



# Report and Recommendation of the President to the Board of Directors

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Project Number: 46050  
September 2014

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

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**Asian Development Bank**

## CURRENCY EQUIVALENTS

(as of 12 August 2014)

|               |   |            |
|---------------|---|------------|
| Currency unit | – | yuan (CNY) |
| CNY1.00       | = | \$0.163    |
| \$1.00        | = | CNY6.154   |

## ABBREVIATIONS

|                |   |   |
|----------------|---|---|
| ADB            | – | Asian Development Bank                          |
| EMP            | – | environmental management plan                   |
| ha             | – | hectare   |
| HMG            | – | Huanggang municipal government                  |
| HPMO           | – | Huanggang project management office             |
| HUCIC          | – | Huanggang Urban Construction Investment Company |
| km             | – | kilometer                                       |
| m <sup>2</sup> | – | square meter                                    |
| NED            | – | New Eastern District                            |
| PAM            | – | project administration manual                   |
| PRC            | – | People's Republic of China                      |

## NOTE

In this report, "\$" refers to US dollars.

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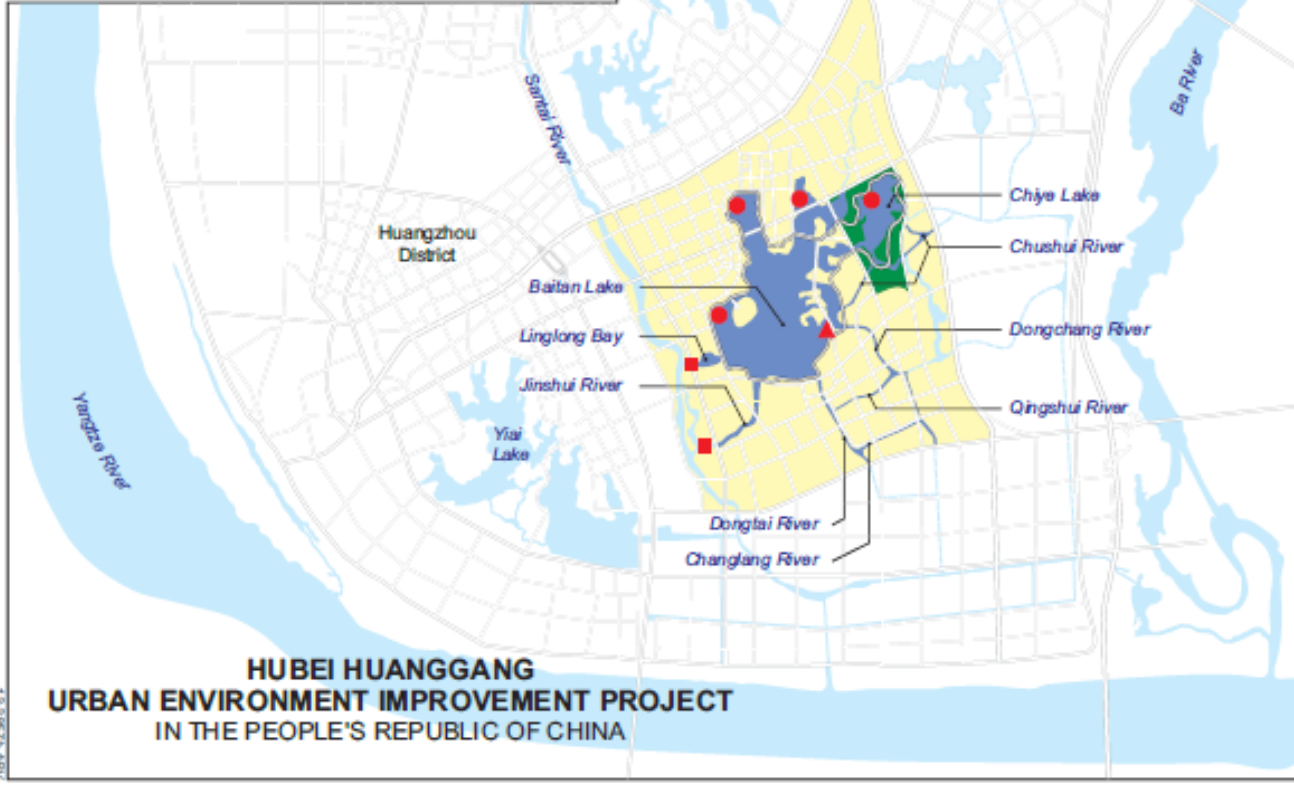
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## PROJECT AT A GLANCE

