8.99 | NCB | Output 1a |
| HGH-C1.3 | Chiye Lake embankment and strengthening | 8.29 | NCB | Output 1a |
| HGH-C1.4 | Baitan Lake embankment and strengthening | 23.23 | ICB | Output 1a |
| HGH-C1.5 | Baitan Lake vegetated buffer strips-North area | 9.59 | NCB | Output 1a |
| HGH-C1.6 | Baitan Lake vegetated buffer strips-South and East area | 19.01 | ICB | Output 1a |
| HGH-C1.7 | Surface-flow constructed wetlands and subsurface-flow constructed wetlands | 27.56 | ICB | Output 1a |
| HGH-C1.8 | Aquatic planting in Baitan and Chiye lakes | 15.17 | ICB | Output 1a |
| HGQ-C1.9 | Civil works - Linglong and Jinshui rivers | 8.40 | NCB | Output 1b |
| HGQ-C1.10 | Civil works - Qingshui, Changlang, Dongtai and Dongchang rivers | 6.43 | NCB | Output 1b |
| HGQ-C1.11 | Vegetated buffer strips and Aquatic planting - Jinshui, Linglong, Qingshui, Changlang, Dongtai and Dongchang rivers | 13.97 | ICB | Output 1b |
| HGQ-C1.12 | Civil works and vegetated buffer strips - Chushui River | 4.05 | NCB | Output 1b |
| HGH-C1.13 | Electrical installation | 3.91 | NCB | Outputs 1a and 1b |
| HGG-C2.1 | Facilities for solid waste management | 0.79 | NCB | Output 2 |
| GOODS | | | | |
| HGH-M1.1 | Linglong and Jinshui Sluice gates | 1.54 | ICB | Output 1a |
| HGG-M2.2 | Solid waste collection and transfer vehicle and rubbish collection boats | 0.55 | NCB | Outputs 1a and 2 |
| CONSULTING SERVICES | | | | |
| HTA2.1 | Public awareness campaigns and education for solid waste management | 0.10 | CQS | Output 2 |
| HTA 3.1 | Project implementation management support | 1.33 | QCBS | Output 3 |
| HTA 3.2 | External resettlement and social monitoring | 0.10 | CQS | Output 3 |

| Ref. No. | General Description | Contract Value (\$ million) | Procurement method | Comments |
|----------|---|--------------------------------|--------------------|----------|
| HTA 3.3 | External environmental monitoring | 0.05 | CQS | Output 3 |
| HTA 3.4 | Water quality model and Xingfu catchment water pollution management plan | 0.30 | QCBS | Output 3 |
| HTA 3.5 | Initial implementation support - financial management and procurement support | 0.05 | ICS | Output 3 |
| HTA 3.6 | Initial implementation support - engineering design review | 0.02 | ICS | Output 3 |
| HTA 3.7 | Initial implementation support - Resettlement | 0.02 | ICS | Output 3 |

CQS = consultants' qualifications selection, ICB = international competitive bidding, ICS = individual consultant selection, NCB = national competitive bidding, QCBS = quality- and cost-based selection.

Source: Asian Development Bank estimates.

Table 9: Advance Contracting and Retroactive Financing Plan

| No. | Package | Method of procurement | No. of Contract Packages | Cost Estimation (\$ million) | Proposed Date of Tendering (quarter/year) |
|-----------|---|-----------------------|--------------------------|---------------------------------|--|
| HGH-C1.1 | Chiye Lake Dredging ^a | NCB | 1 | 1.32 | Q4/2014 |
| HGH-C1.3 | Chiye Lake - embankment and strengthening ^a | NCB | 1 | 8.29 | Q1/2015 |
| HGH-C1.4 | Baitan Lake - embankment and strengthening ^a | ICB | 1 | 23.23 | Q1/2015 |
| HGQ-C1.9 | Civil works - Linglong and Jinshui rivers ^a | NCB | 1 | 8.40 | Q2/2015 |
| HGQ-C1.10 | Civil works - Qingshui, Changlang, Dongtai and Dongchang rivers ^a | NCB | 1 | 6.43 | Q2/2015 |
| HTA-3.1 | Project implementation management support ^a | QCBS | 1 | 1.33 | Q4/2014 |
| HTA-3.2 | External resettlement and social monitoring ^{a, b} | CQS | 1 | 0.10 | Q4/2014 |
| HTA-3.3 | External environment monitoring ^a | CQS | 1 | 0.05 | Q4/2014 |
| HTA-3.5 | Initial implementation support - Financial Management and procurement support ^{a, b} | ICS | 1 | 0.05 | Q3/2014 |
| HTA-3.6 | Initial implementation support - Engineering design review ^{a, b} | ICS | 1 | 0.02 | Q3/2014 |
| HTA-3.7 | Initial implementation support - Resettlement ^{a, b} | ICS | 1 | 0.02 | Q3/2014 |

CQS = consultants' qualifications selection, ICS = individual consultant selection, NCB = national competitive bidding, Q = quarter, QCBS = quality- and cost-based selection.

^a = Advance contracting.

^b = Retroactive financing.

Source: Asian Development Bank estimates.

3. National Competitive Bidding

15. The Borrower's *Law of Tendering and Bidding of the People's Republic of China* promulgated by Order No. 21 of the President of the People's Republic of China on August 30, 1999, are subject to the following clarifications required for compliance with the Guidelines:

- (i) All invitations to prequalify or to bid shall be advertised in the national press, or official gazette, or a free and open access website in the Borrower's country. Such advertisement shall be made in sufficient time for prospective bidders to obtain prequalification or bidding documents and prepare and submit their responses. In any event, a minimum preparation period of thirty (30) days shall be given. The preparation period shall count (a) from the date of advertisement, or (b) when the documents are available for issue, whichever date is later. The advertisement and the prequalification and bidding documents shall specify the deadline for such submission.
- (ii) Qualification requirements of bidders and the method of evaluating the qualification of each bidder shall be specified in detail in the bidding documents, and in the prequalification documents if the bidding is preceded by a prequalification process.
- (iii) If bidding is preceded by a prequalification process, all bidders that meet the qualification criteria set out in the prequalification document shall be allowed to bid and there shall be no limit on the number of prequalified bidders.
- (iv) All bidders shall be required to provide a performance security in an amount sufficient to protect the Borrower/Project Executing Agency in case of breach of contract by the contractor, and the bidding documents shall specify the required form and amount of such performance security.
- (v) Bidders shall be allowed to submit bids by mail or by hand.
- (vi) All bids shall be opened in public; all bidders shall be afforded an opportunity to be present (either in person or through their representatives) at the time of bid opening, but bidders shall not be required to be present at the bid opening.
- (vii) All bid evaluation criteria shall be disclosed in the bidding documents and quantified in monetary terms or expressed in the form of pass/fail requirements.
- (viii) No bid may be rejected solely on the basis that the bid price falls outside any standard contract estimate, or margin or bracket of average bids established by the Borrower/Project Executing Agency.
- (ix) Each contract shall be awarded to the lowest evaluated responsive bidder, that is, the bidder who meets the appropriate standards of capability and resources and whose bid has been determined (a) to be substantially responsive to the bidding documents, and (b) to offer the lowest evaluated cost. The winning bidder shall not be required, as a condition of award, to undertake responsibilities for work not stipulated in the bidding documents or otherwise to modify the bid as originally submitted.
- (x) Each contract financed with the proceeds of the Loan shall provide that the

suppliers and contractors shall permit ADB, at its request, to inspect their accounts and records relating to the performance of the contract and to have said accounts and records audited by auditors appointed by ADB.

- (xi) Government owned enterprises in the Borrower's country may be permitted to bid if they can establish that they (a) are legally and financially autonomous, (b) operate under commercial law, and (c) are not a dependent agency of the Borrower/Project Executing Agency.
- (xii) Rebidding shall not be allowed solely because the number of bids is less than three (3).

D. Consultant's Terms of Reference

1. Introduction

16. The project will provide 8 consulting services packages to support HPMO, HUCIC, and other concerned agencies involved in providing relevant urban services in project implementation and institutional strengthening capacity development. All consulting firms and individual consultants will be recruited in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). HPMO on behalf of HMG will be responsible for engaging consultants through 3 different selection methods, (i) quality- and cost-based selection (QCBS) with standard quality and cost ratio of 80:20 with one full technical proposal and one simplified technical proposal, (ii) consultants' qualifications selection (CQS), and (iii) individual consultant selection (ICS). Consulting services will be provided in the following areas:

- (i) **Project implementation support.** Project implementation management support will provide project management assistance to HMG, HPMO, and HUCIC to comply with ADB procedural requirements including: (a) project performance management system (PPMS), (b) procurement of contracts, (c) disbursement and contract management, (d) technical support in detailed design, (e) construction planning and monitoring, (f) reporting requirements, (g) safeguard management and monitoring, and (h) financial management. The consultants will also provide capacity development support to HMG, HPMO, HUCIC and other concerned agencies, on: (a) ADB's procedural requirements of procurement, disbursement, safeguards and financial management; and (b) training, organization of study visits, and workshops.
- (ii) **Initial project implementation support.** Initial project implementation support will provide assistance to HMG, HPMO, and HUCIC for timely start-up and implementation of the project in accordance with ADB procedural requirements, and to conduct necessary project implementation monitoring including: (a) initial project management system to ensure smooth execution of the project, (b) engagement of project management and capacity development consulting services, (c) engagement of external resettlement and social, and environmental monitors, (d) preparation and review of bidding document for contracts procured under advance contracting, (e) preparation of necessary reports, and (f) finalization of the resettlement plan according to the detailed engineering design for all project components.
- (iii) **External resettlement and social, and environmental monitoring.** External monitoring support will provide assistance to HMG, HPMO, and HUCIC in monitoring project implementation in compliance with resettlement plan, gender

action plan, social action plan, environmental management plan, and ADB's safeguards policy.

- (iv) **Development of water quality monitoring and forecasting system for Xingfu river and Baitan and Chiye lakes.** A consulting firm will provide support to HMG to develop and implement a lake water quality monitoring, forecasting, and early response system for the Baitan and Chiye lakes. The system will be used to assess the lake water quality profile, optimize operations of water quality control measures (including but not limited to: constructed wetlands for stormwater treatment and hydraulic circulation), and identify meaningful upstream pollution control measures for the Xingfu river basin.

2. Package A - Consulting services for project implementation support

17. Project implementation management support consulting service of estimated 12 person-months of international and 96 person-months of national consultant will be engaged by QCBS method with a standard quality: cost ratio of 80:20 using full technical proposal procedure. The consulting firm will assist HMG, HPMO, and HUCIC to:

- (i) setup institutional framework, operational procedure, document filling system and work plan to guide and facilitate the project implementation;
- (ii) setup PPMS in accordance with ADB requirements, including establishing baseline and operation mechanism for data collection, analysis and reporting;
- (iii) develop comprehensive project implementation plans and procedures for monitoring and controlling overall project and activities;
- (iv) conduct technical review and provide expert comments on engineering detailed design in accordance with the design codes and standards;
- (v) conduct routine site visits and provide technical inputs to construction planning, supervision, and monitoring for quality control of the subproject construction;
- (vi) conduct contract management during the project implementation, including monitoring construction progress, preparing progress reports, reviewing the contractor's claims for payments, coordinating project implementation among contractors and various stakeholders, and coordinating daily operational tasks;
- (vii) provide expert inputs, review, justify contract variation, and prepare necessary documentations in accordance with the Government and ADB requirements, if necessary;
- (viii) review procurement documents including technical specification, bidding documents, bid evaluation procedures, and contract negotiations;
- (ix) establish an efficient and effective financial management system for the project implementation in accordance with ADB policy and procedural requirements;
- (x) review disbursement applications and supporting documents;
- (xi) collect all necessary information, editing, drafting, and submitting ontime the reports required under loan and project covenants;
- (xii) provide guidance on implementation, review and update the EMP, GAP, resettlement plan including labor reemployment plan, SAP,
- (xiii) conduct internal monitoring on the implementation of EMP, GAP, resettlement plan, and SAP on a semiannual basis, and develop sex-disaggregated indicators to measure project impact;
- (xiv) provide expert opinion to ensure effectiveness of the project components' environmental mitigation measures and to enhance package implementation;
- (xv) collect periodic information for PPMS;
- (xvi) prepare necessary information for ADB's loan administration missions including

- loan review, loan midterm review, and loan completion missions;
- (xvii) update project financial status, project cost tables, financing plan and financial and economic analysis, and prepare for safeguard reviews for ADB's loan midterm review;
- (xviii) finalize training plan in consultation with HMG and HPMO;
- (xix) organize and provide training on the skills necessary for construction supervision, project management, and implementation of social and safeguards for ADB requirements;
- (xx) organize and provide training on effective project financial management, procurement procedures, and anticorruption measures;
- (xxi) prepare a project-related operations and maintenance manual for the surface-flow and subsurface-flow constructed wetlands, and provide training to the operators and managers;
- (xxii) review existing information on water birds in and near the project area, conduct a water bird survey during the winter migration period and prior to civil works, and design and implement a five-year water bird survey/monitoring program (2015–2020);
- (xxiii) monitor the progress and capacity of facilities associated/linked to the project, including Nanhu Wastewater Treatment Plant and its associated sewage network expansion, and construction of the Hongqi and the Nanhu pumping stations;
- (xxiv) provide (a) training on prevention and control of transmissible diseases and HIV/AIDS, and community disturbance to contractors; and (b) drug and human trafficking awareness campaign to the local communities;
- (xxv) advise and train contractors, and supervise companies on ADB policy and procedural requirements to ensure their full compliance;
- (xxvi) make recommendations to resolve any issues or problems on implementing the EMP and resettlement plan, and provide advice to HPMO and HUCIC;
- (xxvii) develop and submit the progress reports, including internal social, resettlement, and environmental monitoring reports, to ADB with quality acceptable to ADB during project implementation period; and
- (xxviii) prepare a project completion report within three months of project completion.

3. Package B - Consulting services for initial project implementation support

18. Three individual consultants of estimated 10 person-months of national consultants—a project management and procurement expert for 6 person-months, a water resources engineer of 2 person-months, and a resettlement expert for 2 person-months—will be engaged through ICS for initial project implementation support. The consultants will assist HMG, HPMO, and HUCIC to:

- (i) establish initial project management system including internal procedures of routine data filling and information exchange among HPMO, HUCIC, Hubei Provincial Finance Department, and other HMG agencies for procurement, disbursement, financial management including internal auditing, and required reporting on project progress and safeguards;
- (ii) assist in engagement of consulting services for project implementation management support through QCBS method in accordance with ADB guidelines and procedures;
- (iii) assist in engagement of consulting services for (a) external resettlement and social monitoring, and (b) external environmental monitoring, through CQS method in accordance with ADB guidelines and procedures;
- (iv) collect necessary information for reporting requirement of ADB including,

- progress report, and update of project administration manual during inception mission;
- (v) finalize resettlement plan in revisions arising from census of affected persons, land survey, and/or made by detailed engineering design;
- (vi) collect additional information and/or conduct additional consultation, if necessary, to ensure that the final resettlement plan will be in full compliance with ADB safeguard policy; and
- (vii) provide training on project management, procurement, disbursement, financial management, and safeguards policy and procedures.

4. Package C - Consulting services for external monitoring

19. **Package C1 - External resettlement and social monitor.** An external resettlement and social monitor will be engaged intermittently for the entire duration of project implementation. The consultant firm/institute with estimated total input of 12 person-months of national consultants will be engaged by CQS method. The external resettlement and social monitor will:

- (i) conduct baseline survey of affected persons and regular monitoring to ensure implementation of the resettlement plan, in compliance with ADB's safeguard and other relevant policies;
- (ii) evaluate income restoration and post-resettlement conditions of the affected persons and host communities;
- (iii) pay special attention to vulnerable groups, including women and the poor, to assess whether they have participated and improved their standard of living;
- (iv) monitor and evaluate with focus on the following aspects of the affected persons' situation and the resettlement process: (a) economic situation prior to and after displacement of land or structures, (b) timely disbursement of funds, (c) environmental conditions, (d) social adaptability after resettlement, (e) rehabilitation of vulnerable groups, (f) measures taken to restore affected production and livelihoods of the affected persons, and (g) living conditions and economic status of affected persons following resettlement in comparison to the non-affected household in the project area;
- (v) make recommendations to resolve any issues or problems on implementation of resettlement plan, and provide advice to HPMO and HUCIC;
- (vi) assess whether the project is implementing the gender action plan and social action plan and make recommendations for improvement; and
- (vii) submit English and Chinese external resettlement reports to ADB and HMG with quality acceptable to ADB every 6 months during resettlement implementation of the project and for two years thereafter.

20. **Package C2 - External environment monitor.** An external environment monitor will be engaged intermittently for the entire duration of project implementation. The consultant firm/institute with estimated total input of 6 person-months of national consultants will be engaged by CQS method. The external environment monitor will:

- (i) conduct independent verification of EMP implementation status and environmental monitoring conducted by the Huanggang environmental monitoring station (HEMS), to verify that issues reported in the internal environmental monitoring report and semiannual environmental progress report are in compliance with ADB's safeguard policy statement and PRC policies;
- (ii) make recommendations to resolve any issues or problems on implementing the EMP and provide advice to HPMO and HUCIC;
- (iii) compare the predicted with the actual environmental impacts, assess the

- effectiveness of the mitigation measures, and suggest enhancement measures, as required; and
- (iv) submit external environmental monitoring verification report to ADB and HMG with quality acceptable to ADB on semiannual basis during project implementation period.

5. Package D – Solid waste management public awareness campaign

21. A consulting institute or nongovernmental organization with estimated total inputs of 8 person-months of national inputs will be engaged by CQS method to assist the HPMO, HUCIC, and Huanggang environmental sanitation bureau to design and implement behavior change programs in relation to health seeking behaviors, hygiene and sanitation, and in promoting 3R strategy, source segregation and recycling of waste, through a sustained campaign of information, education, and communication at the local community level.

6. Package E – Development of water quality monitoring and forecasting system for Xingfu river and Baitan and Chiye lakes

22. A consulting firm with estimated 2 person-months of international inputs and 15 person-months of national inputs will be engaged to provide support to HMG over a period of 21 months to develop and implement a lake water quality monitoring, forecasting, and early response system for the Baitan and Chiye lakes. The system will be owned and maintained by the Huanggang Environmental Protection Bureau (HEPB) and will be used to assess the lake water quality profile, optimize operations of water quality control measures (including but not limited to: constructed wetlands for stormwater treatment and hydraulic circulation), and identify meaningful upstream pollution control measures for the Xingfu river basin. Monitoring equipment with automatic data transmission will be purchased, installed, and calibrated for measuring water levels and flows and water quality constituents, such as COD, NH₃-N, TP, and TN. The successful firm will have prior experience and demonstrated expertise in developing lake water quality monitoring and forecasting systems, and developing surface water pollution management plans. The system shall be based on the hydraulic and water quality model developed during project preparatory technical assistance (PPTA). The consulting firm will:

- (i) collect data and characterize the land area surrounding the Lakes (e.g., urban, agriculture, aquaculture industry, etc.), uses of water supporting the surrounding land areas (e.g. agricultural irrigation), and uses of the lake (e.g., fishery, recreation), and organize data using a geographic information system;
- (ii) identify major point and nonpoint sources of water pollution in the Xingfu river catchment, estimate their significance or importance by pollution source, and identify meaningful pollution control measures on the basis of water quality modeling results;
- (iii) develop flow and water quality monitoring data processing;
- (iv) develop (and support HEPB to implement) water flow and quality monitoring system for the Xingfu River catchment and the Baitan and Chiye lakes, including monitoring parameters, monitoring locations, monitoring frequency, monitoring equipment, data processing and analysis; and supervise the installation of the monitoring equipment;
- (v) review the hydraulic and water quality model developed during PPTA, further refine and develop the model for operational uses (including identification, purchase and setup of suitable computer software), and recalibrate the model based on latest monitoring data;
- (vi) carry out modeling exercises under various operational scenarios, including impact analysis of different water pollution control measures for the Xingfu river catchment;

- (vii) develop a forecasting and early-warning system for harmful algae blooms and deterioration of water quality in the lakes;
- (viii) establish links between HEPB, Huanggang Water Resources Bureau, and lake and river basin management authorities elsewhere in the PRC to facilitate exchange of management experiences and knowledge;
- (ix) produce user manuals for the monitoring, modeling, and forecasting system; and
- (x) develop and help implement a training program for technical, field, and management staff of HEPB and Huanggang Water Resources Bureau that includes hands-on training, classroom courses, and a domestic study tour.

7. Inputs and Cost of Consulting Services

23. The consulting service inputs for project management and capacity development are summarized in the following table.

Table 10: Consulting Service Inputs for All Consulting Packages

| Experts inputs | International | National |
|--|----------------------|-----------------|
| A. Project implementation management support | | |
| Team leader/water resources management expert | 7 | |
| Deputy team leader/construction management/PPMS expert | | 36 |
| Wetland experts | 3 | 8 |
| Ornithologist | | 7 |
| Procurement expert | | 9 |
| Solid waste management expert | | 4 |
| Surface water resources management/dredging expert | | 6 |
| Environment expert | 2 | 10 |
| Financial management expert | | 7 |
| Resettlement expert | | 4 |
| Gender and social development expert | | 5 |
| Subtotal | 12 | 96 |
| B. Initial project implementation support | | |
| Project management and procurement expert | | 6 |
| Water resources engineer | | 2 |
| Resettlement expert | | 2 |
| Subtotal | | 10 |
| C1. External resettlement and social monitor | | |
| Resettlement and social expert | | 12 |
| Subtotal | | 12 |
| C2. External environment monitor | | |
| Environment expert | | 6 |
| Subtotal | | 6 |
| D. Solid waste management public awareness campaign | | |
| Solid waste management expert | | 2 |
| Public awareness expert | | 6 |
| Subtotal | | 8 |
| E. Development and demonstration of hydraulic and water quality modelling | | |
| River basin water pollution management expert | 1 | 2 |
| Lake water quality modelling specialist | 1 | 11 |
| Water quality monitoring and laboratory specialist | | 2 |
| Subtotal | 2 | 15 |
| TOTAL | 14 | 147 |

PPMS = project performance management system.

Source: Asian Development Bank estimates.

24. The consulting service budgets for all consulting packages are summarized in the following table.

Table 11: Consulting Service Budget for All Consulting Packages

| Item | Amount (\$000) |
|---|-----------------------|
| A. Project implementation management support | |
| 1. Consultants | |
| a. Remuneration and per diem (incl. fees, international/local travel) | |
| i. International consultants (12 person-months) | 264 |
| ii. National consultants (96 person-months) | 672 |
| b. Reports and communications | 0 |
| 2. Equipment (office equipment and supplies) | 50 |
| 3. Workshops, training, seminars and conferences | 200 |
| 4. Miscellaneous administration and support costs | 29 |
| 5. Contingency | 110 |
| Subtotal | 1,325 |
| B. Initial project implementation support | |
| 1. Consultants | |
| a. Remuneration and per diem (inc. fees, local travel) | |
| i. National consultants (10 person-months) | 70 |
| 2. Miscellaneous administration and support costs | 5 |
| Subtotal | 75 |
| C1. External resettlement and social monitor | |
| 1. Consultants | |
| a. Remuneration and per diem (inc. fees, local travel) | |
| i. National consultants (12 person-months) | 84 |
| b. Reports and communications | 1 |
| 2. Survey and data collection | 10 |
| 3. Miscellaneous administration and supporting costs | 1 |
| 4. Contingency | 4 |
| Subtotal | 100 |
| C2. External environment monitor | |
| 1. Consultants | |
| a. Remuneration and per diem (inc. fees, local travel) | |
| i. National consultants (6 person-months) | 42 |
| b. Reports and communications | 1 |
| 2. Survey and data collection | 2 |
| 3. Miscellaneous administration and supporting costs | 1 |
| 4. Contingency | 4 |
| Subtotal | 50 |
| D. Solid waste management public awareness campaign | |
| 1. Consultants | |
| a. Remuneration and per diem (inc. fees, local travel) | |
| i. National consultants (8 person-months) | 56 |
| b. Reports and communications (publicity materials and distribution) | 15 |
| 3. Workshops, seminars and conferences | 20 |
| 4. Surveys and data collection | 9 |
| 5. Miscellaneous administration and support costs | 0 |
| 6. Contingencies | 0 |
| Subtotal | 100 |

E. Development of operational lake water quality model and water pollution management plan for the Xingfu river catchment

| | |
|--|--------------|
| 1. Consultants | |
| a. Remuneration and per diem (inc. fees, international/local travel) | |
| i. International consultants (2 person-months) | 48 |
| ii. National consultants (15 person-months) | 105 |
| b. Reports and communications | 0 |
| 2. Survey and data collection | 50 |
| 3. Equipment | 87 |
| 4. Miscellaneous administration and support costs | 10 |
| 5. Contingencies | 0 |
| Subtotal | 300 |
| Total | 1,950 |

9. Indicative Training Program

25. The following training will be delivered or organized by the project implementation consulting service during the course of project implementation.

Table 12: Indicative Training Program

| Training program | Scope of Training | Trainer | Trainee |
|--|---|----------------|-------------------------|
| ADB's disbursement procedure and financial management (inc. financial audit) | <ul style="list-style-type: none"> - ADB loan disbursement procedure - Role and responsibility of each stakeholders - Monitoring of fund flow and utilization of loan proceeds - Risk of delay in disbursement | SCS, PIC | HMG, HUCIC |
| Organizational financial management and financial audit system | <ul style="list-style-type: none"> - Basic financial management of the project and project implementing entity (e.g., HMG, HUCIC) - Annual financial audit and its preparation for domestic and ADB requirement | PIC | HMG, HUCIC, Contractors |
| Procurement and contract management | <ul style="list-style-type: none"> - ADB's procurement process - Bidding document preparation - ADB's guideline for bid evaluation - Risk of improper procurement and mitigation measures - Handling variation orders and contract management | SCS, PIC | HMG, HUCIC |
| Corruption risks in project implementation and anticorruption measures | <ul style="list-style-type: none"> - Definition and type of corruption - Risk of corruption under the project implementation - Mitigation measures - Institutional framework and anticorruption mechanisms - Case studies and international best practices | PIC | HMG, HUCIC |

| Training program | Scope of Training | Trainer | Trainee |
|--|--|---|--|
| Operation and maintenance of constructed wetlands, wildlife habitat protection and monitoring | <ul style="list-style-type: none"> - Design of wetlands for storm water treatment - Management of ecological processes and habitat protection in wetlands - Basic facility operation and maintenance of stormwater treatment wetlands - Routine maintenance and monitoring - integrated insect management and pest control - Migratory bird monitoring | PIC | HEPB, HLB, HUCIC |
| Water quality monitoring, modeling and forecasting for Xingfu river and Baitan and Chiye lakes | <ul style="list-style-type: none"> - Lake modeling (hydraulic and water quality principles) - Eutrophication analysis - Point- and non-point source pollution assessment - Definition of responsibilities for model operation and maintenance - Training on model calibration, data acquisition, model update, result interpretation - Public information, response system | Consultants for lake water quality modeling | HEMS, HEPB, HMG, HWB |
| Implementation of EMP and other ADB environment safeguards requirements | <ul style="list-style-type: none"> - Environmental laws, regulations and policies - EMP implementation, including implementation responsibilities, environmental monitoring, inspection and reporting, consultation and participation, mechanism of EMP review, feedback and adjustment - GRM, including GRM structure, responsibilities and timeframe, types of grievances, eligibility assessment - EHS considerations during project construction and operation, including community and occupational health and safety | PIC | Contractors, GRM access points, HEMS, HEPB, HESB, HLB, HMG, HUCIC, HWB |
| Implementation of resettlement plans, and other ADB requirements | <ul style="list-style-type: none"> - Establishing effective monitoring and inspection and the information flow mechanism - Key indicators and methodology of data collection - Progress of resettlement plans - GRM structure, responsibilities, timeframe - Types of grievances, eligibility assessment | SCS, PIC | HMG, HUCIC, land resources bureau, other related local bureaus (e.g., cultural relics bureaus), GRM access point HMWF, bureau |

| Training program | Scope of Training | Trainer | Trainee |
|--|---|---------|---|
| | <ul style="list-style-type: none"> - Reporting procedures - Communication with the public by different means (innovative community-based advocacy campaigns) | | responsible for advocacy campaigns |
| Implementation of GAP, SAP, and other ADB requirements | <ul style="list-style-type: none"> - Establishing effective monitoring and inspection and the information flow mechanism - Key indicators and methodology of data collection - GAP and SAP improvement and reporting - Gender development - GRM structure, responsibilities, timeframe - Types of grievances, eligibility assessment - Reporting procedures - Communication with the public by different means (Innovative community-based advocacy campaigns) - Prevention and control of transmissible diseases and HIV/AIDS | PMC | <p>HMG, HUCIC, other related local bureaus (e.g., cultural relics bureaus), GRM access point</p> <p>HMWF, bureau responsible for advocacy campaigns</p> |

ADB = Asian Development Bank, EHS = environment health and safety, EMP = environment management plan, GAP = gender action plan, GRM = grievance redress mechanism, HEMS = Huanggang environmental monitoring stations, HEPB = Huanggang Environmental Protection Bureau; HESB = Huanggang environmental sanitation bureau; HLB = Huanggang landscaping bureau; HMG = Huanggang municipal government, HMWF = Huanggang municipal women's federation, HUCIC = Huanggang Urban Construction Investment Company; HWRB = Huanggang Water Resources Bureau; PIC = project implementation consultants, SAP = social action plan, SCS = start-up consulting service.

E. Procurement Guidelines and Resources

Procurement Guidelines

<http://www.adb.org/Documents/Guidelines/Procurement/default.asp>

Procurement Guidelines (in Chinese)

<http://www.adb.org/Documents/Translations/Chinese/Guidelines-Procurement-CN.pdf>

Guidelines on Use of Consultants by ADB and Its Borrowers

<http://www.adb.org/Documents/Guidelines/Consulting/default.asp>

Consulting Services Recruitment Notice:

<http://csr.adb.org>

<http://csr.adb.org:8080/csr/login.jsp>

Templates for engagement of consultants: (including submission templates)

<http://www.adb.org/Consulting/loan-rfp.asp>

Harmonized RFP (Loans)

<http://www.adb.org/Consulting/all-methods-loan.asp>

Sample Individual consultant contract
<http://www.adb.org/Consulting/ICS-Contract-Loan.pdf>

Consulting Services Operations Manual
<http://www.adb.org/Documents/Manuals/Consulting-Services-Operations-Manual/CSOM.pdf>

Toolkits and Templates for Consultants:
<http://www.adb.org/Consulting/toolkit-template.asp>

Procurement Documents:
<http://www.adb.org/Procurement/prequalification-bid-documents.asp>

User's Guide (Procurement of Goods)
http://www.adb.org/Documents/Manuals/Bidding_Documents/Goods/SBD-Goods-Users-Guide.pdf

User's Guide (Small Civil Works - below 10 M In USD)
http://www.adb.org/Documents/Manuals/bidding_documents/prequalification/SBDWorks-sml-UserGuide.pdf

Guide on Bid Evaluation
<http://www.adb.org/site/business-opportunities/operational-procurement/goods-services/documents/guide-bid-evaluation>

Procurement Plans
<http://www.adb.org/Projects/reports.asp?key=reprs&val=PP>

Electronic Procurement
<http://www.mdbegp.org/www/eGPInteractiveus/tabid/69/language/en-US/Default.aspx>

E-GP (Electronic Government Procurement) Toolkit
<http://www.mdbegp.org/www/eGPToolkitus/tabid/67/language/en-US/Default.aspx>

Project Administration Instructions
<http://www.adb.org/Documents/Manuals/PAI/default.asp>

E-Handbook on Project Implementation
<http://www.adb.org/Documents/handbooks/project-implementation/default.asp?p=proj>

Anticorruption and Integrity
<http://www.adb.org/Integrity/default.asp>

How to report fraud and corruption
<http://www.adb.org/Integrity/howto.asp>

VII. SAFEGUARDS

A. Environment

1. The project classification for environment is category A, triggered by the lake and river enhancement component with required significant earthwork and sediment dredging. A consolidated project environmental impact assessment (EIA) report and an environmental management plan (EMP) were prepared, following ADB's Safeguard Policy Statement (2009). The draft EIA including EMP was endorsed by Huanggang municipal government, posted on the ADB website on 20 January 2014, and circulated to ADB's Board of Directors. The project EIA is consistent with, and consolidates the findings of the Plan EIA prepared for Baitan Lake Planning Area of New Eastern District (NED) and the domestic environmental assessment report for the project, approved in January 2014 by Huanggang Environmental Protection Bureau; the Water and Soil Conservation Plan, approved by Hubei province water resources bureau in December 2013; and the feasibility study report (including energy efficiency assessment), approved by Hubei province development and reform committee in February 2014.

2. **Environment benefits.** The project is expected to generate significant environmental benefits: (i) approximately 1,920 tons of total nitrogen and 486 tons of total phosphorus will be removed from the Baitan and Chiye lakes through dredging and disposal of 0.74 million cubic meters of sediment; (ii) treatment of wetlands will remove an estimated 49 tons of total nitrogen, 1.1 tons of total phosphorus, and 171 tons of chemical oxygen demand each year; and (iii) the wetlands constructed under the project will provide resting, nesting, feeding and breeding, habitats for wildlife, and promoting biodiversity in the lakes.

3. **Environment impacts and environment management plan.** Possible adverse environmental impacts and risks include: (i) dust, noise, air, water pollution, earthwork, suspended solids released from stirred up sediments, and risks to occupational and community health and safety, during construction; (ii) noise and odor impacts from solid waste transfer station and associated pump stations, fish migration impacts from the operation of the sluice gates,¹ and water diversion impact on Ba River flow, during operation. All impacts are expected to be prevented or minimized to an acceptable level through effective implementation of the EMP. Huanggang project management office (HPMO) and Huanggang Urban Construction Investment Company (HUCIC) will assume overall responsibility for implementing, supervising, monitoring and reporting on the EMP. Their capacity to implement the EMP, as well as the capacity of operation and maintenance (O&M) agencies to manage project facilities, will be strengthened through capacity building and training activities defined in this project administration manual. HPMO and HUCIC will appoint fulltime staff to coordinate and monitor EMP implementation. These will be supported by environment management and wetland management specialists, and ornithologists in the project implementation consultants. HPMO will also hire an external environment monitor to conduct independent verification of the project's environment performance and compliance with the EMP. The responsibilities for environmental management and supervision during the various stages of implementation of the project are defined in the EMP. The EMP will be updated as needed following detailed design and in response to any subsequent changes in the project. Any revisions of EMP will be disclosed in compliance with Public Communications Policy (2011).

¹ Two sluice gates will be constructed to prevent the backflow of Santai River water into the Baitan Lake when Santai River water level is higher than that of Baitan Lake.

4. **Consultation, information disclosure, and grievance redress mechanism.** Meaningful consultation was conducted with affected persons and stakeholders during EIA preparation. The EMP defines a grievance redress mechanism (GRM), which has been discussed and agreed upon with HPMO and HUCIC, and disclosed to affected persons. HMG disclosed relevant environmental information to affected people, and the results and findings of the consultation were taken into account in the environmental impact assessment and project design.

B. Involuntary Resettlement

5. Project classification for involuntary resettlement is category A. Based on the extent of the impact on land acquisition and resettlement, HMG prepared a resettlement plan for the whole project. For the lake enhancement activities, land is already acquired at Baitan Lake Fish Farm, and as such a due diligence report (DDR) was also prepared to ensure that there are no outstanding land acquisition and resettlement issues. In addition, resettlement impacts for four associated facilities related to the project were identified and presented in the DDR. These are Hongqi pumping station, Nanhu pumping station, Xinqiao landfill closing project, and the eastern district sewer and rainwater separation project.

6. Based on the preliminary impact survey, the project will affect eight villages or communities in the project area.² A total of 9,477.7 *mu* of land will be occupied permanently, including 798.6 *mu* of collective land and 8,679.1 *mu* of state-owned land; 77.5 *mu* of land will be occupied temporarily; a total of 4,736.5 square meters (m^2) of residential housing and 11,038 m^2 of nonresidential building will be demolished.³ Total affected entities are: 318 households/entities/ stores with 1,140 persons physically displaced, and 42 households with 184 persons temporarily affected, totaling to 360 households/entities/stores with 1,324 persons will be affected, in which 129 households with 408 persons will be affected by land acquisition of collective land, 187 households with 727 persons will be affected by land occupation of state-owned land, 22 households with 79 persons will be affected by residential house demolition (also affected by land acquisition), and 2 entities with 5 persons will be affected by nonresidential building demolition. In addition, 19 households with 38 persons affected by the project are identified as vulnerable groups. Table 1 summarizes the project impacts. A resettlement implementation schedule is provided in Table 2.

7. Compensation for permanent land loss is based on the Land Administration Law of the People's Republic of China (PRC) (2004), the State Council Decision to Deepen Reform and Strictly Enforce Land Administration (Document 28 dated November 2004) and Notice of the Hubei Provincial Government on Publishing the Uniform Average Annual Output Values and Location-based Land Prices for Land Acquisition of Hubei Province (HPG [2009] No.46). In addition, HMG has also issued related regulations. All these policies have provided essential guidelines for resettlement plan preparation. The project resettlement plan complies with all relevant PRC laws and regulations and ADB's Safeguard Policy Statement (2009).

8. **Livelihood restoration.** Compensation for permanent land acquisition or occupation includes land compensation fees, resettlement subsidies and young crop compensation fees. In addition to cash compensation, diversified livelihood restoration measures will be available to

² An updated census/detailed measurement survey will be conducted once detailed project design is finalized. If there are any changes, the relevant resettlement plan will also be updated prior to award of civil works.

³ A *mu* is a Chinese unit of measurement (1 *mu* = 666.7 m^2).

the population affected by land acquisition, including crop restructuring, land and store replacement, nonagricultural employment, skills training and social security. Demolished residential houses will be subject to either cash compensation or property swap. In case of property swap, each registered member of an affected household will receive a building area of 40 m², and up to 60 m² for those widowed and destitute. The difference between the purchase price of resettlement housing and the compensation for the acquired house will be settled between the affected household and demolisher. Each affected person will also receive a commercial space of 10 m². Demolished non-residential properties will be compensated for in cash at the time at rates not less than the benchmark rates. HPMO will assist the Shanhu Breeding Base to continue their business on re-leased land around the project area, and grant an equipment moving subsidy of CNY500 per time per business entity. The special facilities affected by the project will be restored by their proprietors with compensation, or by the project owner to the former standard and size. Other ground attachments will be compensated for as specified in the resettlement plan.

9. **Implementation arrangements.** HPMO and HUCIC (as implementing agency) will have fulltime staff responsible for land acquisition and resettlement. The staff will take lead responsibility for coordinating the planning, implementation, financing, and monitoring of land acquisition and resettlement. They will work closely with relevant village and community officials, land resource bureaus and house demolition offices, and will be responsible for supervising and monitoring resettlement (e.g., delivery of entitlements, selection of new replacement housing, restoration of incomes, provision of replacement land, and other economic measures). A training program will be organized for the resettlement officers. The resettlement plans will be finalized based on final design and detailed measurement survey and sent to ADB for review and approval prior to commencement of land acquisition, house demolition, and award of civil works contracts. All compensation and resettlement assistance will be paid to affected households prior to commencement of construction activities. Land acquisition and house demolition will commence from June 2014.

10. The cost estimate for land acquisition and resettlement for all the subcomponents is equivalent to CNY165.4 million or \$26.9 million equivalent at June 2013 prices, including contingencies. Land acquisition and demolition activities will be completed prior to the physical construction of the relevant subproject. HMG and HUCIC will ensure that sufficient funds are made available in a timely manner.

Table 1: Summary Resettlement Impacts

| Component Name | | | | Lake rehabilitation | Half-Natural Strengthened Wetland | Multise nonmotorized pathway | Linglong Bay | Dongchang River | DongTai River | Jinshui River | Chushui River | Qingshui River | Canglang River | Channel Greening | lake greening | Dewater and consolidation Filed | Total | | |
|---|---------------------------------|---------------------------|------------|---------------------|-----------------------------------|------------------------------|--------------|-----------------|---------------|---------------|---------------|----------------|----------------|------------------|---------------|---------------------------------|----------|---------|---------|
| Permanent land occupation (<i>mu</i>) | | | | Total | 5,035.5 | 1,200.3 | 201.2 | 100.5 | 48.2 | 64.1 | 121.7 | 241.5 | 73.8 | 14.3 | 610.9 | 1,765.7 | | 9,477.7 | |
| | | | | -collective land | | 568.1 | 111.1 | 100.5 | | | 18.9 | | | | | | | | 798.6 |
| | | | | -state-owned land | 5,035.5 | 632.2 | 90.1 | 0 | 48.2 | 64.1 | 102.8 | 241.5 | 73.8 | 14.3 | 610.9 | 1,765.7 | | | 8,679.1 |
| Temporary land occupation (<i>mu</i>) | | | | | | | | | | | | | | | | 77.5 | 77.5 | | |
| Demolition of residential houses (m ²) | | | | | 4,736.5 | | | | | | | | | | | | 4,736.5 | | |
| Demolition of non-residential house (m ²) | | | | | 465 | | | | | | | | | 1,0573 | | | 11,038.0 | | |
| Affected population | Permanently affected population | LA of collective land | HHs | 0 | 53 | 49 | 22 | | | 5 | | | | | | | 129 | | |
| | | | Population | 0 | 170 | 127 | 100 | | | 11 | | | | | | | 408 | | |
| | | LA of state owned land | HHs | 0 | 0 | | | 13 | 5 | 25 | 23 | | 10 | 111 | | | 187 | | |
| | | | Population | 0 | 0 | | | 49 | 16 | 107 | 85 | | 50 | 420 | | | 727 | | |
| | | HD on collective land | HHs | | 22 | | | | | | | | | | | | 22 | | |
| | | | Population | | 79 | | | | | | | | | | | | 79 | | |
| | | Both LA and HD | HHs | | 22 | | | | | | | | | | | | 22 | | |
| | | | Population | | 79 | | | | | | | | | | | | 79 | | |
| | | Entities / stores | HHs | | 2 | | | | | | | | | | | | 2 | | |
| | | | Population | | 5 | | | | | | | | | | | | 5 | | |
| | | Subtotal | HHs | 0 | 55 | 49 | 22 | 13 | 5 | 30 | 23 | 0 | 10 | 111 | 0 | 0 | 318 | | |
| | | | Population | 0 | 175 | 127 | 100 | 49 | 16 | 118 | 85 | 0 | 50 | 420 | 0 | 0 | 1,140 | | |
| | Temporarily affected population | Temporary land occupation | HHs | | | | | | | | | | | | | 42 | 42 | | |
| | | | Population | | | | | | | | | | | | | 184 | 184 | | |
| | Total | | | HHs | 0 | 55 | 49 | 22 | 13 | 5 | 30 | 23 | 0 | 10 | 111 | 0 | 42 | 360 | |
| | | | | Population | 0 | 175 | 127 | 100 | 49 | 16 | 118 | 85 | 0 | 50 | 420 | 0 | 184 | 1,324 | |

HD = house demolition, HH = household, LA = land acquisition, m² = square meter, *mu* = a Chinese unit of measurement (1 *mu* = 666.7 m²).

Table 2: Resettlement Implementation Schedule

| No. | Task | Participants | Responsible Agency | Timeline | Remarks |
|----------|--|------------------------|--|----------------------------|---------|
| 1 | Information disclosure | | | | |
| 1.1 | RIB | Nanhu Farm, Lukou Town | HPMO, Resettlement office | March 2014 | |
| 1.2 | Disclosure of the RP on ADB's website | | HPMO, Resettlement office | March 2014 | |
| 2 | RP and budget | | | | |
| 2.1 | RP and budget approval (compensation rates) | CNY183.8279 million | HPMO, Resettlement office | February 2014 | |
| 2.2 | DMS | Nanhu Farm, Lukou Town | Resettlement Office | March 2014 | |
| 2.3 | RP updating after detailed design | Nanhu Farm, Lukou Town | IA and HPMO | April 2014 | |
| 3 | LA announcement | | | | |
| 3.1 | Disclosure of the final RP | Nanhu Farm, Lukou Town | IA and HPMO | March 2014 | |
| 3.2 | Release of the LA announcement | Nanhu Farm, Lukou Town | HMG | May 2014 | |
| 4 | Compensation agreement | | | | |
| 4.1 | LA and HD compensation agreement | Nanhu Farm, Lukou Town | Resettlement Office | June–July 2014 | |
| 5 | Resettlement | | | | |
| 5.1 | Selection of resettlement housing | 22 AHs | Municipal government, Nanhu Farm, AHs | July–August 2014 | |
| 5.2 | HD | 22 AHs | AHs | September–October 2014 | |
| 5.3 | Construction of resettlement housing | 22 AHs | Huanggang Urban Construction Investment Co., Ltd. | August 2013–January 2015 | |
| 5.4 | Moving into new housing | 22 AHs | AHs | June 2015 | |
| 6 | Livelihood restoration measures | | | | |
| 6.1 | Payment of compensation for young crops and attachments | Nanhu Farm, Lukou Town | Nanhu Farm | July 2014 | |
| 6.3 | Implementation of restoration programs | Nanhu Farm, Lukou Town | Nanhu Farm | 2014–2015 | |
| 6.4 | Implementation of training programs | Nanhu Farm, Lukou Town | Labor and social security bureau | June 2014–June 2015 | |
| 6.5 | Implementing assistance measures for vulnerable AHs | Nanhu Farm, Lukou Town | Civil affairs bureau, HPMO | 2014–2015 | |
| 6.6 | Identifying and hiring households for employment under the project | Nanhu Farm, Lukou Town | HPMO, labor and social security bureau, contractor | January 2015–December 2019 | |
| 7 | Capacity building of resettlement agencies | | | | |
| 7.1 | Training of HPMO staff | 15 person-times | HPMO | April 2014 | |
| 7.2 | Training of township officials | 50 person-times | HPMO, Resettlement Office | April–May 2014 | |
| 8 | Monitoring and Evaluation | | | | |
| 8.1 | Baseline survey | Nanhu Farm, Lukou Town | External M&E agency | May 2014 | |

| No. | Task | Participants | Responsible Agency | Timeline | Remarks |
|------|---|-------------------|---------------------------|------------------|------------------------|
| 8.2 | Establishing an internal monitoring mechanism | As per the RP | HPMO, Resettlement Office | May 2014 | |
| 8.3 | Appointing an external M&E agency | One | HPMO | April 2014 | |
| 8.4 | Internal monitoring reporting | Quarterly | HPMO, Resettlement Office | From June 2014 | |
| 8.5 | External monitoring reporting | Semiannual report | External M&E agency | December 2014 | 1 st report |
| | | | | June 2015 | 2 nd report |
| 8.6 | External monitoring reporting | Annual report | External M&E agency | June 2016 | 3 rd report |
| | | | | June 2017 | 4 th report |
| 8.7 | Completion report | Completion report | HPMO, Resettlement Office | June 2018 | 5 th report |
| 9 | Public consultation | | Resettlement Office | Ongoing | |
| 10 | Grievance redress | | Resettlement Office | Ongoing | |
| 11 | Disbursement of compensation fees | | | | |
| 11.1 | Disbursement to the IA | Initial funds | HMG | May 2014 | |
| 11.2 | Disbursement to Nanhu Farm and Lukou Town | Initial funds | Resettlement Office | June 2014 | |
| 11.3 | Disbursement to AHs | Initial funds | Resettlement Office | End of July 2014 | |
| 12 | Commencement of civil construction | | | | |
| 12.1 | Construction of the Project | | HPMO | January 2015 | |

ADB = Asian Development Bank, AH = affected household, CNY = yuan, DMS = detailed measurement survey, HD = house demolition, HMG = Huanggang municipal government, HPMO = Huanggang project management office, IA = implementing agency, LA = land acquisition, M&E = monitoring and evaluation, RIB = resettlement information booklet, RP = resettlement plan.