|   |   |  |                                |
|---|---|--|--------------------------------|
| <b>1. Basic Data</b>  |   | <b>Project Number: 46050-002</b>       |                                |
| <b>Project Name</b>   | Hubei Huanggang Urban Environment Improvement Project                           | <b>Department /Division</b>            | EARD/EASS                      |
| <b>Country Borrower</b>                                       | China, People's Republic of People's Republic of China                          | <b>Executing Agency</b>                | Huanggang Municipal Government |
| <b>2. Sector</b>  | <b>Subsector(s)</b>   | <b>ADB Financing (\$ million)</b>      |                                |
| ✓ <b>Agriculture, natural resources and rural development</b> | Water-based natural resources management  |  | 97.40                          |
| <b>Public sector management</b>                               | Public administration   |  | 1.80                           |
| <b>Water and other urban infrastructure and services</b>      | Urban solid waste management  |  | 0.80                           |
| <b>Total</b>  |   |  | <b>100.00</b>                  |
| <b>3. Strategic Agenda</b>                                    | <b>Subcomponents</b>  | <b>Climate Change Information</b>      |                                |
| Inclusive economic growth (IEG)                               | Pillar 2: Access to economic opportunities, including jobs, made more inclusive | Climate Change impact on the Project   | Low                            |
| <b>4. Drivers of Change</b>                                   | <b>Components</b>   | <b>Gender Equity and Mainstreaming</b> |                                |
| Governance and capacity development (GCD)                     | Institutional development   | Effective gender mainstreaming (EGM)   | ✓                              |
| <b>5. Poverty Targeting</b>                                   |   | <b>Location Impact</b>                 |                                |
| Project directly targets poverty                              | No  | Urban                                  | High                           |
| <b>6. Risk Categorization:</b>                                | Complex   |  |                                |
| <b>7. Safeguard Categorization</b>                            | Environment: A Involuntary Resettlement: A Indigenous Peoples: C                |  |                                |
| <b>8. Financing</b>   |   |  |                                |
| <b>Modality and Sources</b>                                   |   | <b>Amount (\$ million)</b>             |                                |
| <b>ADB</b>  |   | <b>100.00</b>                          |                                |
| Sovereign Project loan: Ordinary capital resources            |   | 100.00                                 |                                |
| <b>Cofinancing</b>  |   | <b>0.00</b>                            |                                |
| None  |   | 0.00                                   |                                |
| <b>Counterpart</b>  |   | <b>152.60</b>                          |                                |
| Government  |   | 71.30                                  |                                |
| Others  |   | 81.30                                  |                                |
| <b>Total</b>  |   | <b>252.60</b>                          |                                |
| <b>9. Effective Development Cooperation</b>                   |   |  |                                |
| Use of country procurement systems                            |   | No                                     |                                |
| Use of country public financial management systems            |   | No                                     |                                |



0 1 2 3  
Kilometers

- New Eastern District Phase 1 (Baitan Lake Planning Area)
- Lakes and Rivers
- Hydraulic Circulation

**Urban Lake and River Enhancement Component**

- Project Lakes and Rivers (including areas for Sediment Dredging, Embankment Strengthening, and Ecological Restoration)
- Surface-flow Constructed Wetland
- Subsurface-flow Constructed Wetland
- Multi-use Normobridged Pathways and Bridges
- Sluice Gates

**Solid Waste Management Component**

- Waste Transfer Station

This map was produced by the cartography unit of the Asian Development Bank. The boundaries, colors, denominations, and any other information shown on this map do not imply on the part of the Asian Development Bank, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.

13-36724-ADN

**HUBEI HUANGGANG  
URBAN ENVIRONMENT IMPROVEMENT PROJECT  
IN THE PEOPLE'S REPUBLIC OF CHINA**

## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the People's Republic of China (PRC) for the Hubei Huanggang Urban Environment Improvement Project.<sup>1</sup>

2. The project aims to promote environmentally sustainable and socially inclusive urbanization in Huanggang, Hubei Province by improving the 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.<sup>2</sup>

## II. THE PROJECT

### A. Rationale

3. 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.<sup>3</sup> 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%.<sup>4</sup> 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.<sup>5</sup> 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.<sup>6</sup> 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.<sup>7</sup>

4. 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

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<sup>1</sup> The design and monitoring framework is in Appendix 1.