11. **Grievances redress mechanism.** In order to solve problems effectively, and ensure the successful implementation of project construction and land acquisition, a transparent and effective GRM has been established. The basic grievance redress system is as follows:

- Stage 1: If any affected person is dissatisfied with the resettlement plan, he/she may file an oral or written appeal to the village or community committee orally or in writing. In case of an oral appeal, the village or community committee shall handle such appeal and keep written records. Such appeal should be solved within two weeks.
- Stage 2: If the affected person is dissatisfied with the disposition of Stage 1, he/she may file an appeal to the Lukou Town Government or Nanhu Farm, who, after receiving such appeal, shall make a disposition within two weeks.
- Stage 3: If the affected person is dissatisfied with the disposition of Stage 2, he/she may file an appeal to the HPMO, who, after receiving such appeal, shall make a disposition within two weeks.
- Stage 4: If the affected person is still dissatisfied with the disposition of Stage 3, he/she may file an appeal with the competent authorities level by level for arbitration in accordance with the Administrative Procedure Law of the PRC.

12. The affected persons may file an appeal about any aspect of resettlement, including compensation rates, etc. The above appeal channel, and the names, addresses, contacts and telephone numbers of the accepting agencies will be notified to the affected persons at a

meeting or through an announcement and via the resettlement information booklet, so that they are fully aware of their right of appeal. All agencies will accept grievances and appeals from the affected persons for free, and costs so reasonably incurred will be disbursed from the contingencies. During the whole period of project implementation, this appeal process will remain effective, so that the affected persons can use it to address relevant issues.

13. Affected persons can decide to go through the legal system directly and may decide not to use the project level grievance channels. The aggrieved person may also express grievance to the external monitor, who would then report it to HPMO and HUCIC. Alternatively, the aggrieved person(s) may submit a complaint to the ADB project team to try to resolve the problem. If good faith efforts are still unsuccessful, and if there are grievances that stemmed from a violation of ADB's Safeguard Policy (2009), the affected persons may appeal directly to ADB in accordance with ADB's Accountability Mechanism (2012).

14. **Monitoring.** Internal and external monitoring of resettlement plan implementation will be conducted. Monitoring methodologies are specified in the resettlement plan. HPMO and HUCIC will conduct internal supervision and monitoring to ensure compliance with the provisions of the resettlement plan. HPMO and HUCIC have agreed with ADB to a set of supervision milestones, to ensure timely and effective implementation of resettlement activities. An independent agency will be engaged by the HPMO to conduct external monitoring and evaluation. Semiannual external monitoring reports will be forwarded directly to ADB and HPMO. Monitoring requirements and agreed arrangements for ensuring compliance with the relevant sections of the ADB Safeguards Policy (2009) are detailed in Section IX B of this manual.

C. Indigenous Peoples

15. The project is categorized as C for the indigenous peoples safeguard. The project area is not an ethnic minority region. According to the Sixth National Population Census in 2010, Huangzhou District has a minority population of 924, accounting for 0.25% of the registered population. The main ethnic minorities in the district are Hui, Miao, Tujia, and Zhuang who live and dispersed among urban communities. Thus, there is no concentrated ethnic minority area in the city, and the ethnic minority population is distributed in all residential quarters. Ethnic minority residents will enjoy equally the benefits created by the project, and the project will not bring any special negative effect to any ethnic minority people. The resettlement plan also indicates that there are no ethnic minority people in the affected area. Thus, no safeguard action is required.

VIII. GENDER AND SOCIAL DIMENSIONS

1. A social, poverty, and gender analysis was undertaken in accordance with Asian Development Bank (ADB) guidelines. The poverty and social assessment during project preparation included a desk review of secondary data, a household survey, community and focus group discussions, and key informant interviews. The collected information and analysis are to assist in the design of the project by identifying the poor and economically vulnerable population, examining causes of poverty and recommending poverty reduction measures within the scope of the project.

A. Social and Poverty Benefits

2. Building on traditionally rural-based economy, Huanggang is one of the poorest municipalities in the province and has relatively low urbanization rate of 35.7%. It has a poor population of 1.50 million, which constitutes almost 20.0% of total municipal population. The rural poverty incidence in Huanggang is 25.2%, which is higher than the provincial and national average rates, 20.2% and 13.4% respectively. The rural and urban poverty incidences in Huangzhou District are 21.5% and 8.1% respectively. The project, focused on improving the urban environment and facilitating expansion of industry, services and employment, will help to ensure that economic opportunity and inclusion underlie the process of urbanization. Local residents are primary beneficiaries of the project, including residents in Lukou Town and Nanhu Subdistrict, covering the phase 1 area of New Eastern District (NED) in Huangzhou District covering a total area of 10 square kilometers with a direct beneficiary population of 41,600. When the phase 1 area of the NED is fully developed by 2020, the project will directly benefit 100,000 residents and industries and services in the phase 1 of NED through (i) improved water quality of urban surface waters; (ii) with public amenity space, enhanced quality of life of the people living in the project area; and (iii) enhanced investment environment and employment in Huanggang. The whole Huangzhou District with 367,000 residents will indirectly benefit by (i) improving their living conditions through upgrading the urban lake and ecological environment, (ii) facilitating Huanggang's investment environment and employment in local secondary and tertiary industries, (iii) narrowed disparity in living standards between urban and rural areas, and (iv) raised public awareness on solid waste and environment improvement. The project has a potential to indirectly benefit residents in Huangzhou District (8.1% of urban and 21.5% of rural population were poor in 2012) as economic spillover effects from NED construction will benefit the whole urban area. In addition, all residents will benefit from raised public awareness on solid waste and environment improvement. The project will facilitate the development of NED where the poor will be provided with low-cost rental housing and job opportunities within and surrounding area of NED. The project will create 2,450 jobs during construction, 133 jobs during operation, and significant indirect job opportunities are expected to arise as a consequence of economic multiplier effect and the broader NED development which the project facilitates. Employment targets for vulnerable groups and women are included in the design and monitoring framework. A social action plan (SAP) and a gender action plan (GAP) were prepared, and Huanggang municipal government gave ADB an assurance that they will be implemented in full and progress will be reported periodically to ADB.

B. Gender Action Plan

3. The poverty, social, and gender analysis indicates that generally, women support all of the components and improvements to urban infrastructure. They perceive that the project will improve their living environment, improve access and mobility, and create employment opportunities, mainly by (i) improving the living environment, and public health and quality of life

with improved environment quality and enhanced urban amenity; (ii) increasing women's job opportunities and promote their long-term job development; (iii) improving women's employability; and (iv) encouraging women to participate in community activities and management and in promoting community development.

4. A GAP was prepared and gender specific indicators were included in the project's monitoring framework to ensure that targets are met, and women fully participate in and enjoy the benefits of the project. A staff from Huanggang project management office (HPMO) responsible for social safeguards and gender equality will liaise with women's federations, contractors, and community office staff to facilitate the participation of women in paid work opportunities for civil works; and ensure that all labor laws and core labor standards of the People's Republic of China (PRC) are respected. Project assurances include that (i) contractors be required to employ women for employment, with specific targets; (ii) ensure implementation of the project's GAP; and (iii) ensure targets and GAP implementation will be monitored.

5. HPMO safeguards and gender staff, who will have relevant training, (i) will ensure sex-disaggregated baseline and survey data will be collected (ii) GAP is implemented, and (iii) performance relative to GAP targets is monitored. The project implementation consultant (PIC) will include a gender/social specialist (5 person-months) to provide advice on the monitoring and implementation of GAP as necessary, and to facilitate achievement of the project's gender development objectives. The GAP will also be monitored semiannually and reported via the quarterly project progress reporting and during ADB review missions, which will include a social development specialist, when appropriate.

C. Social Action Plan

6. The SAP (Table 1) will facilitate continued consultation and participation of the local community in the project, ensure that labor rights and entitlements are observed, and that the needs of vulnerable households are considered. Its implementation will be monitored through the project performance management system (PPMS), project progress reports, and ADB supervision missions.

7. **Labor issues.** The project will create about 150 skilled and 2,300 unskilled temporary jobs during construction of the lake and river improvement components, and about 33 skilled jobs and 100 public welfare jobs (lake workforce, road cleaners, landscape workers, etc.) during operation; of which 30% of jobs will be targeted to women, including more than 50% of landscape maintenance jobs, and 30% of jobs will be made available to the poor and other local vulnerable groups.

8. Core labor standards will be implemented. Civil works contracts will stipulate that (i) local people will be prioritized with respect to employment, (ii) equal wages will be paid for work of equal value and that women's wages will be paid directly to them, (iii) no child or forced labor will be employed, and (iv) all employees will be provided with a written contract in accordance with the format prescribed by the PRC national law. Specific targets for employment of women were included in GAP. HPMO and HUCIC will monitor contractors' compliance with these project assurances in conjunction with the local Huanggang municipal departments of Labor and Human Resources, and Civil Affairs.

9. **Public Health and HIV/AIDS.** In order to avoid potential infectious disease and to ensure health and safety of employees and local residents, the project will mitigate the risk by (i) requiring civil works contractors to raise awareness of HIV/AIDS/sexually transmitted infections

and other communicable diseases for construction workers, in contract bidding documents, with the assistance of the Huanggang Center for Disease Control; and (ii) collaborating with the Center for Disease Control to ensure that their HIV/AIDS awareness activities are extended to communities in the vicinity of any camps for construction workers during the period of construction. Contractors should also provide necessary medical and first-aid services to construction workers during construction, and educate them on disease control, especially on infectious diseases such as HIV/AIDS and hepatitis. HPMO will monitor and report on the progress and results.

10. The safeguard and gender staff of HPMO, with the support and advice of the PIC, will ensure sex-disaggregated baseline data will be collected and SAP is implemented and that achievement of targets is monitored. The PIC will include a gender/social specialist (5 person-months) to facilitate achievement of the project's gender and social development objectives. The SAP will be monitored semiannually and reported via quarterly project progress reporting and during ADB review missions, which will include a social development specialist, when appropriate.

11. **Consultation and participation.** Community environment protection groups will be established to self-manage the community environment as part of existing administrative setup in Huanggang as community management groups. It will help to optimize the detailed project design through community participation, selection of labor for construction, education on environment and safety awareness, integration of opinions and advice of residents, and monitoring of implementation of the social action plan and gender action plan. The gender/social specialist of PIC will provide guidance to community groups through HPMO in establishing communication strategies based on ADB's Public Communications Policy (2011) to share information of the project to the beneficiaries, stakeholders and community groups, hold consultation and promote participation. In addition, a public education and awareness program will be conducted to promote environment protection, solid waste separation, safety awareness, and hygiene education.

Table 1: Gender Action Plan

| Output 1: Urban lake and river improvement | | | | | |
|---|--|---|---|---|-----------|
| <ul style="list-style-type: none"> Lakeside leisure squares and facilities will be provided to meet the needs of women Safety on and around the lake (including guardrails, walking paths, streetlamps, warning signs and other protective measures) will be installed, and women's needs for leisure and amusement are met Resettlement and public low-cost rental housing constructed by HMG within the NED will be designed and allocated in consultation with women Policies and programs on compensation for land acquisition will be disclosed to all affected persons, and women will have the right to receive compensation fees Ensure job opportunities are advertised and available to women through project staff, labor bureau and HMWF | <ul style="list-style-type: none"> At least 30% of women participate in the design of this component 100% of women are aware of the land acquisition compensation program 2,130 jobs created during project construction of which 30% are filled by women (Baseline for women construction workers in Huanggang is 10-20% of construction job positions). | Design institute, HMG, HPMO, planning bureau, and real estate administration | Environmental sanitation bureau, HMWF, communities, HUCIC, poverty reduction office | <ul style="list-style-type: none"> Project design budgets Central and local investment | 2014–2016 |
| Output 2: Solid waste management | | | | | |
| <ul style="list-style-type: none"> Location, distances, and design of waste bins will be decided in consultation with women The time, venue, and form of publicity and training on waste separation and environmental protection meet women's needs Ensure job opportunities are advertised and available to women through project staff, labor bureau and HMWF | <ul style="list-style-type: none"> Women participate in the design of waste collection and separation (number of participants sex-disaggregated) At least 30% of trained people are women 320 jobs created during project construction of which 30% are filled by women NED and Huangzhou District residents' knowledge of waste sorting, reuse, recycling, and safe disposal increased from 7% to 75% (sex-disaggregated) | Environmental sanitation bureau, HMG, HMWF, HPMO, and urban construction bureau | Education bureau, HUCIC, Lukou Town, Nanhu Farm, NED management office, and communities | <ul style="list-style-type: none"> Community activity funds (CNY20,000 /year) Government financed | 2015–2018 |

| Activity | Target and Indicators | Responsible Agencies | Assisting Agencies | Budget | Time Frame |
|---|--|--|---|--|------------|
| Output 3: Institutional strengthening and capacity building | | | | | |
| <ul style="list-style-type: none"> Women will participate in the existing community management after the completion of NED Women will participate in community environment protection group Women will participate in publicity and education on environmental protection Women will participate in training programs | <ul style="list-style-type: none"> At least 60% of community management-staff members are women (Baseline is 46%) At least 2 of 3-5 members of community environment group are women, number and kind of public awareness, sex-disaggregated A four-year (2016–2019) training plan is developed and implemented, with a target of 20% women participation | Communities, HMWF, and social and gender consultant of PIC | Education bureau, HPMO, HUCIC, labor and social security bureau | <ul style="list-style-type: none"> The project's loan implementation consulting budget Local government financed | 2014–2019 |
| Monitoring and Evaluation | | | | | |
| <ul style="list-style-type: none"> Social and gender experts will be recruited at the implementation stage to support the implementation of GAP and SAP HPMO will assign persons to be responsible specifically for social-gender mainstreaming, in addition to the implementation and reporting of GAP and SAP Gender-based data will be collected in the management information system to ensure the monitoring, evaluation and reporting of GAP and SAP Publicity and training on GAP will be provided to the key staff of the HPMO and HUCIC. | <ul style="list-style-type: none"> Completion of the M&E report on GAP and SAP Terms of reference for HPMO social and gender mainstreaming expert and number of people assigned Time, venue, number and gender of participants in GAP and SAP trainings Indicators involving social development and gender in PPMS 5 person-months of PIC | HPMO, HUCIC, and social and gender consultant of PIC | HMWF, NED management office | <ul style="list-style-type: none"> Budget of PIC | 2014–2019 |

GAP = gender action plan, HMG = Huanggang municipal government, HMWF = Huanggang municipal women's federation, HPMO = Huanggang project management office, HUCIC = Huanggang Urban Construction Investment Company, M&E = monitoring and evaluation, NED = New Eastern District, SAP = social action plan, PIC= project implementation consultants, PPMS = project performance management system.

Source: Asian Development estimates.

Table 2: Social Action Plan

| Activity | Target Party | Target and Indicators | Responsible Agencies | Assisting Agencies | Budget | Time Frame |
|---|--|--|---|---|---|------------|
| Measures to strengthen project benefits | | | | | | |
| A. Strengthening community participation and optimizing the project design | | | | | | |
| 1. Urban lake and river improvement <ul style="list-style-type: none"> Local residents will be fully consulted on the design Lakeside leisure squares and facilities will be provided to meet needs of women, children, and the elderly Guardrails, streetlamps, warning signs, and other protective measures will be provided around lakes 2. Waste management <ul style="list-style-type: none"> Location, distances, and design of waste bins will be decided in consultation with residents | Local residents | <ul style="list-style-type: none"> Frequency and mode of consultation Availability of lakeside leisure squares and facilities and how well needs of women, children and the elderly are met Availability of guardrails, streetlamps, warning signs, and other protective measures Availability of waste bins | HPMO, design institute | Environmental sanitation bureau, communities, contractors, HMWF | Project design budget | 2014–2016 |
| B. Generating job opportunities to increase residents' income | | | | | | |
| <ul style="list-style-type: none"> About 150 skilled and 2,300 unskilled jobs will be generated during lake and river improvement At the operation stage, 33 skilled jobs (wetland and waste management, etc.) and 100 public welfare jobs (waste transfer, road cleaning, landscaping, etc.) will be needed Jobs targeted to women, and available to the poor are created | Local residents, especially APs, the poor, vulnerable groups and women | <ul style="list-style-type: none"> Number of jobs generated by the project Number of local residents employed Number of female and poor employees (30% of jobs will be targeted to women, and 30% of jobs made available to the poor) Payment to local residents | HUCIC, contractors, education bureau | HPMO, labor and social security bureau, HMWF, communities | Project budget, government urban management budget | 2014–2018 |
| Measures to reduce potential risks | | | | | | |
| A. Community management and community environmental protection group | | | | | | |
| <ul style="list-style-type: none"> NED will be included into the existing community management pattern Establish community environment protection groups (for 3-5 persons, at least 2 are women) | NED residents | <ul style="list-style-type: none"> Number of the community construction Number of the community environment protection groups formed | Civil administrative bureau, environment bureau, construction | HPMO, labor and social security bureau, HMWF, communities | Government fiscal budget for community construction | |

| Activity | Target Party | Target and Indicators | Responsible Agencies | Assisting Agencies | Budget | Time Frame |
|---|--|---|--|--|---|------------|
| | | | bureau, social and gender PIC consultant | | | |
| B. Conduct solid waste campaign to enhance environmental public awareness | | | | | | |
| <ul style="list-style-type: none"> Develop solid waste management knowledge publicity leaflet Prepare community participation manual on solid waste separation and environment protection in NED Conduct training program of solid waste separation and collection | NED residents | <ul style="list-style-type: none"> Leaflet prepared and delivered Community participation manual available Time, venue and number of participants in training | Environmental sanitation bureau, HMWF, community, PIC social and gender consultant | HPMO, HUCIC, design institute, local government, contractors | Environment bureau budget, HMWF budget, project's public awareness package (CNY100,000) | 2014–2018 |
| C. Health publicity and HIV/AIDS prevention education | | | | | | |
| <ul style="list-style-type: none"> Include HIV/AIDS and other communicable disease clauses into contract bidding documents Public health and HIV/AIDS prevention education to the civil works contract and NED residents are conducted Health measures for construction workers (e.g., setting up a temporary infirmary, using local medical resources) are established Conduct diversity publicity activities on HIV/AIDS, e.g., brochures, posters and picture albums | NED residents and construction workers | <ul style="list-style-type: none"> Terms of construction contract and implementation Public health and HIV/AIDS prevention training courses and number of trainees Number of health measures Forms of publicity on HIV/AIDS prevention at the construction stage, e.g., number of brochures, posters and picture albums distributed | HUCIC, local sanitation agencies | Contractor, local governments | Funds under the construction contract, Budget of the sanitation agency (CNY20,000/year) | 2014–2016 |
| D. Establishing public consultation and participation mechanism | | | | | | |
| Public consultation and participation <ul style="list-style-type: none"> Information on the project will be made available to local residents (at least 50% of participants will be women, poor people and vulnerable groups), and advice given Construction information will be disclosed, including possible disturbances Public participation in resettlement | Local residents | <ul style="list-style-type: none"> Time, scope and mode of information disclosure on the project Time, scope and mode of information disclosure on construction Time, scope and mode of participation in community | HUCIC, NED management office, PIC social and gender consultant | HPMO, labor and social security bureau, land and resources bureau, design institute, traffic police, HMWF, poverty reduction office, | PIC budget | 2014–2018 |

| Activity | Target Party | Target and Indicators | Responsible Agencies | Assisting Agencies | Budget | Time Frame |
|--|--------------|-----------------------|----------------------|------------------------------------|--------|------------|
| livelihood restoration activities <ul style="list-style-type: none"> • Information of NED master plan and schedule • Job and economic opportunities disclosure | | construction | | NED management office, communities | | |

AP = Affected Person, HMG = Huanggang municipal government, HMWF = Huanggang municipal women's federation, HPMO = Huanggang project management office, HUCIC= Huanggang Urban Construction Investment Company, *mu* = a Chinese unit of measurement (1 *mu* = 666.7 square meter), NED = New Eastern District, PIC = project implementation consultants.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

1. The design and monitoring framework (DMF) for the project has been agreed between the Asian Development Bank (ADB), Huanggang municipal government (HMG), and Huanggang Urban Construction Investment Company (HUCIC). The DMF is in **Annex 1** of this PAM and forms the foundation against, which project success will be evaluated. While the high level project design (impact and outcome) are unlikely to change during the course of project implementation, changes are likely to occur at the output and inputs levels of the DMF. The continued relevance of the DMF and specific targets will be monitored as part of the project supervision and the DMF will be updated accordingly when necessary.

B. Monitoring

1. Project performance monitoring

2. At the commencement of project implementation, Huanggang project management office (HPMO) and Huanggang Urban Construction Investment Company (HUCIC), with the assistance of the project implementation consultants (PIC), will develop a comprehensive project performance management system (PPMS) procedures to generate data systematically on the inputs and outputs of the components, as well as the indicators to be used to measure the project impact taking into account the components' scope. HPMO, on behalf of HMG, will (i) refine the PPMS; (ii) confirm achievable targets; (iii) finalize monitoring, recording, and reporting arrangements; and (iv) establish systems and procedures, no later than six months after loan effectiveness. HPMO supported by HUCIC will be responsible for monitoring and reporting on the performance of the project. The DMF will be the basis for performance monitoring. The DMF identifies the principal performance targets for the impact, outcome, and outputs of the project. By collection of data from the sources identified in the DMF, HPMO will be able to report on the performance of the project. A study will be conducted by the PIC to establish the pre-project performance baseline, where this was not already established during project preparation. Periodic reports will provide information necessary to update ADB's project performance reporting system.¹ At the start of project implementation, HPMO and implementing agencies, with the PIC services, will develop integrated PPMS procedures to generate data systematically on the inputs and outputs of the components, as well as the indicators to be used to measure the project's impact and outcome taking into account the components' scope. Specific reporting requirements will be set out in the Project Agreement between ADB and the Government and also in this project administration manual (PAM). HPMO will collect the data, calculate the indicators, analyze the results, and prepare a brief report describing the extent to which the project is generating the intended outputs and outcomes, as well as the overall impact on the project municipalities. The relevance and practicability of data collection for indicators was confirmed with the HPMO and the implementing agencies.

2. Compliance monitoring

3. HMG with assistance of HPMO, HUCIC, and the PIC, will conduct compliance monitoring, and submit reports and information to ADB concerning the use of the loan proceeds,

¹ ADB's project performance reporting system is available at:
<http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

project implementation, project implementation performance of HMG and HUCIC, and compliance of loan and project covenants. These reports will include (i) quarterly progress reports on project implementation; and (ii) a project completion report, which should be submitted not later than six months after the completion of the project facilities. The compliance status of loan and project covenants will be reported and assessed through the quarterly project progress reporting. ADB review missions will verify the status of reported compliance.

3. Safeguards Monitoring

(i) Environment

4. Monitoring will include (i) project readiness monitoring to be conducted by the HPMO with support of the PIC, (ii) environmental impact monitoring to be conducted by Huanggang environmental monitoring stations (HEMS) contracted by the civil works contractors, (iii) compliance monitoring to verify environmental management plan (EMP) compliance during project implementation and project operation to be conducted by HPMO and PIC, and (iv) independent verification by an external environment monitor (EEM) contracted by HPMO. Monitoring and reporting arrangements defined for this project are described below. The budget for environmental impact monitoring has been estimated at \$420,000, which includes approximately \$120,000 estimated in the soil erosion prevention plan for soil erosion and water conservation monitoring. The monitoring program will be included in the project tendering documents, as well as the construction and operation contracts.

5. **Assessment of project readiness.** Before construction, HPMO with support of the PIC will assess the project's readiness in terms of environmental management based on a set of indicators (EMP, Table EMP-3) and report it to ADB and the HPMO. This assessment will demonstrate that environmental commitments are being carried out and environmental management systems are in place before construction starts, or suggest corrective actions to ensure that all requirements are met.

6. **Environmental impact monitoring and reporting.** Civil works contractors will contract the HEMS to conduct environmental impact monitoring in accordance with the monitoring plan defined in the EMP (Table EMP-4). Monitoring will be conducted during construction and operation period by HEMS, until a project completion report is issued. Quarterly monitoring reports will be prepared by HEMS and submitted to HPMO, the EEM, HUCIC, and the contractors.