<sup>2</sup> The Asian Development Bank (ADB) provided project preparatory technical assistance. 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).

<sup>3</sup> 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.

<sup>4</sup> Almost 20.0% (1.50 million) of Huanggang's total municipal population is poor and most live in rural areas. According to the Hubei Poverty Alleviation Office, rural poverty incidence in Huanggang is estimated at 25.2% in 2012, which is higher than the provincial average rate of 20.2% and the national average of 13.4%. Rural poverty incidence in Huangzhou District is 21.5%, urban poverty incidence is 8.1%. 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.

<sup>5</sup> 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.

<sup>6</sup> Government of the People's Republic of China. 2004. *The Rise of Central China Plan*. Beijing.

<sup>7</sup> 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.

Yiai—are severely polluted with organic matter and nutrients. Much of the surface water quality is currently measured as class V or worse.<sup>8</sup> Realizing the importance of improving water quality for the city’s sustainable development, HMG has made plans and increased investments to control pollution at the source and to improve the environment.<sup>9</sup> To date, HMG investment has focused on improving water quality in Yiai Lake in the existing urban area, leaving other lakes and rivers unattended.

5. 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.<sup>10</sup> 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.<sup>11</sup>

6. 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.<sup>12</sup> HMG is currently improving point source pollution control in NED.<sup>13</sup> 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.<sup>14</sup>

7. **Lessons learned.** Project design incorporates lessons from Yiai Lake rehabilitation, a recent locally funded initiative, and other Asian Development Bank (ADB)-supported lake and

<sup>8</sup> 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).

<sup>9</sup> 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.

<sup>10</sup> 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.

<sup>11</sup> Huanggang Municipal Government. 2013. *Huanggang Municipal Urban Master Plan, 2012–2030*. Huanggang.

<sup>12</sup> Impervious surfaces are artificial surfaces covered by impenetrable materials such as asphalt, concrete, brick, or stone.

<sup>13</sup> 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.

<sup>14</sup> 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.

river restoration projects in the PRC.<sup>15</sup> 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.<sup>16</sup>

**8. Special features and value addition.** 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. 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.

9. The project will complement past and ongoing projects that are contributing to reducing pollution in the Yangtze River.<sup>17</sup> 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 Midterm Review of Strategy 2020.<sup>18</sup> 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.<sup>19</sup> 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.<sup>20</sup>

## **B. Impact and Outcome**

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

<sup>15</sup> 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.

<sup>16</sup> 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.

<sup>17</sup> ADB projects in Huangshi, Jiujiang, Nanjing, Suzhou, and Wuhan are contributing to pollution reduction in the Yangtze River.

<sup>18</sup> ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.

<sup>19</sup> 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.

<sup>20</sup> The project is the sixth urban project in Hubei Province, after three projects in Wuhan, one in Huangshi, and one in Yichang (all approved).



### C. Outputs

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

12. **Urban lake and river enhancement.** The lake enhancement component will (i) remove 539,000 cubic meters (m<sup>3</sup>) of nutrient-laden sediments from Baitan and Chiye lakes, (ii) construct 14 km of ecological flood-retention embankments with 89 hectares (ha) of vegetated buffer strips, (iii) create 80 ha of surface-flow constructed wetland for Chiye Lake, (iv) establish four subsurface-flow constructed wetlands with total area of 3.8 ha and detention basins for Baitan and Chiye lakes to treat nonpoint source pollution, (v) construct 13.3 km of multiuse nonmotorized pathway along the lakeshore with nine bridges across the rivers, and (vi) construct and upgrade two sluice gates. The river enhancement component will (i) remove about 201,000 m<sup>3</sup> of nutrient-laden sediments and excavate and/or widen the river course to reestablish natural connections between lakes and rivers; and (ii) construct about 21.6 km of flood-retention ecological embankments with 42.6 ha of vegetated buffer strips and sidewalks.