7. **EMP implementation monitoring and progress reporting.** The PIC will include environmental safeguard specialists to work as project implementation environment consultant (PIEC) to support EMP implementation and monitoring. The PIEC will review project progress and compliance with the EMP based on field visits, and the review of the environmental impact monitoring conducted by HEMS. The findings of the PIEC will be reported to ADB through the semiannual EMP monitoring and progress reports. The results will be used to evaluate (i) the extent and severity of environmental impacts compared with the predicted impacts, (ii) performance of environmental protection measures or compliance with related rules and regulations, (iii) impact trends, and (iv) the overall effectiveness of the EMP.

8. **External environment monitor (EEM).** The environment performance of the project will be verified by an independent EEM, to be contracted by HPMO. The EEM will (i) review EMP implementation and monitoring activities and results, (ii) review semiannual EMP monitoring and progress reports prepared by PIEC, (iii) assess EMP implementation performance, (iv) visit the

project sites and consult potentially affected people, (v) discuss assessment with the HPMO and HUCIC, and (vi) suggest corrective actions. The EEM will prepare semiannual verification reports, to be attached to the semiannual environment monitoring report to ADB. The cost for EEM will be \$50,000.

(ii) Land acquisition and involuntary resettlement

9. Resettlement implementation will be monitored internally and externally. Monitoring methodologies are specified in the resettlement plan. HPMO and HUCIC will carry out internal supervision and monitoring to ensure compliance with the provisions of the resettlement plan. HPMO and HUCIC have agreed to a set of supervision milestones with ADB, to ensure timely and effective implementation of resettlement activities. An independent monitoring agency under contract to the HPMO will carry out external monitoring and evaluation. This agency will be engaged prior to the commencement of land acquisition so they can conduct baseline surveys before people are displaced. External monitoring reports will be prepared every six months during land acquisition and annually for two years after the completion of resettlement. These reports will be submitted to ADB and HPMO, and will be uploaded to the ADB website. Resettlement monitoring and reporting requirements are detailed in Table 2 of Chapter VII.

(iii) Gender and social dimensions

10. Monitoring of GAP and SAP will be incorporated into the PPMS. Clear targets and indicators have been established and some indicators, such as those on employment, are also captured in the DMF. Assistance will be provided to HMG and HUCIC by the PIC gender and social development specialist who will help to set up effective monitoring systems, work with the focal points in the HMG and HUCIC to ensure implementation, monitoring and reporting of GAP and SAP. The GAP will be monitored semiannually and reported via the quarterly project progress reporting and during ADB review missions.

C. Evaluation

11. In addition to regular monitoring, project performance will be reviewed at least once a year jointly by ADB, HMG, and HUCIC. The review will assess implementation performance and achievement of project outcomes and outputs, assess financial progress, identify issues and constraints affecting implementation, and work out a timebound action plan for their resolution. ADB, HMG, and HUCIC will also undertake a midterm review to assess implementation status and take appropriate measures—including modification of scope and implementation arrangements, and reallocation of loan proceeds, as appropriate—to achieve the planned project impact and outcome. If there were procurement issues during the early stage of implementation, a Procurement Review for Effective Implementation will be planned at the midterm review. Within six months of physical completion of the project, HMG will submit a project completion report to ADB.²

D. Reporting

12. HMG will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a)

² Project completion report format available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for next 12 months; (iii) safeguard plans implementation progress reports; and (iv) a draft project completion report within six months of physical completion of the project. To ensure the project continues to be both viable and sustainable, project accounts together with the associated auditor's report, should be adequately reviewed. The reporting schedule is in the following table.

Table 1: Key Reporting Requirements

| Report | Reference | Timing of Reporting |
|---|---|--|
| Project progress reports | Project Agreement, Article II, Section 2.08 | Quarterly, within one month before the end of each quarter |
| Project performance management system | | |
| Develop comprehensive project performance management system procedures | Project Agreement, Schedule, paragraph 39 | No later than 6 months after loan effectiveness |
| Reporting of baseline and progress data including environmental management plan | | Semiannual, included in the project progress reports |
| Audited project accounts and financial statements auditor's report (including auditor's opinion on the use of the imprest account and statement of expenditures) | Project Agreement, Article II, Section 2.09 | Not later than six months after the closure of fiscal year (end of June) |
| Resettlement monitoring | | |
| Internal monitoring reports for the executing and implementing agencies | Project Agreement, Schedule, paragraph 16 | Semiannual, included in the project progress reports |
| Land acquisition and resettlement phase—external monitoring report | | Semiannual |
| Post-land acquisition and resettlement phase—external monitoring report | | Annual reports for two years after the resettlement activities |
| Resettlement completion report | | Within three months after project completion |
| Other social monitoring | | |
| Reporting on gender action plan implementation | Project Agreement, Schedule, paragraph 20 | Semiannual, included in the project progress reports |
| Reporting on social action plan implementation | | Semiannual, included the project progress reports |
| Environment safeguards reports | | |
| Construction phase—environmental management plan monitoring and progress report | Project Agreement, Schedule, paragraph 16 | Semiannual |
| Construction phase—external environmental management plan verification report | | Semiannual |
| Construction and operation Phases: Migratory bird survey report | | Annual, 5 times (2016–2020) |
| Operations phase—external monitoring report | | Annual, until a project completion report is issued |
| Project completion report | Project Agreement, Article II, Section 2.08 | Not later than 6 months after the physical completion of the project |

E. Stakeholder Communication Strategy

13. Project information will be communicated through public consultation, information disclosure mechanism in ADB's and government's websites, meetings, interviews, focus group discussions, and community consultation meetings, in accordance with ADB's Public Communications Policy (2011).

14. **Environment.** Meaningful public consultations on environment, health and safety issues have been conducted during preparation of the planning and project environmental impact reports and environmental impact assessment (EIA). Information disclosure and consultation included: internet disclosure; informal communication with key stakeholders which include residents, local authorities and sector specific institutions and authorities; questionnaire surveys; interviews; and discussion forums attended by affected people and other concerned stakeholders. Plans for public involvement during construction and operation stages have been developed during project preparation. These plans include public participation in (i) monitoring impacts and mitigation measures during the construction and operation stages through informal interviews and disclosure of monitoring reports; and (ii) interviewing the public at project completion stage. These plans will include several types of public involvement, including site visits, workshops, investigation of specific issues, interviews, and public hearings, as indicated in table below.

Table 2: Public Consultation Plan on Environment Safeguards

| Organizer | Format | No. of Times | Subject | Target audience |
|---------------------------|-------------------------------------|--|---|---|
| Construction Stage | | | | |
| HPMO | Public consultation and site visit | 5 times: 1 time before construction commences and 1 time each year during construction | Adjusting of mitigation measures, if necessary; construction impact; comments and suggestions | Residents adjacent to components, representatives of social sectors |
| HPMO, HUCIC | Expert workshop or press conference | As needed based on public consultation | Comments and suggestions on mitigation measures, public opinions | Experts of various sectors, media |
| Operational Stage | | | | |
| HUCIC, O&M Units | Public consultation and site visits | Once in the first year | Effectiveness of mitigation measures, impacts of operation, comments and suggestions | Residents adjacent to component sites, representatives of residents and representatives of social sectors |
| HUCIC, O&M Units | Expert workshop or press conference | As needed based on public consultation | Comments and suggestions on operational impacts, public opinions | Experts of various sectors, media |

HPMO = Huanggang Project Management Office; HUCIC = Huanggang Urban Construction Investment Company; O&M = operation and maintenance.

15. **Involuntary resettlement.** All of the affected persons and municipal governments have been involved in the project impact and social-economic survey. Through meetings, interviews, focus group discussions, public consultation workshops, and community consultation meetings, local representatives have participated in the planning and concerns have been integrated into the resettlement plan. Before implementation, HPMO and HUCIC will further discuss and consult with the representatives of the affected persons the impacts and detailed compensation plan to ensure affected persons' interests are protected and to provide employment

opportunities for the affected persons' livelihoods as a result of project implementation. HPMO and HUCIC will disclose the draft resettlement plan in offices and to affected people in the local language. The resettlement plan will be posted on the ADB website. Resettlement information booklets will be distributed to affected households. This booklet contains information such as the affected project area, proposed land acquisition and relocation implementation progress and procedure, compensation standards for land acquisition, relocation assistance and livelihood restoration strategy. The implementing agency will establish project resettlement unit for supervision of implementation, continued public consultation, monitoring of progress, and response to grievances. The grievance redress mechanism has been established and explanations will be included in the resettlement information booklets.

16. **GAP and SAP.** Consultations with communities will take place at different points in the preparation and implementation of the GAP and SAP within the project, and will be designed not only to inform people about the project or specific activities related to its preparation and implementation, but also to enable people in the community to ask questions, make suggestions, state preferences, and express concerns. Special attention will be made for the participation of women and any other vulnerable groups, such as the poor. GAP and SAP indicators will be monitored and reported semiannually and verified by external resettlement and social monitor.

17. **Public disclosure.** Public disclosure of all project documents will be undertaken through the HPMO and on the ADB website including the project data sheet (PDS), DMF, EIA, resettlement plan, and the report and recommendation of the President (RRP). Disclosure of semiannual external resettlement monitoring report, semiannual environmental monitoring report, and annual audited project accounts will be undertaken during project implementation.

X. ANTICORRUPTION POLICY

1. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the Project.¹ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all Project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the Project.²

2. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the project. These include:

- (i) The HMG shall, and shall cause the HUCIC to ensure they and all agencies involved in the Project, comply with ADB's Anticorruption Policy (1998, as amended to date). HMG shall also cause the implementing agencies to undertake the following anticorruption actions: (i) involving full-time officials from the relevant Discipline Investigation Bureau in the bidding, award, and implementation of contracts; (ii) introducing a dual-signing system, in which the contract winner signs an anticorruption contract with the employer when they sign and execute the contract; and (iii) periodically inspecting the contractors' fund withdrawals and settlements.
- (ii) In furtherance of the principles of transparency, participation, accountability, and zero-tolerance for corruption HMG shall maintain a relevant website that describes the project in order to provide the public with information on the project and project progress including setting out (a) the procurement plan and tracking of procurement contract awards, (b) relevant laws and regulations, and (c) job opportunities.

3. **Grievance and redress mechanism.** HMG will ensure that within 60 days following the effective date, a comprehensive grievance redress mechanisms are established in accordance with the provisions of the Project Agreement to receive and facilitate resolution of stakeholder (including the general public) concerns, complaints, and grievances about the project. The grievance procedures should have multiple channels for both receiving and processing grievances of different types. For example, environmental grievances are to be dealt with in accordance with the mechanism documented in the EMP.

4. During project preparations a risk assessment and risk management plan were prepared in accordance with the ADB's Second Governance and Anticorruption Action Plan. The assessment was that with the implementation of appropriate mitigation measures, as discussed and agreed with HMG and the HUCIC, the overall governance risk level was negligible to moderate. The risk management plan is a linked document to the report and recommendation to the President.

¹ Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

² ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

XI. ACCOUNTABILITY MECHANISM

1. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.¹

¹ For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

XII. RECORD OF PAM CHANGES

1. The PAM is a living document and is subject to change after ADB Board approval of the project's report and recommendation of the President. It is concise yet informative, providing checklists of all activities related to project implementation along with the necessary procedures for the project management office's to effectively implement and monitor the project.

| No. | Changes/Updates | Date | Remarks |
|------------|------------------------|-------------|----------------|
| | | | |

DESIGN AND MONITORING FRAMEWORK

| Design Summary | Performance Targets and Indicators with Baselines | Data Sources and Reporting Mechanisms | Assumptions and Risks |
|---|--|---|---|
| Impact Socially inclusive and environmentally sustainable urbanization in Huanggang | By 2025: Urbanization rate increased to 55% (2010 baseline: 35.7%) Urban poverty incidence of Huangzhou District reduced to 6.5 % (2012 baseline: 8.1%) Public satisfaction with urban environment and ecology improved in NED and maintained at no less than 85% (2013 baseline: 75%) | Statistics published by HMG departments HMG annual report Annual reports of HEPB | Assumption Relevant parts of the HMG's Twelfth Five-Year Plan and the Huanggang Municipal Urban Master Plan are effectively implemented as scheduled. Risk Actual economic and population growth of Huanggang lags behind estimates. |
| Outcome Improved urban environment in Huanggang | By 2020: Water quality improved to class IV in Baitan and Chiye lakes (2012 baseline: class V) Return period of seasonal flooding in NED is reduced to 20 years (2012 baseline: 5 years) 133 permanent operation and maintenance jobs are created, of which at least 30% are filled by women | Annual environmental monitoring report of HEPB PCC issued by HDRC Project completion report | Assumptions Associated and linked facilities are properly operated. Applicable national and local environmental laws are effectively enforced. Risk Capacity expansion and upgrade of Hongqi pumping station and construction of Nanhu drainage pumping station is delayed. |
| Outputs 1a. Lake enhancement with environment facilities operating 1b. River enhancement with environment facilities operating | By 2019 (2012 baseline) 539,000 m ³ of sedimentary deposits are removed from Baitan and Chiye lakes 14 km of ecological flood retention embankments and 13.3 km of multiuse nonmotorized pathway are operating 3.8 ha of subsurface-flow constructed wetlands and 80 ha of surface-flow constructed wetlands are operating 201,000 m ³ of sedimentary deposits are removed from four | PCC issued by HDRC PCC issued by HDRC | Assumption Government approvals for land use and construction are given in a timely manner. Risks Land acquisition and resettlement implementation is delayed. Provision of counterpart funding is delayed. Price escalation or labor cost inflation occurs. |

| Design Summary | Performance Targets and Indicators with Baselines | Data Sources and Reporting Mechanisms | Assumptions and Risks |
|--|---|---|--|
| | <p>rivers, 343,000 m³ of riverbank soil excavated, and seven river courses widened</p> <p>21.6 km of ecological embankments are constructed with 2.5 km of flood retention embankment strengthened in seven rivers</p> <p>42.6 ha of vegetated buffer strips and 17.7 ha of aquatic vegetation constructed</p> <p>2,130 jobs created during project construction, 30% are filled by women (2012 baseline for women construction workers in Huanggang: 10%–20%)</p> | | |
| 2. Solid waste collection and transfer facilities operating and public awareness of solid waste and environmental protection increased | <p>One transfer station is operating with 260 waste collection bins located around the lakes</p> <p>320 jobs created during project construction, 30% are filled by women (2012 baseline for women construction workers in Huanggang: 10%–20%)</p> <p>NED and Huangzhou District residents' knowledge of waste sorting, reuse, recycling, and safe disposal increased to 75% (sex-disaggregated) (2014 baseline: 7%)</p> | <p>PCC issued by HDRC</p> <p>Contractors reporting inputs to project performance monitoring system</p> <p>Social survey at project completion</p> | <p>Assumption Community participation is active as foreseen.</p> <p>Risks Land acquisition and resettlement implementation is delayed.</p> <p>Price escalation or labor cost inflation occurs.</p> |
| 3. Institutional capacity in project implementation and water quality monitor is developed and strengthened | <p>Water quality monitoring and forecasting system is established and operating (baseline: no system)</p> <p>At least a total of 15 staff of HPMO, HUCIC, HEPB, and HMG relevant agencies are trained with 20% female</p> | Project progress reports and ADB supervisory missions | <p>Assumption HPMO, HUCIC, and HEPB are adequately staffed with qualified personnel and retain trained staff.</p> |

| Design Summary | Performance Targets and Indicators with Baselines | Data Sources and Reporting Mechanisms | Assumptions and Risks |
|--|--|--|-----------------------|
| | participation Project implemented without delays following ADB guidelines | | |
| Activities with Milestones 1. Urban lake and river enhancement 1.1 Complete detailed design of lake and river sediment dredging, embankment strengthening, ecological restoration, and multiuse nonmotorized pathway by Q4 2014–Q1 2015 1.2 Complete detailed design of vegetated buffer strips, aquatic planning, and wetlands by Q1 2015 1.3 Acquire land and implement resettlement by Q1 2015 1.4 Procure works and goods from Q4 2014 to Q4 2016 1.5 Dredge lakes' sedimentary deposits by Q1 2017, and rivers' sedimentary deposits by Q4 2017 1.6 Install and commission sluice gates by Q2 2017 1.7 Construct and commission lake and river embankment by Q4 2017 1.8 Construct and commission wetlands, vegetated buffer strips, and aquatic planning by Q2 2019 2. Solid waste management 2.1 Complete detailed design by Q1 2015 2.2 Procure works and goods by Q4 2016 2.3 Construct the project facilities by Q4 2017 2.4 Undertake public awareness program on solid waste management by Q4 2018 3. Capacity development and institutional strengthening 3.1 Recruit and mobilize start-up implementation support consultants by Q4 2014 3.2 Complete organizational arrangement of the executing agency, HPMO, and implementing agency by Q4 2014 3.3 Mobilize project implementation consultants from Q1 2015 until Q4 2019 3.4 Conduct training on project implementation and management, and operation and maintenance from Q2 2015 until Q3 2019 3.5 Develop and implement water quality model and Xingfu catchment water pollution management plan from Q1 2018 until Q4 2019 3.6 Conduct monitoring and reporting on the implementation of the environmental management plan, resettlement plan, and social and gender action plans from Q1 2015 until Q4 2019 | | Inputs ADB: \$100.0 million HMG: \$71.3 million Domestic bank: \$81.3 million | |

ADB = Asian Development Bank, ha = hectare, HDRC = Huanggang Development and Reform Commission, HEPB = Huanggang Environmental Protection Bureau, HMG = Huanggang municipal government, HPMO = Huanggang project management office, HUCIC = Huanggang Urban Construction Investment Company, km = kilometer, m³ = cubic meter, NED = New Eastern District, PCC = project completion certificate, Q = quarter.

Source: Asian Development Bank.

ATTACHMENT TO ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

For the proposed Hubei Huanggang Urban Environment Improvement Project, People's
Republic of China

Prepared by the Huanggang Municipal Government for the Asian Development Bank.

A. Introduction

1. This Environmental Management Plan (EMP) is developed for the Hubei Huanggang Urban Environment Improvement Project (the project) and defines all potential impacts of the project components and the mitigation and protection measures with the objective of avoiding or reducing these impacts to acceptable levels. The EMP also defines the institutional arrangements and mechanisms, the roles and responsibilities of different institutions, procedures and budgets for implementation of the EMP. The EMP seeks to ensure continuously improving environmental protection activities during preconstruction, construction, and operation in order to prevent, reduce, or mitigate adverse impacts and risks. The EMP draws on the findings of the project EIA, the domestic planning and project EIRs, the SEPP, PPTA and ADB review mission discussions and agreements with the relevant government agencies.
2. The EMP will be reviewed and updated, as needed, at the end of the detailed design in order to be consistent with the final technical design. The final EMP, if updated, will be disclosed on the ADB project website and included in the Project Administration Manual (PAM). The EMP will also be included as a separate annex in all bidding and contract documents. The contractors will be made aware of their obligations to implement the EMP and to budget EMP implementation and monitoring costs in their proposals.

B. Institutional Responsibilities related to EMP implementation

3. As **Executing Agency** (EA), the Huanggang Municipal Government (HMG) will be responsible for the overall implementation and compliance with loan assurances and the EMP (including Environmental Monitoring Plan).
4. **Huanggang Project Leading Group (HPLG)**. The HPLG has been established for the project comprising of senior officials from relevant government agencies, to facilitate inter-agency coordination, and to resolve any institutional problems affecting project implementation at municipal level.
5. The EA has established a **Huanggang Project Management Office (HPMO)**, who will be responsible, on behalf of the EA, for the day-to-day management of the project. The HPMO will have the overall responsibility to supervise the implementation of environment mitigation measures, coordinate the project level Grievance Redress Mechanism (GRM) and report to ADB. By the time of project approval, the HPMO will be fully functional with minimum 15 skilled staff at 6 units for (a) technical and engineering, (b) financial management, (c) land acquisition and resettlement coordination, (d) environmental management, (e) social and gender development, and (f) grievance redress. The HPMO will appoint at least one environment specialist to supervise the effective implementation of the EMP (under unit (d)) and to coordinate the project level GRM (under unit (f)).
6. HPMO will engage the loan implementation consultants (LIC) services, and supervise the procurement process. HPMO will also hire experienced ornithologist(s) to undertake water bird surveys in the Baitan Lake and Chiye Lake areas. The HPMO will prepare semi-annual environment monitoring reports and submit them to ADB.
7. HPMO will also contract an External Environment Monitor (EEM) to conduct independent

verification of EMP implementation and environmental impact monitoring results during the construction and operational stages of the project.

8. **Implementing Agency (IA).** The Huanggang Urban Construction Investment Company Ltd. (HUCIC) will be the IA for the project. It will hire the technical engineering design institutes (DI), implement project components, administer and monitor contractors and suppliers, and be responsible for construction supervision and quality control. To ensure that the contractors comply with the EMP provisions, HUCIC with the help and technical support of a Tendering Agent and the Loan Implementation Environmental Consultant (LIEC) under the LIC services, will prepare and provide the following specification clauses for incorporation into the bidding procedures: (i) a list of environmental management and monitoring requirements to be budgeted by the bidders in their proposals; (ii) environmental clauses for contractual terms and conditions; and (iii) major items in the EIA, and the full EMP. HUCIC will appoint on its staff at least one dedicated, trained, and qualified environment specialist to (i) supervise contractors and their compliance with the EMP; (ii) conduct regular site inspections; (iii) act as local entry point for the project GRM; (vi) submit environmental impact monitoring results provided by the EMS (contracted by the contractors) to the HPMO and HEPB for verification and confirmation. HUCIC will hire licensed construction supervision companies (CSCs) to oversee construction works and compliance with contractor EMP, health and safety requirements.

9. **Construction contractors** will be responsible for implementing the mitigation measures during construction under the supervision of HUCIC (through the CSCs) and HPMO. Contractors will also contract the local environment monitoring station (EMS) to conduct environment impact monitoring in accordance with the environmental monitoring program described in Table EMP-4 ¹. In their bids, contractors will be required to respond to the environmental management and monitoring requirements defined in the EMP. Each contractor will be required to develop site specific EMPs and will assign a person responsible for environment, health and safety. After project completion, environmental management responsibilities will be handed over to O&M units.

10. **Construction Supervision Companies (CSCs).** CSCs will have the principal responsibility for overseeing contractor construction activities, and for ensuring that these activities are accomplished in compliance with the Project's environment, health and safety requirements. The specific responsibilities of the CSCs will be to:

- Confirm that all plans, processes, approvals and requirements are in place to ensure EMP compliance prior to initiation of any work;
- Check the accomplishment of the environmental measures by Contractor crews against contractual obligations by: (a) evaluating contractor efforts and effectiveness; and (b) identifying circumstances requiring management decisions to evaluate variance or compliance issues.
- Prepare monthly Standard Review Sheet (SRS) related to contractors' efforts and achievement for the purpose of monthly payment certificate for environmental activities.

¹ The monitoring plan will be confirmed or revised, as needed, in the framework of the EMP update after detailed design

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- Identify circumstances requiring special study or activity, such as: (a) a committed activity linked to a specific construction activity; (b) special requirements related to a specific resource observations, i.e. archaeological control during excavation works; and (c) communicate to LIEC to allow timely and efficient implementation of specific commitments.
 - Interface with Contractor's construction liaison personnel (advisory role only) to: (a) help communicate requirements; (b) obtain a hands-on view of special problems so that implementation difficulties can be communicated to LIEC to aid in problem resolution; (c) request consideration of work stoppage or a redirection of effort in the event that imminent potential for damage to a sensitive resource or a serious non-compliance situation is observed.

11. **O&M Units.** During the operational phase, HUCIC and the HEPB will periodically verify and monitor (through a licensed monitoring entity) the environmental management and implementation of mitigation measures by the operators (O&M Units) of the project components. The cost of mitigation measures in this phase will be borne by the relevant O&M Units, including:

- Huanggang Landscaping Bureau (HLB): for the operation and maintenance of the sub-surface flow and surface flow wetlands, and aquatic planting and land side landscaped areas;
- Huanggang Environmental Sanitation Bureau (HESB): for the operation, maintenance and management of solid waste collection and transfer, including the vessels, vehicles and the transfer station;
- Huanggang Aquatic Products Bureau (HAPB): for controlling and managing fish culture within Baitan Lake and Chiye Lake, and the stocking of fish and benthic fauna in these lakes;
- Huanggang Water Bureau (HWB): for operation and maintenance of flood control infrastructure such as embankments and the sluice gates.

12. **Loan Implementation Environmental Consultant (LIEC).** Under the loan implementation consultancy (LIC) services, a LIEC will support the project. The LIEC will be contracted by the HPMO, and will:

- assess the project components' environmental readiness prior to implementation based on the readiness indicators defined in **Table EMP-3** in the EMP;
- support HPMO in updating the EMP including monitoring plan as necessary to revise or incorporate additional environmental mitigation and monitoring measures, budget, institutional arrangements, etc., that may be required based on the detailed design; submit to ADB for approval and disclosure; ensure compliance with the PRC's environmental laws and regulations, ADB's Safeguard Policy Statement (2009) and Public Communications Policy (2011);
- if required, update the EIA and EMP reports for changes in the project during detailed

design or project implementation (for example if there is a minor or major scope change) that would result in adverse environmental impacts not within the scope of the approved EIA/EMP;

- assist the HMG and HPMO to establish a Grievance Redress Mechanism (GRM), and provide training for the HPMO and GRM access points (including, but not limited to, HUCIC and contractors);
- conduct regular EMP compliance assessments, undertake site visits as required, identify any environment-related implementation issues, and propose and oversee implementation of necessary corrective actions;
- assist the HPMO to prepare semi-annual environmental monitoring and progress reports to ADB;
- provide training to HPMO, HUCIC, HLB, HESB, HAPB, HWB, HEPB and contractors on environmental laws, regulations and policies, SPS 2009, EMP implementation, and GRM in accordance with the training plan defined in the EMP (**Table EMP-7**); and
- assist the HPMO and HUCIC in conducting consultation meetings with relevant stakeholders as required, informing them of imminent construction works, updating them on the latest project development activities, GRM.

13. **External Environment Monitor (EEM**, also known as Environmental Monitoring Supervision). The environment performance of the project will be verified by an independent environment monitor, to be contracted by HPMO. The EEM will review EMP implementation and monitoring activities and results ; assess EMP implementation performance; visit the project sites and consult potentially affected people; discuss assessment with the HPMO and HUCIC; and suggest corrective actions. The EEM will prepare semi-annual reports, to be attached to the semi-annual environment monitoring report to ADB (and summarized herein by the LIEC). The cost for EEM will be \$49,000.

14. Overall environmental responsibilities are outlined in **Table EMP-1**.

Table EMP-1: Environmental responsibility

| Phase | Responsible Agency | Environmental Responsibility |
|-----------------------------|--|--|
| Project preparation | Design Institutes on behalf of HPMO | Prepare project FSRs, EIRs, RPs, conduct public consultation |
| | HPEPD | Review and approve the planning and project EIRs |
| | PPTA consultant | Provide technical assistance, review EIRs, prepare EIA report including EMP on behalf of EA |
| | ADB | Review and approve the EIA and EMP, including disclosure |
| Engineering detailed design | Design Institutes, HPMO | Incorporate mitigation measures defined in the EMP into engineering detailed designs; update the EMP as needed |
| | HUCIC, HPMO, LIEC | Review updated EMP, confirm that mitigation measures have been included in engineering detailed design |
| | ADB | Approve updated EMP as needed, including disclosure |
| Tender & contracting | HUCIC, HPMO, tendering agent and contractors | Incorporate EMP clauses in tender documents and contracts |

| Phase | Responsible Agency | Environmental Responsibility |
|--------------|----------------------------------|--|
| | HPMO, tendering agent, ADB, LIEC | Review bidding documents; confirm project's readiness |
| Construction | HUCIC | Appoint dedicated, trained, and qualified environment specialist(s) on its staff; ; contract CSC to supervise contractors and ensure compliance with the EMP; coordinate construction supervision and quality control; act as local entry point for the project grievance redress mechanism (GRM). |
| | HPMO | Appoint one environment specialist on its staff; supervise the effective implementation of the EMP; contract EEM and ornithologist(s); coordinate the project level GRM; prepare semi-annual environment monitoring reports and submit them to ADB; conduct public consultation and inspect implementation of mitigation measures. |
| | Contractors | Assign EMP implementation responsibilities; develop and implement site-specific EMP; ensure health and safety; implement mitigation measures; contract Huanggang EMS to conduct monitoring on and around construction sites in accordance with approved monitoring plan. |
| | EEM (contracted by HPMO) | Undertake independent verification of project's environment performance and compliance with the EMP, submit semi-annual EEM reports to HPMO, HUCIC, HEPB. |
| | LIEC | Advise on the mitigation measures; provide comprehensive technical support to HPMO and HUCIC for environmental management; conduct training; conduct annual EMP compliance review; support HPMO in preparing semi-annual environmental monitoring reports. |
| | HEPB | Conduct inspections of all construction projects relative to compliance with PRC regulations and standards. |
| Operation | O&M Units: HLB, HESB, HAPB, HWB | Ensure proper operation, maintenance and management of component facilities according to design standards, and implement mitigation measures and public consultations |
| | HPMO, LIEC | Conduct EMP compliance review, instruct HUCIC and O&M units on environmental management requirements; prepare annual EMP progress report until a PCR is issued. Contract EEM to undertake environmental impact monitoring for the first three years of operation |
| | EMS (contracted by O&M Units) | Undertake environmental impact monitoring until a PCR is issued; submit monitoring results to HPMO, HUCIC, HEPB. |
| | EEM (contracted by HPMO) | Verify EMP compliance until a PCR is issued; submit EEM report to HPMO, HUCIC, HEPB. |
| | HEPB | Undertake periodic and random environmental monitoring and inspect environmental compliance |
| | ADB | Review and approve environmental progress report, disclose on ADB project website |

Notes: ADB = Asian Development Bank; EEM = External Environment Monitor; HAPB = Huanggang Aquatic Products Bureau; HEPB = Huanggang Environmental Protection Bureau; HEPD = Hubei Environmental Protection Department; HESB = Huanggang Environmental Sanitation Bureau; HLB = Huanggang Landscaping Bureau; HPMO =Huanggang Project Management Office; HUCIC = Huanggang Urban Construction Investment Co., Ltd.; HWB = Huanggang Water Bureau; LIEC = Loan Implementation Environment Consultant.

C. Summary of Potential Impacts and Mitigation Measures

15. Potential environmental issues and impacts during the pre-construction, construction and operation phases, as identified in the EIA as well as corresponding mitigation measures designed to minimize the impacts are summarized in **Table EMP-2**. Mitigation or safeguard includes two types of environmental measures:

16. Those that will permanently become part of the infrastructure such as noise reduction materials and odor removal equipment for the solid waste transfer station. These will need to be included in the design of the facility by the design institutes, otherwise they won't be built. The costs of building and maintaining these systems have already been included in the infrastructure construction and operating costs and therefore will not be double-counted as part of the EMP costs.

17. Those that are temporary measures particularly during the construction stage, such as dust suppression by watering and wheel washing, the use of quiet / low noise powered mechanical equipment, flocculants used to facilitate sedimentation of suspended solids in construction site runoff, etc. These will need to be included in the tender documents, otherwise they are not budgeted by the contractor and they won't be done. The costs for implementing these measures are included in the EMP. The budgets for implementing these measures in this project add up to the amount of **\$2,152,000**. This amount is made up of \$1,111,000 for the implementation of soil erosion protection measures according to the SEPP (without double-counting the SEPP cost for vegetation/landscaping of permanent works areas, which have already been included in the civil works costs), and \$1,041,000 for other mitigation measures.

18. The mitigation measures defined in the EMP will be (i) checked and where necessary re-designed by the design institutes; (ii) incorporated into tender documents (where appropriate), construction contracts, and operational management plans; and (iii) implemented by contractors, HUCIC or HPMO, as relevant. The effectiveness of these measures will be evaluated based on the daily site supervisions by the CSCs, the results of the environmental monitoring conducted by the HEMS, and through EMP compliance verification conducted by the HPMO, the LIEC and the EEM.

Table EMP-2: Summary of potential impacts and mitigation measures

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|--|-------------------|--|--|---------------------|--------------------|-----------------------------|
| Detailed Design Stage | | | | | | |
| A1. Design of the NMT lake ring road | Health and safety | A1.1. Safety of pedestrians and cyclists | Design must ensure public health and safety with clearly marked and separate lanes for pedestrians and cyclists, and ensure barrier-free design for disabled people. Design shall include fences at 15 sections of the road running close to the lakeshore (3,450m). Design of the NMT ring road shall be based on the flood water level, and shall allow groundwater and surface water to flow (requiring installation of 27 culverts). | Design Institute | HUCIC, HPMO | Included in design contract |
| A2. Design of solid waste transfer station and waste collection boats and vehicles | Air quality | A2.1. Odor from the transfer station | Transfer station design shall comply with “Technical Specifications for Domestic Solid Waste Transfer Stations” (CJJ47-2006);, including odor removal equipment / facility, and shall comply with GB 14554-93 (Emission Standard for Odor Pollutants). | Design Institute | HUCIC, HESB | Included in design contract |
| | Water quality | A2.2. Effluent discharge | Technical design of the transfer station must have collection systems for conveying leachate to municipal sewers, and comply with GB 8978-1996 (Integrated Wastewater Discharge Standard). | Design Institute | HUCIC, HESB | Included in design contract |
| | Noise | A2.3. Noise during solid waste loading, unloading and compaction | Technical design of the transfer station must be able to contain the operational noises during loading, unloading and compaction of the solid waste, and comply with GB 12348-2008 (Emission Standard for Industrial Enterprises Noise at Boundary). | Design Institute | HUCIC, HESB | Included in design contract |
| | Climate change | A2.4. GHG emissions | All building and systems designs and equipment selection (including waste collection boats and vehicles) must take into account energy efficiency, energy conservation and low GHG emissions; Vehicles must comply with Limits and Measurement Methods for Emissions from Light-duty Vehicles (Phase III,IV) (GB18352-2005), | Design Institute | HUCIC, HESB | Included in design contract |
| A3. Design of pumping | Noise | A3.1. Noise during | The pumping station shall be constructed in form of | Design Institute | HUCIC, HPMO | Included in |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|--|----------------------------------|---|--|---------------------|--------------------|-----------------------------|
| station for hydraulic recirculation | | operation of the pumping station | semi-buried structure, with efficient acoustic protection to comply with relevant noise standard at boundary. | | | design contract |
| A4.Design of the temporary storage sites for the Chiye Lake dredged sediment | Water quality | A4.1. Discharge of supernatant water | Design of the site must include treatment of supernatant water | Design Institute | HUCIC | Included in design contract |
| | | A4.2. Site drainage for heavy rain storm | Design of the site must include perimeter drainage for diverting overland runoff during rain storm | Design Institute | HUCIC | Included in design contract |
| A5. Design of river and lake embankments and flood protection works | Flood protection | A5.1. Flood damage, downstream impacts, adaptation to climate change | Technical design of the flood control function of the river channels must take into consideration extreme storm events due to climate change; Technical design of embankments must ensure flood protection for 1 in 20 years flood flows, while at the same time ensure eco-friendly embankment; Conduct detailed analysis and calculations of design water levels accounting for the final embankment design; Confirm channel conveyance capacity and water surface elevation as required in the flood control plan, and demonstrate no net increase of risk of floods downstream. | Design Institute | HUCIC, HWB | Included in design contract |
| A.6. Design of wetlands and aquatic planting | Ecological communities | A6.1. Invasion by foreign or exotic species | Technical design of the sub-surface flow and surface flow wetlands and planting of wetland and other aquatic species must use local species with local provenance. Under no circumstance shall exotic or invading species be used. | Design Institute | HUCIC, HLB | Included in design contract |
| | Design in accordance to standard | A6.2. Under- or oversizing of subsurface-flow and surface-flow wetlands | Technical design of the sub-surface flow and surface flow wetlands must comply with Technical Specification of Constructed Wetlands for Wastewater Treatment Engineering (HJ 2005-2010) | Design Institute | HUCIC, HLB | Included in design contract |
| Pre-construction Stage | | | | | | |
| B1. Institutional strengthening | - | B1.1. Lack of environment management capacities within HPMO | Appoint qualified environment specialist on its staff within the HPMO; Contract loan implementation environment consultants (LIEC) within loan implementation consultant services; Conduct environment management training (with support of | HPMO, LIEC | ADB | HMG, Loan implementation TA |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|----------------------------------|-----------------------------------|---|---|--|--------------------|--|
| | | | HEPB). | | | |
| | - | B1.2. Lack of environment management capacities within HUCIC | Appointment of environment specialists; Conduct environment management training; | HUCIC, LIEC | HPMO , ADB | HUCIC, Loan implementation TA |
| | | B1.3. External environment monitor (EEM) | Contract EEM to conduct independent verification of the project's environment performance and compliance with the approved EMP | HPMO | HPMO, ADB | Loan implementation TA |
| | | B1.4. Lack of environment management capacities within HLB, HESB, HAPB, HWB | Conduct environment management training in accordance with training plan defined in the Project Administration Manual (PAM) | HPMO, HUCIC, LIC, HLB, HESB, HAPB, HWB | EA, ADB | HUCIC, Loan implementation TA |
| B2. EMP update | - | B2.1. EMP does not reflect final project design | Review mitigation measures defined in this EMP, update as required to reflect detailed design, disclose updated EMP on project website, and include updated EMP in all bid documents. | HUCIC, assisted by LIEC | HPMO, ADB | HUCIC, Loan implementation TA |
| B3. Land-take confirmation | Land acquisition and resettlement | B3.1. Resettlement Plan update | Update the Resettlement Plan with final inventory. | Design Institute, HUCIC | HPMO, ADB | HUCIC |
| B4. Grievance redress mechanisms | - | B4.1. Handling and resolving complaints | -Establish a GRM, appoint a GRM coordinator within HPMO; -Brief and provide training to GRM access points; -Disclose GRM to affected people before construction begins at the main entrance to each construction site; -Maintain and update a Complaint Register to document all complaints. | HPMO, HUCIC | ADB | HPMO budget, Loan Implementation TA |
| B5. Tender documents | Air quality | B5.1. Dust (TSP) impact to sensitive receptors | Put into tender documents dust suppression measures defined in Table EMP-2 (this table), Construction Stage, Impact No. C1.1. | Design Institute, Tender Agent | HUCIC, HPMO | Included in tendering agent's contract |
| | | B5.2. Fumes and PM from the asphalt mixing plant and the concrete batching | Put into tender documents measures defined in Table EMP-2 (this table), Construction Stage, Impact No. C1.2. | Design Institute, Tender Agent | HUCIC, HPMO | Included in tendering agency contract |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|--------------------------|-----------------------------------|---|--|--|--------------------|---------------------------------------|
| | | plant | | | | |
| | Noise | B5.3. PME noise impact to sensitive receptors | Put into tender documents the measures defined in Table EMP-2 (this table), Construction Stage, Impact No. C1.3. | Design Institute, Tender Agent | HUCIC, HPMO | Included in tendering agency contract |
| | Water quality | B5.4. Construction site wastewater impact on water bodies | Put into tender documents the measures defined in Table EMP-2 (this table), Construction Stage, Impact No. C1.4. | Design Institute, Tender Agent | HUCIC, HPMO | Included in tendering agency contract |
| | Earthwork, quarries, borrow sites | B5.5. Disposal or storage of excavated spoil, dredged sediments | Specify in tender documents the borrow site, spoil disposal or storage sites and that only these sites could be used. Put into tender documents the measures defined in Table EMP-2 (this table), Construction Stage, Impact No. C1.7. | Design Institute, Tender Agent | HUCIC, HPMO | Included in tendering agency contract |
| | Health & safety | B5.6. Occupational health & safety of workers | Specify in tender documents measures defined in Table EMP-2 (this table), Construction Stage, Impact No. C3.1, C3.2, C3.3, C3.4, C3.5. | Design Institute, Tender Agent | HUCIC, HPMO | Included in tendering agency contract |
| | | B5.7. Community health and safety | Specify in tender documents measures defined in Table EMP-2 (this table), Construction Stage, Impact No. C3.6, C3.7, C3.8, C3.9 | Design Institute, Tender Agent | HUCIC, HPMO | Included in tendering agency contract |
| | Ecological resources | B5.8. Protection of fauna and flora | Specify in tender documents measures defined in Table EMP-2 (this table), Construction Stage, Impact No. C2.1, C2.2. | Design Institute, Tender Agent | HUCIC, HPMO | Included in tendering agency contract |
| B.6 Construction traffic | Traffic | B6.1. Construction vehicles causing traffic congestion | Plan transport routes for construction vehicles and specify in tender documents to forbid vehicles from using other roads and during peak traffic hours. | Design Institute, Local traffic police | HUCIC, HPMO | Included in tendering agency contract |

Estimated cost for Design and Pre-construction stage: costs are included in the detail design fee and tendering agency contracts