13. **Solid waste management.** To contribute to improved solid waste collection and transfer in the lakeside area, the project will (i) construct one transfer station (30 tons per day) and provide 260 waste bins around the lakes; (ii) purchase two garbage trucks; and (iii) implement a public awareness campaign on solid waste sorting, recycling, and environmental protection.

14. **Capacity development and institutional strengthening.** The project will (i) implement and monitor support to executing and implementing agencies to implement and monitor the project in line with ADB procedures and guidelines; and (ii) provide capacity and institutional strengthening for HMG on wetlands operation and management, water quality monitoring and forecasting including nonpoint source pollution control, and lake ecology and biodiversity.

### D. Investment and Financing Plans

15. The project is estimated to cost \$252.6 million (Table 1).<sup>21</sup>

16. 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.<sup>22</sup> 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. HMG will provide counterpart funding, equivalent to \$71.3 million, from its budget to finance 28.2% of the project cost. The implementing agency, Huanggang Urban Construction Investment Company (HUCIC), has requested a loan of about \$81.3 million from a domestic bank for the remaining counterpart funds to cover 32.2% of the project cost, and has received a commitment letter from the domestic bank.

<sup>21</sup> Detailed cost estimates are in the Project Administration Manual (accessible from the list of linked documents in Appendix 2).

<sup>22</sup> Interest and other charges during construction will not be capitalized in the loan and will be financed by HMG.

17. The 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 HMG on the same terms and conditions as those of the ADB loan. As the end-borrower, 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. The financing plan is in Table 2 and is further detailed in the project administration manual (PAM).

**Table 1: Project Investment Plan**  
(\$ million)

| Item  | Amount <sup>a</sup> |
|---|---------------------|
| <b>A. Base Cost<sup>b</sup></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                 |
| <b>Subtotal (A)</b>   | <b>199.0</b>        |
| <b>B. Contingencies<sup>c</sup></b>                               | <b>33.9</b>         |
| <b>C. Financing Charges During Implementation<sup>d</sup></b>     | <b>19.6</b>         |
| <b>Total Project Cost (A+B+C)</b>                                 | <b>252.6</b>        |

Note: Numbers may not sum precisely because of rounding.

<sup>a</sup> 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%.

<sup>b</sup> In mid-2013 prices.

<sup>c</sup> 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.

<sup>d</sup> 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.

**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               |
| <b>Total</b>                      | <b>252.6</b>        | <b>100.0</b>       |

Source: Asian Development Bank estimates.

## E. Implementation Arrangements

18. The implementation arrangements are summarized in Table 3 and described in detail in the PAM.

**Table 3: Implementation Arrangements**

| Aspects  | Arrangements   |                   |                  |
|--|--|-------------------|------------------|
| Implementation period                            | January 2015–December 2019   |                   |                  |
| Estimated completion date                        | 31 December 2019 (estimated loan closing date: 30 June 2020)   |                   |                  |
| Management                                       |  |                   |                  |
| (i) Oversight body                               | HMG established a project leading group to direct and manage the project. The group is chaired by the executive vice mayor and includes representatives from HMG, HDRC, HMFB, and other key municipal offices. It guides, supervises, and supports project preparation and implementation.   |                   |                  |
| (ii) Executing agency                            | HMG is the executing agency and will delegate day-to-day coordination to the Huanggang project management office, which comprises staff from HMG, HDRC, HMFB, HUCIC, and others seconded as necessary.   |                   |                  |
| (iii) Key implementing agency                    | HUCIC, a state-owned enterprise owned by the HMG, specializes in urban infrastructure construction. Its project implementation unit will conduct day-to-day implementation of all infrastructure components, to be supported by a procurement agent.   |                   |                  |
| (iv) Operating units                             | A group of HMG public institutions will be responsible for O&M of project facilities; they are the current service providers, thus making best use of existing O&M capacity.   |                   |                  |
| Procurement                                      | International competitive bidding  | 6 contracts       | \$100.48 million |
|  | National competitive bidding   | 10 contracts      | \$52.33 million  |
| Consulting services                              | Quality- and cost-based selection  | 125 person-months | \$1.63 million   |
|  | Consultants' qualifications selection  | 26 person-months  | \$0.25 million   |
|  | Individual consultant selection  | 10 person-months  | \$0.07 million   |
| Retroactive financing and/or advance contracting | Five works and six consulting services will be procured through advance contracting and will involve advertisement and evaluation of bids and require prior ADB review. Retroactive financing will finance eligible expenditures up to \$20 million (not exceeding 20% of the ADB loan) incurred for works, and consulting services before loan effectiveness, but not earlier than 12 months before the loan agreement is signed. |                   |                  |
| Disbursement                                     | The loan proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2012, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.  |                   |                  |