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|----------------------------------|---------------|---|---|---------------------|----------------------|-----------------------------------|
| Construction Stage | | | | | | |
| C1. Impact on Physical Resources | Air quality | C1.1. Dust (TSP, PM ₁₀) during construction | <ul style="list-style-type: none"> - Spray water regularly on hauling and access roads to borrow pits (at least once per day) to suppress dust; and erect hoarding around dusty activities; - Minimize the storage time of construction and demolition wastes on site by regularly removing them off site - Mount protective canvasses on all trucks which transport material that could generate dust; - Build access and hauling roads at sufficient distances from residential areas, particular, from local schools and hospitals; - Assign haulage routes and schedules to avoid transport occurring in the central areas, traffic intensive areas or residential areas. For the areas with high-demand on environmental quality, transport should be arranged at night. - Keep construction vehicles and machinery in good working order, regularly service and turn off engines when not in use; - Vehicles with an open load-carrying case, which transport potentially dust-producing materials, shall have proper fitting sides and tail boards. Dust-prone materials shall not be loaded to a level higher than the side and tail boards, and shall always be covered with a strong tarpaulin; - Install wheel washing equipment or conduct wheel washing manually at each exit of the works area to prevent trucks from carrying muddy or dusty substance onto public roads; - In periods of high wind, dust-generating operations shall not be permitted within 200 m of residential areas. Special precautions need to be applied in the vicinity of sensitive areas such as schools, kindergartens and hospitals; - Equip material stockpiles with dust shrouds. For the earthwork management for backfill, measures will include surface press and periodical spraying and covering. The extra earth or dreg should be cleared from the project site in time to avoid long term stockpiling. The height of stockpiles should be | Contractor | CSC; HEPB; LIEC; EEM | Included in construction contract |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|------|---------------|--|---|---------------------|----------------------|-----------------------------------|
| | | | <p>less than 0.7m;</p> <ul style="list-style-type: none"> - To avoid odor impacts caused by channel cleaning, transport the removed trash quickly to the local landfill. Transport of dredged sediments will be undertaken in closed tank wagons to prevent scattering along the way and impacting the urban area; - No unauthorized burning of construction and demolition waste material and refuse; - Conduct regular air quality monitoring at construction site boundary to confirm compliance with relevant emission and ambient air quality standards. | | | |
| | | C1.2. Fumes and PM from asphalt mixing plant and concrete batching plant | <ul style="list-style-type: none"> - Enclose and equip these plants with fabric filters, wet scrubbers or similar air pollution control equipment - Site these plants at least 300 meters away from residential areas [<i>Note: concrete batching plant must be 1 km from the nearest sensitive receptor due to noise, see Noise Mitigation Measures below</i>] - Comply with <i>Air Pollutant Integrated Emission Standard</i> (GB 16297-1996) | Contractor | CSC; HEPB; LIEC; EEM | Included in construction contract |
| | Noise | C1.3. Noise from PME and vehicles | <ul style="list-style-type: none"> - During daytime construction, the contractor will ensure that: (i) noise levels from equipment and machinery conform to the PRC standard for <i>Noise Limits for Construction Sites</i> (GB12523-2011), and properly maintain machinery to minimize noise; (ii) equipment with high noise and high vibration are not used near village or township areas and only low noise machinery or the equipment with sound insulation is employed; (iii) sites for concrete-mixing plants and similar activities will be located at least 1 km away from the nearest sensitive receptor; and (iii) temporary anti-noise barriers or hoardings will be installed around the equipment to shield residences when there are residences within 50 m of the noise source; - No night time (between 2200 and 0600 hours) construction within 500 m of existing and future sensitive receptors; | Contractor | CSC; HEPB; LIEC; EEM | Included in construction contract |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|------|---------------|--|--|---------------------|----------------------|-----------------------------------|
| | | | <ul style="list-style-type: none"> - Provide the construction workers with suitable hearing protection (ear muffs) according to the worker health protection law of the PRC; -Control the speed of bulldozer, excavator, crusher and other transport vehicles travelling on site, adopt noise reduction measures on equipment, step up equipment repair and maintenance to keep them in good working condition; - Limit the speed of vehicles travelling on site (less than 8 km/hr), forbid the use of horns unless absolutely necessary, minimize the use of whistles; - Maintain continual communication with the villages and communities in the Baitan Lake planning area; - Regularly monitor noise at sensitive areas (refer to the monitoring plan). If noise standards are exceeded by more than 3 dB, equipment and construction conditions shall be checked, and mitigation measures shall be implemented to rectify the situation; | | | |
| | Surface water | C1.4. Uncontrolled wastewater and muddy runoff from construction sites and work camps, disturbance of river sediments and increase SS concentrations | <ul style="list-style-type: none"> - Provide portable toilets and small package wastewater treatment plants on construction sites for the workers and canteens; - If there are nearby public sewers, install interim storage tanks and pipelines to convey wastewater to those sewers; - Install sedimentation tanks on construction sites to treat process water (e.g. concrete batching for bridge construction) and muddy runoff with high concentrations of suspended solids. If necessary, add flocculants such as polyacryl amide (PAM) to facilitate sedimentation; - Avoid the rainy season from May to October for the construction of sluice gates and ring road bridge foundations. Adopt mitigation measures such as placement of sandbags or berms around foundation works areas to contain muddy water runoff. Pump the slurry from pile drilling in the river bed to shore and disposed of properly; - Plan the pier construction lay out in Baitan Lake to ensure | Contractor | CSC; HEPB; LIEC; EEM | Included in construction contract |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|------|-------------------|--|---|---------------------|------------------------|-----------------------------------|
| | | | <p>adequate opening for water flow.</p> <ul style="list-style-type: none"> - Repair and wash construction machinery at special repairing shops. No onsite machine repair and washing shall be allowed. - Store fuels, oil, and other hazardous materials within secured areas on impermeable surfaces, with bunds and cleanup kits. - The contractors' fuel suppliers must be properly licensed, follow proper protocol for transferring fuel, and must be in compliance with <i>Transportation, Loading and Unloading of Dangerous or Harmful Goods</i> (JT 3145-88). - Protect material stockpiles against wind and runoff waters which might transport them to surface waters - Clean up all spills are according to PRC norms and codes within 24 hours of the occurrence, with contaminated soils and water treated according to PRC norms and codes. Hand over records without delay to the HPMO and HEPB. | | | |
| | Sediment dredging | C1.5. Increased SS in the water column, supernatant water management, dredged material treatment and disposal. | <ul style="list-style-type: none"> - Conduct dry dredging in Linglong Bay, Jinshui River, Dongtai River and Chushui River; - Inspect and maintain the dredged sediment transport pipeline regularly to prevent spillage; - Test the supernatant water at the sediment treatment sites and temporary storage site for compliance with <i>Integrated Wastewater Discharge Standard</i> (GB 8978-1996), Class I standard; - Review dredging method in Baitan Lake and Chiye Lake when SS level at downstream impact monitoring station is $\geq 130\%$ of the SS level at the upstream control station (see <i>Monitoring Plan</i>). If necessary, adopt different dredging equipment or reduce dredging rate; - conduct leaching test of dredged sediment to confirm that mud cakes comply with CJ/T 291-2008 (The Disposal of Sludge from Municipal Wastewater Treatment Plant – Sludge Quality for Land Improvement) and/or CJ/T 309-2009 (The Disposal of Sludge from Municipal Wastewater Treatment | Contractor | HUCIC; HEPB; LIEC; EEM | Included in construction contract |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|------|------------------------------------|--|---|---------------------|--|-----------------------------------|
| | | | Plant –Control Standards for Agricultural Use); - Treat dredged sediment at dedicated treatment sites in the project area using chemical flocculation, solidification and dewatering technology; - Reuse dredged material for wetland construction and other project facilities. | | | |
| | Solid waste | C1.6. C&D waste, municipal solid waste | -Establish enclosed waste collection points on site, with separation of domestic waste and C&D waste; -Set up centralized domestic waste collection point and transport offsite for disposal regularly by sanitation department; -Reuse C&D waste for filling and foundations of other construction works specified by the municipal and planning departments, or transport in enclosed containers to designated C&D landfill site. | Contractor, HAOCW | CSC; HEPB; LIEC; EEM | Included in construction contract |
| | Earthwork, soil erosion protection | C1.7. Soil erosion, inadequate spoil storage, disposal and borrow site operation | Implement soil erosion protection measures as defined in the Soil Erosion Protection Plan and Table V.5 of the EIA report, including (but not limited to): - Confirm location of the borrow pit and temporary spoil storage and final disposal sites; - Develop borrow pit management and restoration plan, to be approved by responsible authority; obtain permit for the clearance of excavated earthwork s; - Construct intercepting ditches and drains to prevent runoff entering construction sites, and diverting runoff from sites to existing drainage; - Construct hoardings and sedimentation ponds to contain soil loss and runoff from the construction sites - Limit construction and material handling during periods of rains and high winds; - Stabilize all cut slopes, embankments, and other erosion-prone working areas while works are going on; | Contractor | CSC; HWB; Soil Erosion Protection Monitoring Entity; EEM | Included in construction contract |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|------------------------------------|----------------------------|--|---|---------------------|----------------------|-----------------------------------|
| | | | <ul style="list-style-type: none"> - Stockpiles shall be short-termed, placed in sheltered and guarded areas near the actual construction sites, covered with clean tarpaulins, and sprayed with water during dry and windy weather conditions; - All earthwork disturbance areas shall be stabilized with thatch cover within 30 days after earthworks have ceased at the sites; - Immediately restore, level and plant landscape on temporary occupied land upon completion of construction works; - Unauthorized extraction or disposal at other sites or deviating from established quota would be subject to withheld payments and penalties; - Restore pit following the completion of works in full compliance with all applicable standards and specifications. <p>Approximately 97% of the 1.23 million m³ earth cut materials will be re-used on site. Imported fill will total approximately 1.68 million m³ for construction of embankments and landscaped strips.</p> | | | |
| C2. Impact on ecological resources | Impacts on fauna and flora | C2.1. Destruction of habitats and wildlife | <ul style="list-style-type: none"> - Apply cutter suction dredger for lake sediment dredging to minimize stirring up of bottom sediments that might affect photosynthetic activity of phytoplankton, reduce primary production and potentially food availability to the herbivores and higher trophic levels preying on the herbivores; - Preserve existing vegetation on construction sites where no civil works are planned; - Protect existing trees and grassland during construction; where a tree has to be removed or an area of grassland disturbed, replant trees and re-vegetate the area after construction; - Remove trees or shrubs only as the last resort if they impinge directly on the permanent works or approved necessary temporary works; - Strictly prohibit construction workers from capturing any | Contractor | CSC, HEPB; LIEC, EEM | Included in construction contract |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|--|--------------------------------|--|---|---------------------|-----------------------------------|-----------------------------------|
| | | | wildlife in the project area | | | |
| | | C2.2. Disturbance to water birds wintering at Baitan Lake and Chiye Lake | -Restrict all construction activities within the Baitan Lake and Chiye Lake blue lines and within 1 km outside the Baitan Lake and Chiye Lake blue lines between 0900 hr and 1600 hr from 1 November to 31 March the following year to prevent disturbance to the dawn and dusk feeding periods and nesting of water birds. | Contractor | CSC, HUCIC; HEPB; LIEC, EEM | Included in construction contract |
| C3. Impact on socio-economic resources | Occupational health and safety | C3.1. Construction site sanitation, pest control | <ul style="list-style-type: none"> - Provide adequate and functional systems for sanitary conditions, toilet facilities, waste management, labor dormitories and cooking facilities; - Effectively clean and disinfect the site. During site formation, spray with phenolated water for disinfection. Disinfect toilets and refuse piles and timely remove solid waste; - Exterminate rodents on site at least once every 3 months, and exterminate mosquitoes and flies at least twice each year; - Provide public toilets in accordance with the requirements of labor management and sanitation departments in the living areas on construction site, and appoint designated staff responsible for cleaning and disinfection; - Work camp wastewater shall be discharged into the municipal sewer system; | Contractor | CSC, HUCIC; HEPB; HESB; LIEC, EEM | Included in construction contract |
| | | C3.2. Personal Protective Equipment | <ul style="list-style-type: none"> - Provide safety hats and shoes to all construction workers and enforce their use by the workers; - Provide goggles and respiratory masks to workers doing asphalt road paving; - Provide ear plugs to workers working near noisy PME | Contractor | CSC; LIEC; EEM | Included in construction contract |
| | | C3.3. Food safety | <ul style="list-style-type: none"> -Inspect and supervise food hygiene in cafeteria on site regularly; -Cafeteria workers must have valid health permits. -If food poisoning is discovered, implement effective control | Contractor | HUCIC; LIEC | Included in construction contract |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|------|-----------------------------|---|---|----------------------------------|--------------------|-----------------------------------|
| | | | measures immediately to prevent it from spreading. | | | |
| | | C3.4. Disease prevention and safety awareness | <p>-All contracted labor shall undergo a medical examination which should form the basis of an (obligatory) health/accident insurance and welfare provisions to be included in the work contracts;</p> <p>-The contractors shall maintain records of health and welfare conditions for each person contractually engaged;</p> <p>- Establish health clinic at location where workers are concentrated, which should be equipped with common medical supplies and medication for simple treatment and emergency treatment for accidents;</p> <p>-Specify (by HUCIC and contractors) the person responsible for health and epidemic prevention responsible for the education and propaganda on food hygiene and disease prevention to raise the awareness of workers.</p> | Contractor | HUCIC; LIEC | Included in construction contract |
| | | C3.5. Social conflicts | -Civil works contracts shall stipulate priorities to (i) employ local people for works, (ii) ensure equal opportunities for women and men, (iii) pay equal wages for work of equal value, and to pay women's wages directly to them; and (iv) not employ child or forced labor. | Contractor | HUCIC; LIEC | Included in construction contract |
| | Community health and safety | C3.6. Temporary traffic management | <p>-A traffic control and operation plan will be prepared together with the local traffic management authority prior to any construction.</p> <p>-The plan shall include provisions for diverting or scheduling construction traffic to avoid morning and afternoon peak traffic hours, regulating traffic at road crossings with an emphasis on ensuring public safety through clear signs, controls and planning in advance.</p> | Contractor, local traffic police | HUCIC, LIEC | BMG (traffic police department) |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|---|-----------------------------|--|---|-------------------------------------|--------------------|-----------------------------------|
| | | C3.7. Information disclosure | -Inform residents and businesses in advance through media of the construction activities, given the dates and duration of expected disruption. | HUCIC | HPMO, LIEC | GBDIG |
| | | C3.8. Access to construction sites | -Place clear signs at construction sites in view of the public, warning people of potential dangers such as moving vehicles, hazardous materials, excavations etc. and raising awareness on safety issues. All sites will be made secure, discouraging access by members of the public through appropriate fencing whenever appropriate. | Contractor | HUCIC, LIEC | Included in construction contract |
| | | C3.9. Utility services interruptions | -Assess construction locations in advance for potential disruption to services and identify risks before starting construction; -If temporary disruption is unavoidable, develop a plan to minimize the disruption in collaboration with relevant local authorities such as power company, water supply company and communication company, and communicate the dates and duration in advance to all affected people. | Contractor, local service providers | HUCIC; LIEC | Included in construction contract |
| | Physical cultural resources | C3.10. Destruction of cultural relics in stream bed and soil | -Contractor must comply with PRC's <i>Cultural Relics Protection Law</i> and <i>Cultural Relics Protection Law Implementation Regulations</i> if such relics are discovered, stop work immediately and notify the relevant authorities, adopt protection measures and notify the Security Bureau to protect the site. | Contractor | HUCIC; HCB; LIEC | Included in construction contract |
| | | | | | | |
| Estimated cost for the Construction Stage: \$2,152,000 [which includes approximately \$1,111,000 from the SEPP for implementation of soil erosion protection measures (the costs for vegetation measures only include those for re-vegetating temporary works/land take areas and do not include those costs in the SEPP for landscaping as part of the permanent works)] | | | | | | |
| Operational Stage | | | | | | |
| D1. Maintenance of sub-surface flow and surface flow wetlands | Disturbance to wildlife | D1.1. Disturbance to wintering water birds in Baitan Lake and Chiye Lake | -No regular maintenance of sub-surface flow and surface flow wetlands in Baitan Lake and Chiye Lake shall be scheduled during the water bird winter migrating period from 1 November to 31 March the following year | HLB | HPMO, EEM | HLB's operation budget |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|---|--|--|--|---------------------|--------------------|-------------------------|
| | Water quality and scenic aesthetics | D1.2. Solid waste pollution from trimming wetland vegetation | -All wetland vegetation removed during regular or ad hoc maintenance shall be immediately collected by the solid waste collection boats and transferred to the solid waste transfer station on land. | | | |
| | Siltation | D1.3. Sediment accumulation affecting wetland hydraulics | - Periodically remove localized sediment accumulation to sustain desirable hydraulics | | | |
| D2. Water quality in Baitan Lake and Chiye Lake | Fish culture in Baitan Lake and Chiye Lake | D2.1. Fish feed and wastes polluting lake water | -Strictly control the locations, fish species, quantity, and maximum amount of fish feed for fish culture in the lakes. | HAPB | HPMO, EEM | HAPB's operation budget |
| D3. Flood control works of rivers and lakes | Flood emergency preparedness and response | D3.1. Response to above-standard floods | -Update early flood warning and emergency response mechanism for the Baitan Lake planning area, taking into account new flood control and pump station works. The mechanism shall consider safety of evacuation routes and locations of safe temporary refuge, among other matters. -If necessary, increase storm water drainage pipe size in the Baitan Lake planning area to reduce water logging risk. | HWB | HPMO, EEM | HWB's operation budget |
| | River maintenance | D3.2. Dredging | -The stream will require maintenance dredging from time to time to restore flood flow capacity | | | |
| | Waterfront and water body sanitation | D3.3. Solid waste collection | -Solid wastes along the NMT lake ring road and river and lake banks will be regularly collected, and disposed of in local sanitary landfill; - Appoint sufficient personnel to regularly maintain the sanitary condition of the lakes and rivers, including removal of garbage and vegetation which may impair flood flow capacity; | HESB | HPMO | HESB's operation budget |
| | Sluice gate operation | D3.4 Impact on fish migration | - Strictly adhere to sluice operating procured defined in the EIA, Section 5.E. - The two sluice gates shall only be deployed in the dry season and winter to maintain the water level at the Baitan Lake to avoid negative impact on migratory fish species. | HWB | HPMO, EEM | HWB's operation budget |
| D4. Solid waste management | Solid waste transfer station | D4.1. Noise and odor nuisance, water | -The transfer station will be fully enclosed to minimize noise and odor released to the surrounding environment; the | HESB | HPMO | HESB's operation budget |

| Item | Impact Factor | Potential Impact and/or Issues | Mitigation Measures | Implementing Entity | Supervising Entity | Source of funds |
|--|---------------|--------------------------------|--|---------------------|--------------------|-----------------|
| | | quality impact | <p>buildings will be designed with sound-absorbing and sound-insulating materials;</p> <p>-Air curtains will be installed at the inlet of the transfer station for unloaded MSW to prevent the emission of odor and dust; dust removal using the spray system plus gravity sedimentation technique will be installed;</p> <p>-Leachate from the transfer station will be collected and discharged into the municipal sewage network; the floor of the transfer station will be sealed to prevent any potential seepage and pollution of groundwater;</p> <p>-Equipment will be regularly cleaned with the spraying of disinfectant and deodorant to control odor generation and as pest control;</p> <p>- An odor control system will be installed for odor suction and treatment (using chemical spray plus activated carbon adsorption).</p> | | | |
| Estimated cost for the Operational Stage: the cost will be included in the O&M budget | | | | | | |
| <p>Notes: ADB = Asian Development Bank; EEM = External Environment Monitor; HAOCW = Huanggang Administration Office of Construction Waste; HAPB = Huanggang Aquatic Products Bureau; HESB = Huanggang Environmental Sanitation Bureau; HCB = Huanggang Culture Bureau; HEPB = Huanggang Environmental Protection Bureau; HLB = Huanggang Landscaping Bureau; HMG = Huanggang Municipal Government; HPMO = Huangguang Project Management Office; HUCIC = Huanggang Urban Construction Investment Company, HWB = Huanggang Water Bureau; LIEC = loan implementation environmental consultant</p> | | | | | | |

D. Monitoring and Reporting

19. Monitoring will include **project readiness monitoring** (to be conducted by the HPMO with support of the LIEC), **environmental impact monitoring** (to be conducted by the External Environment Monitor (EEM); as well as by the contractors who will be required to conduct frequent noise and air quality monitoring around construction sites), and **EMP compliance monitoring** to verify EMP compliance during project implementation and project operation (to be conducted by HPMO and LIEC). Monitoring and reporting arrangements defined for this project are described below.

20. **Assessment of project readiness.** Before construction, the LIEC will assess the project's readiness in terms of environmental management based on a set of indicators (**Table EMP-3**) and report it to ADB and the HPMO. This assessment will demonstrate that environmental commitments are being carried out and environmental management systems are in place before construction starts, or suggest corrective actions to ensure that all requirements are met.

Table EMP-3: Project readiness assessment indicators

| Indicator | Criteria | Assessment | |
|---|--|------------|----|
| EMP update | <ul style="list-style-type: none"> The EMP was updated after technical detail design as needed, approved by ADB, and disclosed on the project website | Yes | No |
| Compliance with loan covenants | <ul style="list-style-type: none"> The borrower complies with loan covenants related to project design and environmental management planning | Yes | No |
| Public involvement effectiveness | <ul style="list-style-type: none"> Meaningful consultation completed GRM established with entry points | Yes | No |
| | | Yes | No |
| Environmental Supervision in place | <ul style="list-style-type: none"> LIEC is in place Environment specialist appointed by HUCIC Environment specialist appointed by HPMO EEM contracted by HPMO Contractors have site-specific EMPs CSCs contracted by HUCIC HEMS contracted by contractors Ornithologist(s) hired by HPMO | Yes | No |
| | | Yes | No |
| | | Yes | No |
| | | Yes | No |
| | | Yes | No |
| | | Yes | No |
| | | Yes | No |
| | | Yes | No |
| Bidding documents and contracts with environmental safeguards | <ul style="list-style-type: none"> Bidding documents and contracts incorporating the environmental activities and safeguards listed as loan assurances Bidding documents and contracts incorporating the impact mitigation and environmental management and monitoring provisions of the EMP Environmental requirements of EMP included in contract documents | Yes | No |
| | | Yes | No |
| | | Yes | No |
| EMP financial support | <ul style="list-style-type: none"> The required funds have been set aside by HPMO, HUCIC, contractors and the O&M units to support the EMP implementation | Yes | No |

21. **Environmental Impact Monitoring.** **Table EMP-4** shows the environmental impact monitoring program specifically designed for this project, defining the requirements, including, scope, location, parameter, duration and frequency of monitoring during the construction and operational stages. Environmental impact monitoring will include monitoring of air quality, noise and water quality as described in **Table EMP-4**. Environmental monitoring during construction and operation will be conducted by the Huanggang environment monitoring station (HEMS) and a soil erosion monitoring entity, contracted by the contractors. Wildlife monitoring will be conducted by experienced

ornithologist(s). The EEM will be hired by HPMO to verify monitoring results. The budget for environmental impact monitoring has been estimated at **\$420,000**, which includes approximately \$120,000 estimated in the SEPP for soil erosion and water conservation monitoring. The monitoring program will be included in the project tendering documents, as well as the construction and operation contracts.

22. The environmental monitoring results will be compared with relevant PRC performance standards (**Table EMP-5**), and non-compliance with these standards will be highlighted in the monitoring reports. Monitoring results will be submitted by HEMS to HPMO and HUCIC quarterly, and will be reported in the semi-annual environmental monitoring reports by HPMO (with the support of the LIEC, see reporting plan in **Table EMP-6**).

Table EMP-4: Environmental impact monitoring program

| Item | Monitoring Parameter | Monitoring Location | Monitoring Frequency & Duration | Implementing Entity | Supervising Entity |
|---------------------------|--|--|---|---------------------------------------|--------------------|
| Construction Stage | | | | | |
| Air quality | TSP, PM10 (SO ₂ & NO _x only if there is asphalt mixing within 300 m of monitoring locations) | At boundaries of all <u>construction sites</u> , <u>plus:</u> <u>12 locations:</u> 1. Shangshazui 上沙咀 2. Xiashazui 下沙咀 3. Shangyaojiawan 上姚家湾 4. Tujiadawan 涂家大湾 5. Liujiawan 刘家湾 6. Lijiawan 李家湾 7. Nanhu Resettlement Community (under construction) 南湖还建小区 8. Nanhu Team #5 南湖五队 9. Nanhu Farm 南湖农场 10. Baizhangzui Group #6 百丈咀六组 11. Baizhangzui Group #5 百丈咀五组 12. Jianchuanwan 建川湾 Bolt: sensitive receptors | 1 day (24-hr continuous sampling) per month during construction period | HEMS (contracted through contractors) | EEM, HEPB |
| Noise | L _{Aeq} | 12 locations (same as for air quality) | 2 times per day (day time and night time); 1 day per month during construction period | HEMS (contracted through contractors) | EEM; HEPB |
| Water quality | SS | <u>Baitan Lake and Chiye Lake dredging</u> 2 monitoring stations for <u>each</u> dredger 1. 50 m up current of the dredger (control station) 2. 100 m down current of the dredger (impact station) <u>River dredging/excavation:</u> 2 monitoring stations at <u>each</u> dredging and/or excavation section: 1. 50 m upstream of the dredging section (control station) 2. 100 m downstream of the dredging section (impact station) | 1 time per day; 1 day per month during construction period | HEMS (contracted through contractors) | EEM; HEPB |

| Item | Monitoring Parameter | Monitoring Location | Monitoring Frequency & Duration | Implementing Entity | Supervising Entity |
|--|--|--|--|--|--------------------|
| Construction Stage | | | | | |
| | | <u>Dredged sediment treatment and storage sites:</u> 1 location at the discharge point for supernatant water at <u>each</u> site. <u>Bridge, sluice gate and pier construction sites:</u> 2 monitoring stations at <u>each</u> site 1. 50 m upstream of the site (control station) 2. 100 m downstream of the site (impact station) | | | |
| Sediment quality | Cu, Pb, Hg, Cd, As, Ni, pH | <u>Dredged material storage area</u> | <u>6 times during construction stage</u> | HEMS (contracted through contractors) | EEM, HEPB |
| Soil erosion | According to Table 9-3 of SEPP | <u>Location:</u> 10 locations specified in Table 9-2 and Attached Figure 5 of the SEPP | According to Table 9-3 of SEPP covering pre-construction (baseline), construction and vegetation recovery periods. | Institute with qualification in soil erosion protection monitoring (contracted by contractors) | EEM, HUCIC; BWB |
| Ecology | Water bird counts and distribution | Conduct bird survey <u>along the perimeters of Baitan Lake and Chiye Lake</u> to record the number of wintering water bird species and individuals, and distribution in the Baitan Lake and Chiye Lake areas. | 1 time per day in early morning hours; 2 consecutive days per month from October to next April during construction period. | Qualified ornithologist(s) (contracted through HPPO) | HUCIC, HEPB |
| Occup. Health & Safety | Audit of occupational health & safety of workers on construction sites | <u>Construction sites</u> | Daily during construction period Once per month during construction period | CSCs HUCIC | HPMO |
| Operational Stage (first three year) | | | | | |
| Water quality improvement in Baitan Lake and Chiye Lake | Permanganate index (I_{Mn}), BOD, COD, NH_3-N , TN, TP | <u>4 locations:</u> same 3 locations in Baitan Lake and 1 location in Chiye Lake where baseline water quality monitoring was undertaken by HEMS for the project EIR (see Figure IV.2 of the EIA report) | 1 time per day; 1 day per month for 3 years Continuous water quality forecasting through WQM | HEMS, HEPB | HPMO, HEPB |
| Bird community of Baitan Lake and Chiye Lake | bird counts and distribution | Conduct bird survey <u>along the perimeters of Baitan Lake and Chiye Lake</u> to record the number of bird species and individuals, and distribution in the Baitan Lake and Chiye Lake areas. | 1 time per day in early morning hours; 1 day per month for 3 years | Experienced ornithologist(s) (contracted through HPPO) | HPMO, HEPB |
| Total estimated cost: \$420,000 (including \$120,000 from SEPP for soil erosion monitoring) | | | | | |
| Notes: EEM = External Environment Monitor ; HEPB = Huanggang Environmental Protection Bureau; HPMO = Huanggang Project Management Office; HUCIC = Huanggang Urban Construction Investment Co.; HWB = Huanggang Water Bureau; HEMS = Huanggang Environmental Monitoring Station; | | | | | |

Table EMP-5: Monitoring indicators and applicable PRC standards¹

| Period | Indicator | Standard |
|--------------|--|--|
| Construction | TSP | Class II Ambient Air Quality Standard (GB 3095-1996) |
| | Fume from asphalt mixing plant (SO ₂ , NO _x) | Air Pollutant Integrated Emission Standard (GB 16297-1996) |
| | Noise limits of PME at boundary of construction site | Emission Standard of Environmental Noise for Boundary of Construction Site (GB 12523-2011) |
| | Water quality during dredging and bridge and sluice gate construction (SS) | No PRC standard. Use upstream (of the dredging works) location as control station and downstream location as the impact station. If the SS level at the downstream location is >130% of the upstream location, mitigation measures such as reducing the dredging rate or changing the dredging equipment will be implemented |
| | Quality of dredged sediment for urban landscaping | Control Standards for Pollutants in Sludges for Gardens and Parks (GB/T23486-2009), and land improvement (GB3838-2002). |
| | Quality of wastewater from construction sites and supernatant water from dredged sediment disposal sites (SS, BOD, COD, LAS) | PRC's Integrated Wastewater Discharge Standard (GB 8978-1996), Class I standard (for discharging into Category III water bodies) |
| | Soil erosion | Class II Control Standards for Soil and Water Loss on Development and Construction Projects (GB50434-2008) |
| Operation | Surface water quality of Baitan Lake, Chiye Lake and the 7 rivers (DO, COD, BOD, NH ₃ -N, TP, TN fecal coliform bacteria) | Environmental Quality Standards for Surface Water GB 3838-2002 . Category IV standard as the near term (2020) target |

23. **EMP Monitoring.** EMP monitoring will be undertaken by the HPMO, with support of the LIEC. HPMO will report to ADB the project's adherence to the EMP, information on project implementation, environmental performance of the contractors, and environmental compliance through semi-annual environment progress reports (**Table EMP-6**). The LIEC will support the HPMO in developing the reports. The reports should confirm the project's compliance with the EMP, local legislation such as PRC EIA requirements, and identify any environment related implementation issues and necessary corrective actions. The performance of the contractors in respect of environmental compliance will also be reported. The operation and performance of the project GRM, environmental institutional strengthening and training, and compliance with all covenants under the project will also be included in the report.

24. **Environmental Acceptance Monitoring and Reporting.** Within three months after each component completion, or no later than 1 year with permission of the HEPB, environmental acceptance monitoring and audit reports of each component completion shall be: (i) prepared by a licensed environmental monitoring institute in accordance with the PRC *Management Method for Acceptance of Environmental Protection at Construction Project Completion* (MEP, 2001), (ii) reviewed for approval of the official commencement of individual component operation by environmental authorities, and (iii) finally reported to ADB (**Table EMP-6**). The environmental acceptance reports of the component completions will indicate the timing, extent, effectiveness of completed mitigation and of maintenance,

¹ The project applies PRC standards. A comparison of PRC standards with internationally accepted standards (as defined in the World Bank's Environment Health and Safety Guidelines) was conducted and is described in Chapter II. The comparison confirmed that PRC standards are either internationally accepted, or have comparable standard limits with internationally accepted standards. A deviation from PRC practices and standards would make the task of compliance monitoring authorities unnecessarily complicated, and is deemed not justified.

and the needs for additional mitigation measures and monitoring during operations.

Table EMP-6: Reporting plan

| Reports | | From | To | Reporting Frequency |
|---------------------------------|--|-------------------|--------------------|------------------------------------|
| Construction Phase | | | | |
| Progress reports by contractors | Internal project progress report by construction contractors, including monitoring results by HEMS | Contractors, HEMS | HUCIC | Quarterly (including HEMS results) |
| External monitoring report | External monitoring report by EEM | EEM | HEPB, HPMO, HUCIC | Semi-annual |
| Bird survey report | Bird survey report | Ornithologist, | HEPB, HPMO, HUCIC | Yearly |
| Reports to ADB | Project progress report (including section on EMP implementation and monitoring) | HPMO | ADB | Quarterly |
| | Environment progress reports | HPMO | ADB | Semi-annual |
| Operational Phase | | | | |
| External environment monitoring | External monitoring report | EEM | HEPB, HPMO, HUCIC, | Semi-annual for 3 years |
| Bird survey report | Results of bird count and distribution survey | Ornithologist | HEPB, HPMO, HUCIC, | Yearly for 3 years |
| Reports to ADB | Project progress report (including section on EMP implementation and monitoring) | HPMO | ADB | Semi-annual |
| | Environment progress report | HPMO | ADB | Annually until PCR |

Notes: ADB = Asian Development Bank; HEMS = Huanggang Environment Monitoring Station; HEPB = Huanggang Environmental Protection Bureau HPMO = Huanggang Project Management Office; HUCIC = Huanggang Urban Construction Investment Co.

E. Institutional Capacity Building and Training

25. The capacity of HPMO, HUCIC, O&M units such as HAPB, HESB and HWB, and contractors' staff responsible for EMP implementation and supervision will be strengthened. All parties involved in implementing and supervising the EMP must have an understanding of the goals, methods, and practices of project environmental management. The project will address the lack of capacities and expertise in environmental management through (i) institutional capacity building, and (ii) training.

26. **Institutional strengthening.** The capacities of the HPMO and HUCIC to coordinate environmental management will be strengthened through a set of measures:

- i. The appointment of qualified environment specialists within the HPMO staff to be in charge of EMP coordination, including GRM and coordination of environmental impact monitoring, training, reporting, etc.;
- ii. The appointment of environmental specialists (international and national) under the loan implementation consultancy to guide HPMO and HUCIC in implementing the EMP and ensure compliance with ADB's Safeguard Policy Statement (SPS 2009);
- iii. The appointment of environment specialist(s) by the HUCIC on its staff to conduct regular site inspections; and
- iv. The contracting of an external environment monitor to verify environment performance of the project.

27. **Training.** The HPMO, HUCIC, contractors and O&M units will receive training in EMP implementation, supervision, and reporting, and on the Grievance Redress Mechanism (**Table EMP-7**). Training will be facilitated by the LIEC with support of other experts under the loan implementation consultant services. The budget for training is estimated at **\$16,000**.

Table EMP-7: Training program

| Training | Attendees | Contents | Times | Period (days) | No. of persons | Cost (\$/person /day) | Total Cost |
|--|---|---|--|---------------|----------------|-----------------------|-----------------|
| EMP adjustment and implementation | HPMO, HUCIC, contractors | Development and adjustment of the EMP, roles and responsibilities, monitoring, supervision and reporting procedures, review of experience (after 12 months) | Twice - Once prior to, and once after one year of project implementation | 2 | 15 | 100 | \$6,000 |
| Grievance Redress Mechanism | HPMO, HUCIC, contractors, HEPB | Roles and responsibilities, procedures, review of experience (after 12 months) | Twice - Once prior to, and once after one year of project implementation | 1 | 10 | 100 | \$2,000 |
| Environmental technologies and processes | HPMO, HUCIC, contractors, HAPB, HESB, HWB | Pollution control technologies, equipment selection and procurement | Twice (during project implementation) | 2 | 15 | 100 | \$6,000 |
| Environmental monitoring, occupational health & safety | HPMO, HUCIC, contractors | Monitoring methods, data collection and processing, reporting systems, occupational health & safety during construction | Once (at beginning of project construction) | 2 | 10 | 100 | \$2,000 |
| Total estimated cost: | | | | | | | \$16,000 |

Notes: HAPB = Huanggang Aquatic Products Bureau; HEPB = Huanggang Environmental Protection Bureau; HESB = Huanggang Environmental Sanitation Bureau; HPMO = Huanggang Project Management Office; HUCIC = Huanggang Urban Construction Investment Co.; HWB = Huanggang Water Bureau.

28. **Capacity building.** In addition to training for EMP implementation, the project will provide a substantial capacity building package to ensure effective implementation of the project and sustainable O&M of the project facilities. The institutional components of the project will involve training by loan implementation consultants in operation and maintenance of completed facilities. Part of this training will focus on teaching staff how to use a set of indicators to monitor performance of the completed facilities. These indicators will be designed by loan implementation consultants prior to operation start-up. [A detailed capacity building program will be included after LFF].

F. Consultation, Participation and Information Disclosure

29. **Consultation during project preparation.** Chapter VII of the report has described the meaningful public participation and consultation implemented during project preparation.

30. **Future public consultation plan.** Plans for public involvement during construction and operation stages have been developed during project preparation. These plans include public participation in (i) monitoring impacts and mitigation measures during the construction and operation stages through informal interviews and disclosure of monitoring reports; and (ii) interviewing the public at project completion stage. These plans will include several types of public involvement, including site

visits, workshops, investigation of specific issues, interviews, and public hearings, as indicated in **Table EMP-8**. The budget for public consultation is estimated at approximately **\$10,000**.

Table EMP-8: Public consultation plan

| Organizer | Format | No. of Times | Subject | Attendees | Budget |
|---------------------------|-------------------------------------|--|---|---|--|
| Construction Stage | | | | | |
| HPMO | Public consultation & site visit | 5 times: 1 time before construction commences and 1 time each year during construction | Adjusting of mitigation measures, if necessary; construction impact; comments and suggestions | Residents adjacent to components, representatives of social sectors | \$5,000 |
| HPMO, HUCIC | Expert workshop or press conference | As needed based on public consultation | Comments and suggestions on mitigation measures, public opinions | Experts of various sectors, media | \$2,000 |
| HUCIC | Resettlement survey | As required by relevant resettlement plan | Comments on resettlement, improvement of living conditions, livelihood, and poverty reduction; comments and suggestions | Persons affected by resettlement and relocation | Included in the resettlement plan update survey budget |
| Operational Stage | | | | | |
| HUCIC, O&M Units | Public consultation and site visits | Once in the first year | Effectiveness of mitigation measures, impacts of operation, comments and suggestions | Residents adjacent to component sites, representatives of residents and representatives of social sectors | \$1,500 |
| HUCIC, O&M Units | Expert workshop or press conference | As needed based on public consultation | Comments and suggestions on operational impacts, public opinions | Experts of various sectors, media | \$1,500 |
| Total budget: | | | | | \$10,000 |

Notes: HPMO = Huanggang Project Management Office; HUCIC = Huanggang Urban Construction Investment Co.; O&M = Operation and Maintenance

G. Grievance Redress Mechanism

31. Public participation, consultation and information disclosure undertaken as part of the local EIA process have discussed and addressed major community environmental concerns. Continued public participation and consultation has been emphasized as a key component of successful project implementation. As a result of this public participation and safeguard assessment during the initial stages of the project, major issues of grievance are not expected. However, unforeseen issues may occur. To settle such issues effectively, a Grievance Redress Mechanism (GRM) providing effective and transparent channels for lodging and addressing complaints and grievances has been defined. The GRM will be established prior to construction of the project components. The GRM is responsive to ADB's Safeguard Policy Statement (2009) and PRC legislation.

32. **The Proposed Project GRM.** In consultation with the HPMO, HUCIC, HEPB and potentially affected people, it was agreed that the HPMO will establish a complaints center and coordinate the GRM for the project for complaints related to both environmental and resettlement issues. The complaint center will direct all environmental complaints as appropriate to: (i) the contractors; (ii) HUCIC; (iii) O&M units. These are also entry points to whom the affected people could directly register their complaints. Complaints related to resettlement issues received by the complaints center will be directed to the relevant agencies in accordance with the resettlement GRM. Contact details for the complaints center and the entry points will be publicly disseminated on information boards at construction sites and nearby communities. Multiple means of using this mechanism, including face-to-face meetings, written complaints, telephone conversations, or e-mail, will be available. In the construction and the operational periods until ADB's project completion report (PCR), the HPMO will

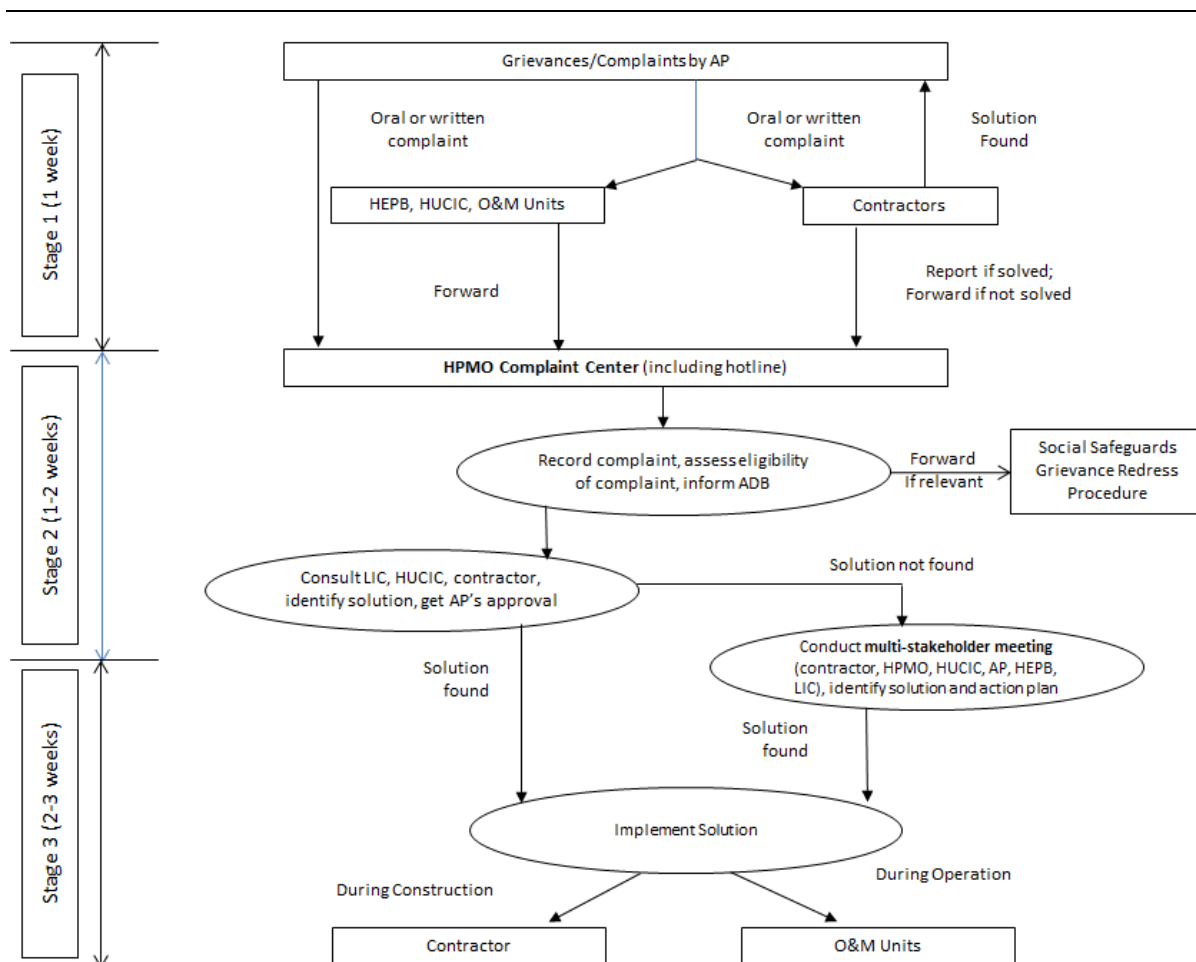
report progress to the ADB, and this will include reporting complaints and their resolution.

33. **Basic steps for resolving complains** are as follows and illustrated in **Figure EMP-1**:

Step 1: For environmental problems during the construction stage, the affected person (AP) can register his/her complaint directly with the contractors, or through GRM access points (HPMO complaint center hotline, HUCIC, local EPB hotline). Contractors are required to set up a complaint hotline and designate a person in charge of handling complaints, and advertise the hotline number at the main entrance to each construction site, together with the hotline number of the HPMO complaint center. The contractors are required to maintain and update a Complaint Register to document all complaints. The contractors are also required to respond to the complainant in writing within 7 calendar days on their proposed solution and how it will be implemented. If the problem is resolved and the complainant is satisfied with the solution, the grievance handling ends here. The contractors are required to report complaints received, handled, resolved and unresolved to the HPMO complaint center immediately, and to HUCIC and HPMO monthly (through progress reporting).

Step 2: If no appropriate solution can be found during step 1, the contractor has the obligation to forward the complaint to the HPMO complaint center. The AP may also decide to submit a written or oral complaint to the HPMO complaint center directly, by-passing step 1. A joint hotline for resettlement and environment issues will be established within the HPMO. For an oral complaint, proper written records will be made. Once a complaint is registered and put on file, the HPMO complaints center will immediately notify ADB. The HPMO complaint center will assess the eligibility of the complaint, identify the solution and provide a clear reply for the complainant within five (5) working days. Complaints related to land acquisition and resettlement issues will be directed to the relevant agencies in accordance with the resettlement GRM. The LIEC will assist the HPMO complaint center in addressing the complaint, and replying to the affected person. The HPMO complaint center will also inform the ADB project team and submit all relevant documents. Meanwhile, the HPMO complaint center will timely convey the complaint/grievance and suggested solution to the contractors, HUCIC and/or facility operator. The contractors during construction and the facility operator during operation will implement the agreed upon redress solution and report the outcome to the HPMO complaint center within fifteen (15) working days.

Step 3: In case no solution can be identified by the HPMO complaint center, or the complainant is not satisfied with the proposed solution, the HPMO complaint center will organize, within two (2) weeks, a multi-stakeholder hearing (meeting) involving all relevant stakeholders (including the complainant, HUCIC, contractors, facility operator, local EPB, HPMO). The hearing shall identify a solution acceptable to all, and formulate an action plan.



Note: AP = affected person; ADB = Asian Development Bank; HEPB = Huanggang environmental protection bureau, LIC = loan implementation consultant; HPMO = Huanggang project management office;

Figure EMP-1: Procedure and timeframe for the GRM

34. The tracking and documenting of grievance resolutions by HPMO (through its complaints center) will include the following elements: (i) tracking forms and procedures for gathering information from project personnel and complainant(s), and notification procedure to ADB; (ii) dedicated staff to update the database routinely; (iii) a system to periodically evaluate the overall functioning of the mechanism; (iv) processes for informing stakeholders about the status of a case; and (v) procedures to retrieve data for reporting purposes, including the periodic reports to the ADB through the semi-annual environment progress reports.

35. The HPMO complaint center shall accept the complaints/grievances lodged by the AP free of charge. Any cost incurred should be covered by the contingency of the Project. The grievance procedures will remain valid throughout the duration of project construction and until project closure.

H. Cost Estimates

36. Cost estimates for EMP implementation, including mitigation measures, environmental impact monitoring, public consultation and training as presented in **Tables EMP-2, EMP-4, EMP-7 and EMP-8** are summarized in **Table EMP-9**. Total budget for implementing these 4 items of the EMP is therefore \$2,647,000. Excluded from the costs estimates are infrastructure costs which relate to environment and public health but which are already included in the project direct costs. Excluded are also capacity building packages, the remuneration costs for environment specialists who are staff members within HPMO and HUCIC, loan implementation consultants, and technical experts on equipment operation and maintenance, which are covered elsewhere in the project budget.

Table EMP-9: Estimated Budget for Implementation of the Environmental Management Plan

| EMP Item | Estimated Cost |
|--|----------------|
| External environmental monitoring (= environmental monitoring supervision) | \$49,000 |
| Mitigation measures | \$2,152,000 |
| Environmental impact monitoring | \$420,000 |
| Training | \$16,000 |
| Public consultation | \$10,000 |
| Total | \$2,647,000 |

37. The contractors will bear all environmental impact monitoring costs during the construction stage. O&M Units will bear the monitoring costs of the operational stage. HPMO will ensure the necessary budgets are available for the licensed environment monitoring entity (the external environment monitor) and the experienced ornithologist(s). Contractors will bear the costs for all mitigation measures during construction, including those specified in the tender and contract documents as well as those to mitigate unforeseen impacts due to their construction activities. The O&M units will bear the costs related to mitigation measures during operation. HUCIC and HPMO will bear the costs related to environmental supervision by their own staff. The project as a whole (through HPMO) will bear the costs for training, for coordinating the Grievance Redress Mechanism (GRM), and the Loan Implementation Environment Consultants under contract to HPMO.

I. Mechanisms for Feedback and Adjustment

38. The EMP will be updated as needed by HPMO with assistance from the LIEC when there are design changes, changes in construction methods and program, poor environmental monitoring results, and if mitigation measures prove to be ineffective or inadequate. Based on environmental monitoring and reporting systems in place, HUCIC (with the support of the LIEC) shall assess whether further mitigation measures or improvement in environmental management practices are required as corrective actions. HPMO will inform ADB promptly on any changes to the project and needed adjustments to the EMP. The updated EMP will be submitted by HPMO to ADB for review and approval, and will be disclosed on the project website.

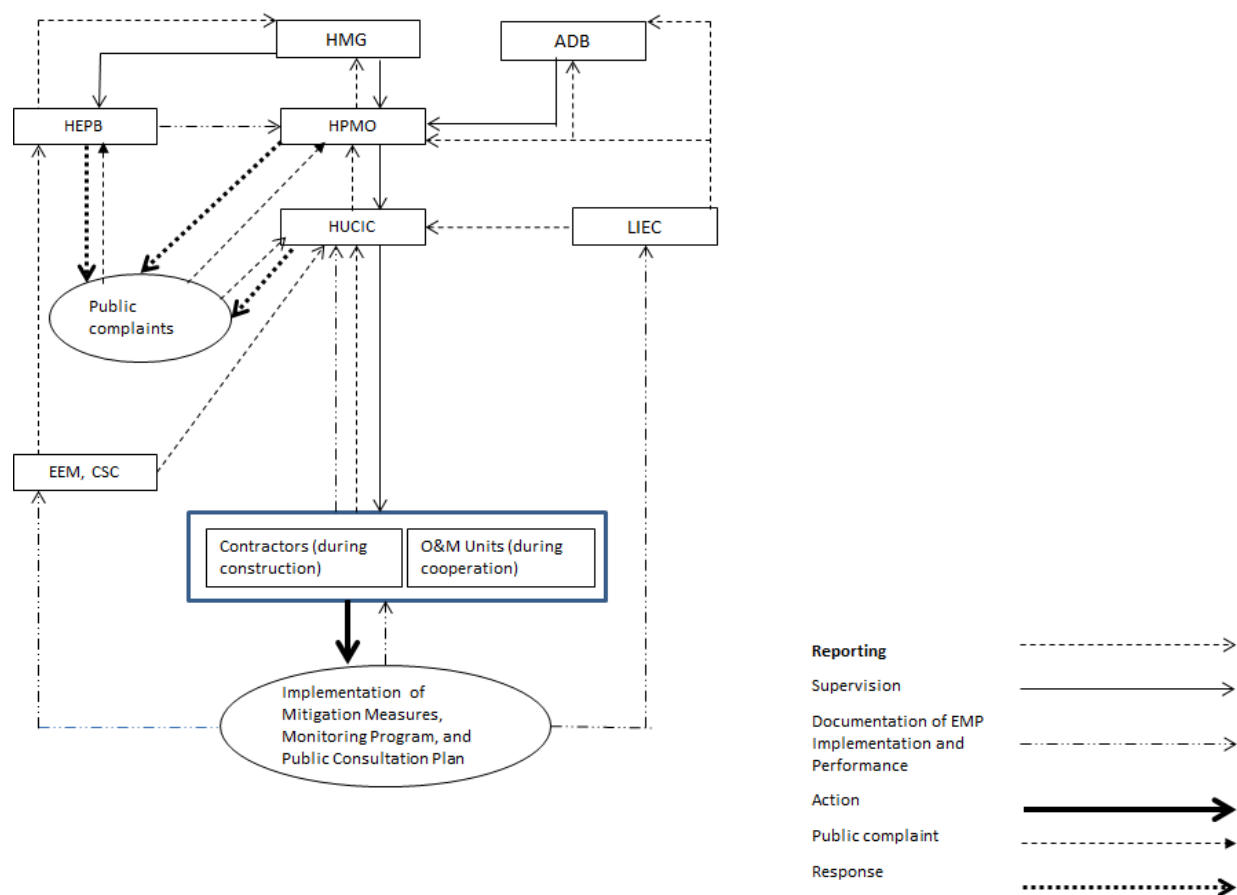


Figure EMP-2: Mechanism for Feedback and Adjustment

| Activities | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | |
|--|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| A. Design and Monitoring Framework | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. Urban lake and river enhancement | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a-1. Lake sediment dredging | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Sediment dredging and pre-treatment | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a-2. Lake embankment, strengthening and ecological restoration | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a-3. Wetlands | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1a-4 Multiuse nonmotorized pathway and bridges | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1b-1. River sediment dredging, excavation and embankment | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1b-2. Vegetated buffer strips and aquatic planting | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Land acquisition and resettlement | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 1b-3. Sluice gates | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Equipment installation and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |

| Activities | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | | | 2019 | | | |
|---|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Equipment installation and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| 2. Solid waste collection and transfer system | | | | | | | | | | | | | | | | | | | | | | | | |
| Detailed design | | | | | | | | | | | | | | | | | | | | | | | | |
| Procure works and goods | | | | | | | | | | | | | | | | | | | | | | | | |
| Construction and commissioning | | | | | | | | | | | | | | | | | | | | | | | | |
| Public awareness campaign and education for solid waste management | | | | | | | | | | | | | | | | | | | | | | | | |
| 3. Capacity development and institutional support | | | | | | | | | | | | | | | | | | | | | | | | |
| Initial project implementation support | | | | | | | | | | | | | | | | | | | | | | | | |
| Project management and consultancy service implementation | | | | | | | | | | | | | | | | | | | | | | | | |
| Water quality model and Xingfu catchment water pollution management plan | | | | | | | | | | | | | | | | | | | | | | | | |
| B. Management Activities | | | | | | | | | | | | | | | | | | | | | | | | |
| Complete EA, IA, and PMO organizational arrangement | | | | | | | | | | | | | | | | | | | | | | | | |
| Recruit and mobilize implementation support | | | | | | | | | | | | | | | | | | | | | | | | |
| Implementation of monitoring activities (including EMP, GAP, RP, and SAP) | | | | | | | | | | | | | | | | | | | | | | | | |
| Submit progress reports | | | | | | | | | | | | | | | | | | | | | | | | |
| Project completion report | | | | | | | | | | | | | | | | | | | | | | | | |

EA = executing agency, EMP = environmental management plan, GAP = gender action plan, IA = implementing agency, PMO = project management office, RP = resettlement plan, SAP = social action plan.