ADB = Asian Development Bank, HDRC = Huanggang Development and Reform Commission, HMFB = Huanggang Municipal Finance Bureau, HMG = Huanggang municipal government, HUCIC = Huanggang Urban Construction Investment Company, O&M = operation and maintenance.

Source: Asian Development Bank.

### III. DUE DILIGENCE

#### A. Technical

19. The technical aspects of the project are consistent with the PRC design guidelines and local regulations. Lake rehabilitation is well integrated and sequenced with other project components. Analysis based on eight scenarios that simulate water quality of Baitan and Chiye lakes and seven associated rivers identifies the appropriate amount and location of dredging, size and location of surface-flow, and subsurface-flow constructed wetlands and vegetation. The sediment dredging plans are in line with international best practices; the wetland designs account for type, amount, and location of future pollution sources; and engineering designs are technically sound and compatible with the water quality target for lakes of class IV or better.

#### B. Economic and Financial

20. **Economic.** The economic rationale rests on the need to improve the environment by cleaning up local lakes and rivers. Even if economic growth could be forecast, the benefits cannot be separately attributed to lake and river cleanup (i.e., the project) and other planned HMG interventions. The economic justification relies primarily on the strength of the project rationale and cost-effectiveness analysis of alternative approaches to improve water quality. Using scenario-based planning and identifying a least-cost approach to optimize project design,

the impact of eight different scenarios on water quality was simulated, and then least-cost analysis was applied to the three design options that meet the water quality objectives and the project's technical requirements. Engineering measures that are least cost and technically suitable are incorporated in the project design.<sup>23</sup>

21. **Financial.** The project does not have any revenue-generating components. The financial analysis, therefore, focuses on the ability of the end borrower, HMG, to service project debts and provide counterpart funds. ADB loan funds will be channeled to the project via the Hubei Provincial Finance Department to HMG. In addition, HMG has provided assurances on the availability of counterpart funds and for all project recurrent expenses. Based on the fiscal impact of the project on HMG finances, a financial sustainability analysis was undertaken. The analysis shows that HMG's commitment to the project during implementation (2014–2019) will range from 2.2% of its revenues (excluding one-off receipts) in 2014 to 0.8% in 2019. This commitment will rise in 2020 to an estimated 1.7% as debt repayment commences, but will fall in 2021 to 1.5% and continue to decline thereafter.<sup>24</sup>

### C. Governance

22. **Financial management.** The project will be ADB's first loan to Huanggang, which has limited experience in managing multilateral-financed projects. The financial management assessment focuses on HMG as the end borrower and on HUCIC as the implementing agency. The assessment indicates that HMG has generally adequate financial management capacity to assume its core role for financial management supervision of the project. The HUCIC assessment concludes that HUCIC can achieve adequate capacity for financial management in accordance with ADB policies and procedural requirements, with provision of appropriate capacity-building support and recruitment of at least one suitably qualified financial staff member. The assessments are described in the financial analysis (footnote 24).

23. **Procurement capacity.** As HUCIC will undertake procurement of goods and works and the Huanggang project management office (HPMO) will undertake procurement of consulting services, both agencies were subjected to a procurement capacity assessment. As this is the first ADB project for HPMO and HUCIC, a procurement agent experienced in ADB policies and procedures will be appointed to advise both organizations. HUCIC has a department with a 6-year track record of successful domestic procurement. One staff member with 10 years of procurement experience has been assigned to HPMO to work with the HUCIC project implementation unit on procurement; this is considered acceptable. The project capacity-building component includes the provision of governance training and advice to HPMO and HUCIC on ADB procedures. The Wuhan project management office is sharing lessons from its experience in implementing three ADB projects with HPMO and HUCIC. Improvements recommended in the financial management and procurement capacity assessments are incorporated in the project design and documented in the PAM. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the Hubei provincial government, HMG, HPMO, and HUCIC. Specific policy requirements and supplementary measures are described in the PAM.