Figure EMP-3: Project Implementation Schedule

PROCUREMENT CAPACITY ASSESSMENT

A. Introduction

1. This document reviews the proposed arrangements for procurement under the project and the capacity of agencies involved. The procurement of works, goods, and consulting services will be a key part of project implementation. If efficient and transparent procurement processes are established by the executing agency, then smooth and effective project implementation will follow. In this regard, a procurement capacity assessment was undertaken based on the executing and implementing agencies' intended arrangements for the proposed project procurement. This assessment was based on an internal control questionnaire approach in accordance with Asian Development Bank (ADB) project administration instructions and model internal control questionnaire documentation. The assessment aimed to (i) evaluate the adequacy of executing and implementing agencies' existing processes adopted for procurement and their ability to comply with ADB's Procurement Guidelines (2013, as amended from time to time), (ii) identify the need for capacity building and training for the executing and implementing agencies during project implementation stage to develop staff's competence in areas relating to procurement, and (iii) define the appropriate level of review, either prior or post by ADB for each form of procurement to be used during implementation. The questionnaire is attached to this document. The rest of this section provides a summary of general procurement arrangements, the intended arrangements that will apply for all project procurement where ADB loan funds will be utilized, and a summary of results of the completed capacity assessment, together with proposed measures that ADB should take and require to safeguard ADB's interests and minimize the risk of misprocurement.

2. Huanggang Municipal Government (HMG) as the executing agency and Huanggang Urban Construction Investment Company (HUCIC) as the implementing agency do not have any previous procurement experience in accordance with ADB procurement guidelines. In this regard, Huanggang project management office (HPMO) has enlisted the support and advice of Wuhan ADB project management office to assist in project readiness activities, including procurement planning, contract packaging and (later) to establish required procedures and record keeping systems.

B. Assessment of the National Procurement Environment

3. There are two national laws on procurement: (i) the Bidding and Tendering Law of the People's Republic of China (PRC) which regulates the procurement of civil works, and (ii) the Government Procurement Law of the PRC which governs the procurement of goods financed by government budget. To implement these laws, most local governments would set up a procurement office (for supervision) and a government procurement center (to organize key parts of the procurement process). Detailed measures for implementing the laws and standard bidding documents have also been issued. An assessment of the general procurement environment for the PRC was undertaken by ADB and is updated on an annual basis.

4. A significant gap in the PRC bidding law and associated arrangements relates to the procurement of consulting services. This form of procurement is outside the scope of the bidding law. Also, the procurement laws of the PRC are not fully consistent with ADB's procurement guidelines.

5. All procurement under the project will be carried out in accordance with ADB procurement guidelines and these will be applied where they impose stricter standards than the

PRC bidding law. Though there is no fundamental conflict between the PRC law and ADB procurement guidelines on consulting services, for anything which lie outside the PRC law, the ADB guidelines will be applied in full.

6. It is a practice in the PRC for suitably qualified design institutes to prepare technical specifications for all engineering related contracts, including contracts for goods and equipment. This arrangement will apply for the project.

7. For larger contracts, it is a PRC practice to engage a professional procurement agent to manage the procurement process on behalf of the project owner. The services normally include prequalification (where needed), preparation of the commercial sections of bidding documents, drafting of procurement notices, issuance of bidding documents, provision of advice and supervision on contract evaluation, and provision of advice or supervision of contract negotiations and in final contract preparation.

8. For ADB projects, the PRC Ministry of Finance requires a suitably experienced procurement agent to be appointed. Executing agencies are required to appoint, or cause the implementing agency(s) to appoint a procurement agent in advance of ADB loan negotiations, to help manage the procurement process on the project owners' behalf. The services normally include the same services in para. 7.

9. The PRC Government recognizes the risk of corruption in public procurement and has established anticorruption (discipline inspection) offices at all levels of government, whose work includes the supervision and audit of procurement activities. It is normal for representatives of these offices to send representatives to attend bid openings and evaluations in an observer capacity. HPMO confirmed that this practice will be encouraged in this project.

C. Proposed Procurement Arrangements during the Project Implementation

10. HUCIC, supported by the procurement agent, will assume the lead role in the procurement process will establish a procurement group within its project implementation unit (PIU). HPMO will provide supervisory oversight and coordinate with ADB at specific stages of the procurement process. The HMG procurement office will organize and participate in all bid evaluations. Public procurement is therefore dealt with as a specialist professional function by qualified and experienced staff. Procurement decisions will be taken based on specialist advice. Written procurement procedures of HMG will be followed in conjunction with ADB procurement guidelines. Table 1 shows the procurement arrangements.

Table 1: Overview of Proposed Procurement Arrangements

| Procurement Action | Preparation or Action | Review/Sign-off | Notes |
|---|------------------------------|--------------------------------------|--------------|
| Update procurement plan | HUCIC | HPMO | 1, 2, |
| Technical specifications | DI | HUCIC and HPMO | 2 |
| Commercial bidding documents | PA | HUCIC and HPMO | 2 |
| Draft procurement notices | PA | HUCIC and HPMO | |
| Prepare consulting terms of reference and RFP | PA | HPMO | |
| Submit for ADB prior review | HPMO | | 3, 4 |
| Issue procurement notices | PA | HPMO to authorize | |
| Sale/issue bidding documents | PA | n/a | |
| Receipt of bid submissions and safekeeping | HMG PO | n/a | 5 |
| Arrange and provide oversight of bid opening | HMG PO | n/a | |
| Prepare bid opening record/minutes | PA | HPMO | |
| Select experts of bid evaluation committee | HMG PO | n/a | 6 |
| Circulate minutes of bid evaluation meeting | PA | Evaluation Committee | |
| Submit bid evaluation report to ADB | PA | HPMO | 4 |
| Contract negotiations | PA/HUCIC | n/a | |
| Finalize and approve contract | PA | HUCIC, HPMO with HMG PO to authorize | |
| Notify bidders on contract award | PA | n/a | |
| Send notice to proceed | HUCIC | | 7 |
| Keep contract and procurement records | HUCIC, HPMO and PA | | 8 |

ADB = Asian Development Bank, DI = design institute, HMG PO = Huanggang Municipal Government Procurement Office, HPMO = Huanggang Project Management Office, HUCIC = Huanggang Urban Construction Investment Company, n/a = not applicable, PA = procurement agent, RFP = request for proposal.

Notes:

1. Initial plan prepared by project preparatory technical assistance consultant with HPMO and HUCIC and agreed at the loan fact-finding mission.
2. Loan consultants will support and review as needed.
3. ADB will undertake prior review as indicated in the agreed procurement plan.
4. All communications with ADB will be through HPMO.
5. It is assumed that the same arrangements will be followed for major HUCIC procurement. An alternative would be for all bids to be returned to the procurement agent.
6. Selected by the HMG specialist tendering and contracting office. The Huanggang Discipline and Inspection Office will be invited to attend all bid openings and evaluations as an observer.
7. Except for consulting services which will be conducted by HPMO.
8. All three parties will retain copies of the full procurement records for their own purposes and reference.

11. A detailed review of procurement arrangements was conducted (as documented in the Attachment) and identified the following specific safeguards and assurances in relation to the project's procurement arrangements:

- (i) A dedicated unit will be established within HUCIC and HPMO to undertake and supervise project procurement, respectively.
- (ii) The planned staffing of these units is adequate in terms of staff numbers and experience. Previous experience of ADB project procurement will be provided by the procurement agent and the project implementation consultant (PIC).
- (iii) Specialist from external institutes (i.e., the procurement agent and design institute) will be engaged to assist in the procurement process, including the preparation of bidding and contract documents.
- (iv) Adequate checks and balances appear to be built into the procedures.

- (v) Bid evaluation is conducted under strictly controlled procedures with participation of independent experts.
- (vi) Record keeping and documentation is adequate
- (vii) Procedures provide for equal treatment of all bidders.
- (viii) Anticorruption measures and supervision are provided for.

D. Assessment of HUCIC Procurement Capacity

1. Scope

13. The main focus of the procurement capacity assessment was to review HUCIC's procurement capacity including staff, facilities, bidding process, bidding documents, approval and oversight, etc., as most detailed procurement work will take place within HUCIC. A procurement capacity assessment questionnaire was completed for HUCIC and is attached.

2. Procurement Resources

14. HUCIC has a procurement department that deals with local project procurement. It will handle procurement on a seconded basis (i.e., they will be temporarily seconded to the PIU). The department is comprised of three well-educated staff and is well-equipped in respect of office facilities and equipment. The director of the procurement department has more than three years of experience in direct procurement. Furthermore, all staff of the procurement department are experienced in handling procurement following the procurement laws and regulations of the PRC, but mainly focusing on civil works and goods procurement.

15. The project is HUCIC's first foreign-financed assignment and the procurement activities should follow ADB's procurement guidelines. Lack of understanding of ADB's requirement might cause delays in procurement and lead to start-up delay. The English language capacity of the staff is another weakness. The planned involvement of an experienced procurement agent will significantly mitigate these risks.

3. Procurement Processes for Goods and Works

16. The main procurement activities will be on civil works and goods (equipment and materials). With assistance from experts and oversight from HMG procurement office, HUCIC will be able to handle the whole procurement process, i.e., bidding documents preparation, bid opening, bid evaluation, and evaluation report preparation. The technical parts of bidding documents are normally prepared by design institutes including the BOQ, and drawings of civil works while HUCIC concentrate on commercial parts of the bidding documents. All bids are opened in public and expert panels, based on their expertise in relevant fields, are formed to conduct the evaluation of the bids. The evaluation results of the expert panels are the final decisions on selecting the bid winners. These practices are good for HUCIC to understand ADB's procurement requirements.

4. Procurement Processes for Consulting Services

17. HUCIC has no experience on selection and engagement of consultants. However, it will only play a minor role in such procurement, with HPMO taking the lead role.

5. Process Control and Oversight

18. In general, procurement activities of HUCIC are under the oversight of HMG. Relevant government agencies play different roles in controlling the process of procurement. A specific procurement plan should be approved by HMG before the commencement of the project implementation. HMG's audit office will audit project expenditure and procurement performance. As required by government regulations to make procurement activity more transparent, results of bid evaluation will be disclosed.

6. Record Keeping and Audit

19. All contract-related documents under government procurement are retained for at least 15 years. All procurement documents will be kept in safe and secure rooms.

7. Conclusion

20. It is concluded that HUCIC's procurement capacity is adequate to facilitate compliance with national procurement laws and regulations. The main area of concern for HUCIC and HPMO is their lack of familiarity with ADB procurement guidelines. However, this can be mitigated by the engagement of a well-experienced procurement agent to support the procurement process and project implementation consultants.

E. Procurement Capacity Assessment of HPMO

20. HPMO was established to implement the project. All of its staff come from other units and will work in HPMO for 5 years or during project implementation period. As planned, HPMO will have staff with procurement expertise seconded to it in order for it to carry out its procurement supervision role and for the procurement of consulting services (for which it will rely very heavily on the experience and expertise of the procurement agent). As HPMO has not yet established its procurement function it was not able to undertake the procurement capacity assessment.

F. Procurement Risk Assessment and Capacity Building Needs

21. A procurement capacity risk assessment was carried out based on the proposed procurement procedures and assigned responsibilities for project implementation with regards to existing procurement expertise and experience available to both the executing and implementing agencies. Same as other Huanggang state-owned enterprises, large-scale domestic procurement of works and goods by HUCIC is closely supervised by the HMG procurement office. This arrangement is well-established and will continue for procurement wholly or partly financed by the ADB loan. For ADB loan procurement, HPMO will be an additional supervisory step to the current domestic procedure. As advised by the (to be appointed) procurement agent, HPMO will be responsible to ensure compliance with ADB procurement guidelines and submitting "no objection" requests to ADB in accordance with the provisions of the procurement plan in the PAM.

22. The main concerns (risk level considered high) are (i) the general lack of familiarity on the part of existing procurement staff with ADB procurement guidelines leading to delays and technical misprocurement and (ii) frequent variations required during the contract execution leading to cost increases. These risks will be mitigated considerably by the appointment of an experienced procurement agent and the inclusion of a procurement specialist in the project

implementation consulting team (9 person-months). In addition, start-up consulting support will also be provided to help establish the PMO's procurement systems and procedures and assist with advance contract action in the period prior to loan effectiveness. However, as the quality and effectiveness of these mitigation measures are currently unknown, the risk level has been conservatively assessed as high so that these aspects are carefully monitored during implementation.

23. In addition to the risk mitigation and capacity building roles of the procurement agent and consulting services, another key capacity building measure needed is detailed training to HUCIC and HPMO staff and management decision makers on ADB procurement procedures. Also, such training should be provided to all panel members of bid evaluation. Provision for this training was incorporated into the project design.

24. The overall procurement risk is considered "medium" on the simple three point scale of low-, medium-, and high used in the mandated ADB risk management plan template. Specific risks are identified and evaluated in Table 2. However, use of such a simple scale can easily be misleading and contentious as no shadings are allowed. In addition, professional risk management experts would use a numerical probability scale in order to undertake more detailed and quantitative risk assessments. Furthermore a professional risk assessment should also assess both the "with" and "without" mitigation risk level, in order that the importance of intended risk mitigation measures can be evaluated.

Table 2: Summary of Procurement Risks and Agreed Mitigation Measures

| | | |
|---|--------|---|
| 1. Procurement Capacity PMO and IA lack experience in ADB procurement. | Medium | Use of a specialist procurement agent will enhance capacity and bring experience in ADB requirements. Training on ADB procurement procedures during the project preparation and through loan capacity building component. |
| 2. Delays in the procurement process Procurement capacity is low, leading to mistakes or delays in the procurement process. | High | Training in project management and planning. Appropriate use of advance procurement action. Use of standard bidding documents. Advice and support of procurement agent and loan consultants. |
| 3. Non-performance by contractors or suppliers | Low | Use of performance guarantees. Investigation and/or monitoring of past performance. Advisory support from loan consultants and/or ADB PRCM where potential problems are identified. |
| 4. A lack of monitoring mechanisms to oversee the procurement process | Low | Effective supervisory and monitoring arrangements are already in place for domestic procurement and will be replicated under the loan. |
| 5. Contract variations may occur frequently | High | Involvement of experienced design institutes, tendering and construction supervision companies, consulting services, and ADB to provide advice. |
| 6. Corruption in the procurement process | Medium | Involvement and inspections of HMG supervision and anticorruption departments. Use of ADB procurement guidelines and procedures. Project agreement requires increased transparency in the procurement process. |

Procurement Capacity Assessment Questionnaire for HUCIC

The questionnaire was completed based on existing arrangements for domestic funded project procurement commonly carried out by the Company, but with required adjustments also identified and discussed.

| Part A. General Agency Resource Assessment | Responses |
|---|---|
| A.1. Is there a procurement department? | Yes. |
| A.2. What procurement does it undertake? | Equipment, materials, civil works. |
| A.3. Are the staff provided with written job descriptions? | Yes. |
| A.4. How many years experience does the head of the procurement unit have in a direct procurement role? | More than 3 years. |
| A.5. How many staff in the procurement department are: | |
| Full Time? | 3 |
| Part Time? | 0 |
| Seconded? | 0 |
| A.6. At what level does the department report (to the head of agency, deputy etc.)? | Deputy General Manager |
| A.7. Do the staff that will be involved with the procurement have English language skills sufficient? | No. The procurement agent will be. |
| A.8. Is the number and qualifications of the staff sufficient to undertake the additional procurement that will be required under the proposed project? | The number of procurement staff in HUCIC is sufficient. All staff are experienced with national procurement and are capable to manage the procurement. But they lack working knowledge on ADB procurement guidelines. |
| A.9. Does the unit have adequate facilities such as PCs, internet connections, photocopy facilities, printers etc. to undertake the expected procurement? | Yes. |
| A.10. Is there a procurement training program? | Not a formal program – training on ADB procurement guidelines is being arranged. |
| Part B. Agency Procurement Processes, Goods and Works | |
| B.1. Has the agency undertaken foreign assisted procurement of goods or works recently (last 12 months, or last 36 months)? (If yes funded by whom and name of the Project) | No. |
| B.2. If the above is yes, what where the major challenges? | N/A |
| B.3. Is there a procurement process manual for goods and works? | There is the procurement process manual for goods and works, prepared for local projects. |
| B.4. If there is a manual is it up to date and does it cover foreign assisted procurement? | Yes, it is up to date but does not specify procedures foreign assisted procurement. |
| B.5. Is there a systematic process to identify procurement requirements (1 year or more) | Not within the procurement function. |
| B.6. Who drafts the specifications? | Technical Specifications are prepared by design institutes and commercial specifications and specific contract conditions are drafted by the procurement agent. |
| B.7. Who approves the specification? | Deputy General Manager |

| Part A. General Agency Resource Assessment | Responses |
|--|--|
| B.8. Are there standard bidding documents in use and have they been approved for use on ADB funded projects? | Yes, but not for ADB project. For ADB ICB, SBD will be used. For ADB NCB, CMBD issued by MOF will be used. |
| B.9. Who drafts the bidding documents? | HUCIC and procurement agent |
| B.10. Who manages the sale of the document? | Procurement agent |
| B.11. Are all queries from bidders replied to in writing? | Yes |
| B.12. Is there a minimum period for preparation of bids and if yes how long? | At least 7 days for national bidding. |
| B.13. Does the bidding document state the date and time of opening and how close is it to the deadline for submission? | Yes. The opening time is the deadline of submission. |
| B.14. Is the opening public? | Yes |
| B.15. Can late bids be accepted? | No |
| B.16. Can bids be rejected at bid opening? | Yes |
| B.17. Are minutes taken? | Yes |
| B.18. Who may have a copy of the minutes? | Bidders, procurement agent, HUCIC, HMG PO (and HPMO for ADB project procurement) |
| B.19. Are the minutes free of charge? | Yes |
| B.20. Who undertakes the evaluation (individual(s), permanent committee, ad-hoc committee)? | Experts are invited to form an evaluation committee. |
| B.21. What are the qualifications of the evaluators in respect to procurement and the goods and works under evaluation? | Experts are chosen based on their expertise in the relevant field. HMG PO has a list of qualified experts. |
| B.22. Is the decision of the evaluators final or is the evaluation subject to additional approvals? | Yes, it is the final decision for domestic funded projects. ADB's "no objection" will be needed for project procurement. |
| B.23. Using at least three real examples how long between the issue of the invitation for bids and contract effectiveness? | Generally 1 month for domestic procurement. |
| B.24. Are there processes in place for the collection and clearance of cargo through ports of entry? | Yes |
| B.25. Are there established goods receiving procedures? | Yes |
| B.26. Are all goods received recorded as assets or inventory in a register or similar? | Yes |
| B.27. Is the agency/procurement department familiar with letters of credit? | Only the procurement agent has this familiarity. |
| B.28. Does the procurement department register and track warranty and latent defects liability periods? | Yes |
| Part C. Agency Procurement Processes, Consulting Services | |
| C.1. Has the agency undertaken foreign assisted procurement of consulting services recently (last 12 months, or last 36 months)? | No. HUCIC will only have limited involvement in the procurement of consulting services. |
| C.2. If the above is yes what were the major challenges? | No |
| C.3. Is there a procurement process manual for consulting services procurement? | No |

| Part C. Agency Procurement Processes, Consulting Services | Responses |
|---|---------------------|
| C.4. Is the manual up to date and does it cover foreign assisted projects? | N/A |
| C.5. Who identifies the need for consulting services requirements? | N/A |
| C.6. Who drafts the ToR? | N/A |
| C.7. Do the ToR followed a standard format such as background, tasks, inputs, objectives and outputs? | N/A |
| C.8. Who prepares the request for proposals? | N/A |
| C.9. Are assignments advertised and expressions of interest called for? | N/A |
| C.10. Is a consultants' selection committee formed with appropriate individuals in terms of | N/A |
| C.11. What criteria is used to evaluate EOIs? | N/A |
| C.12. Historically what is the most common method used (QCBS, QBS etc.) | No past experience. |
| C.13. Do firms have to pay for the proposal document? | N/A |
| C.14. Does the evaluative criteria follow a pre-determined structure and is it detailed in the RFP? | N/A |
| C.15. Are pre-proposal visits and meetings arranged? | N/A |
| C.16. Are minutes prepared and circulated after pre-proposal meetings? | N/A |
| C.17. To who are minutes distributed? | N/A |
| C.18. Are all queries from consultants answered to in writing? | N/A |
| C.19. Are the financial and technical proposals in separate envelopes? | N/A |
| C.20. Are proposal securities required? | N/A |
| C.21. Are technical proposals opened in public? | N/A |
| C.22. Do the financial proposals remain sealed until technical evaluation is completed? | N/A |
| C.23. Are minutes of technical opening distributed? | N/A |
| C.24. Who determines the final technical ranking and how? | N/A |
| C.25. Are the technical scores published and sent to all firms? | N/A |
| C.26. Is the financial proposal opening public? | N/A |
| C.27. Are there minutes taken and distributed of financial proposal opening? | N/A |
| C.28. How is the financial evaluation completed? | N/A |
| C.29. Are face to face contract negotiations held? | N/A |
| C.30. How long after financial evaluation is the selected firm to negotiate? | N/A |
| C.31. What is the usual basis for negotiation? | N/A |
| C.32. Are minutes of negotiation taken and signed? | N/A |
| C.33. How long after negotiations until the contract is signed? | N/A |
| C.34. Are advance payments made? | N/A |
| C.35. Is there an evaluation system for measuring the outputs of consultants? | N/A |

| Part D. Process Oversight and Control | Responses |
|--|--|
| D.1. Is there a standard statement of ethics and are those involved in procurement required to formally commit to it? | Yes |
| D.2. Are those involved with procurement required to declare any potential conflict of interest and remove themselves from the procurement process? | Yes |
| D.3. Is the commencement of procurement dependent on external approvals (formal or de-facto) outside of the budgeting process? | Yes |
| D.4. Who approves procurement transactions and do they have procurement experience and qualifications? | Bidding Office needs to approve the procurement. |
| D.5. Which of the following actions require approval outside of the procurement unit or a permanent evaluation committee and who grants the approval? | |
| Bidding document, invitation to pre-qualify or request for proposal | Deputy General Manager (for project HPMO will authorize) |
| Advertisement of an invitation for bids, prequalification or call for expressions of interest | Head of Procurement Unit (for project HPMO will authorize) |
| Evaluation reports | Evaluation Committee |
| Notice of award | HMG PO |
| Invitation to consultants to negotiate | N/A |
| Contracts | HMG PO |
| D.6. Is contractual performance systematically monitored and reported upon? | Not the responsibility of the procurement department. |
| D.7. Does the agency monitor and track its contractual payment obligations? | Yes |
| D.8. On average how long is it between receiving a firm's invoice and making payment? | 10 working days |
| D.9. What is the standard period for payment included in contracts? | 14 days |
| D.10. When payment is made late are the beneficiaries paid interest? | No |
| D.11. Are payments authorized by the same individuals empowered to approve invitation documents, evaluations and contracts? | No |
| D.12. Is there a written auditable trail of procurement decisions attributable to individuals and committees? | Yes. All records kept and filed for auditing. |
| D.13. Are procurement decisions and disputes supported by written narratives such as minutes of evaluation, minutes of negotiation, notices of default/withheld payment? | Yes |
| D.14. Is there a formal non-judicial mechanism for dealing with complaints? | Yes |
| D.15. Is a complaints resolution mechanism described in national procurement documents? | Yes |
| Part E. Records Keeping | Responses |
| E.1. Is there a referencing system for procurement files? | Yes |
| E.2. Are original contracts secured in a fire and theft proof location? | Yes |

| Part E. Records Keeping | Responses |
|---|---|
| E.3. Are copies of bids or proposals retained with the evaluation? | Yes |
| E.4. Are copies of the original advertisements retained with the pre-contract papers? | Yes |
| E.5. Is there a single contract file with a copy of the contract and all subsequent contractual correspondence? | Yes. The contract variations with the contract are filed properly in various departments. |
| E.6. Are copies of invoices included with contract papers? | Yes |
| E.7. For what period are records kept? | The Government Procurement Law requires 15 years. |