### D. Poverty and Social

24. The project is focused on improving the urban environment to enable the development of

<sup>23</sup> Economic Analysis (accessible from the list of linked documents in Appendix 2).

<sup>24</sup> Financial Analysis (accessible from the list of linked documents in Appendix 2).

industry, services, and employment; and is designed to ensure that economic opportunity and inclusion underlie the process of urbanization. The 41,600 residents of the project area in Huangzhou District are the primary project beneficiaries. When phase 1 of NED is fully developed by 2020, the project will directly benefit 100,000 residents and industries and services in the area through improved water quality of urban surface waters, public amenity space to enhance quality of life of the people living in the project area, and enhanced investment environment and employment in Huanggang. Indirect beneficiaries are the 367,000 residents in Huangzhou District. The poverty and social assessment includes a household survey, community and focus group discussions, and key informant interviews. The project will facilitate NED development where low-cost rental housing and job opportunities will be provided to help create socially inclusive communities. The project will directly create 2,450 jobs during construction, 133 jobs during operation, and significant indirect job opportunities that are expected to arise as a consequence of NED development. Employment targets for vulnerable groups and women are included in the design and monitoring framework and loan covenants. A social action plan was prepared and will be implemented by HMG.<sup>25</sup>

25. **Gender.** The project is classified as effective gender mainstreaming, and a gender action plan was prepared with agreed activities and indicators. Survey and focus group discussion data reveal that women are generally burdened with family and household responsibilities and are employed in low-paying jobs. The improved urban environment will provide safe, clean, and accessible recreational areas for women and children. It will benefit women by improving the living environment and quality of life, and increasing women's job opportunities. Women's participation in public awareness activities on solid waste management and public health will support project sustainability. The gender action plan includes targets for women's employment, participation, and capacity building supported by loan covenants and consulting support for implementation and monitoring.<sup>26</sup>

## **E. Safeguards**

26. **Environment.** The project is environment category A, reflecting the urban lake and river enhancement with significant earthwork and sediment dredging. An environmental impact assessment, including an environmental management plan (EMP), was drafted and disclosed on the ADB website on 20 January 2014. The project will generate environmental benefits: (i) about 1,920 tons of total nitrogen and 486 tons of total phosphorus will be removed from the project lakes through dredging; (ii) the constructed wetlands will remove 171 tons of chemical oxygen demand, 49 tons of total nitrogen, and 1.1 tons of total phosphorus each year from the project lakes and subsequently the Yangtze River; and (iii) the wetlands will provide breeding, feeding, nesting, and resting habitats for wildlife including migratory water birds. The environmental impact assessment confirms that the climate change risk to project activities is low. Precipitation in the project area is unlikely to change and average runoff will slightly decrease. The project's resilience to predicted increases in climate variability (precipitation and runoff) will be strengthened through improved hydraulic retention and carrying capacity of urban lakes and rivers. This was confirmed through hydraulic modeling of the Baitan Lake water level under a climate change scenario with increased precipitation intensity. Project construction has potential impacts on the environment. Dust and noise generated by construction activities will be a nuisance to nearby residents. Discharge of supernatant water from the dredged sediment disposal sites could potentially pollute nearby water bodies. Dredging will stir up the sediment,

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<sup>25</sup> Summary Poverty Reduction and Social Strategy (accessible from the list of linked documents in Appendix 2). The social action plan is included in the PAM.

<sup>26</sup> Gender Action Plan (accessible from the list of linked documents in Appendix 2).

releasing suspended solids and nutrients into the water column affecting water quality and ecology. No significant impact is expected during operation. HMG is increasing existing wastewater and solid waste collection and treatment capacity within NED to accommodate future needs and ensure adequate point source pollution control. The impact of the sluice gates on fish migration will not be significant.<sup>27</sup> The solid waste transfer station and the project-associated water diversion pumping stations may induce minor noise and odor impacts. All impacts are expected to be prevented or minimized to an acceptable level through effective implementation of the EMP. HPMO and HUCIC will assume overall responsibility for implementing, supervising, monitoring, and reporting on the EMP and will appoint full-time staff to coordinate and monitor EMP implementation. Environment and wetland experts and an ornithologist will support the work. HPMO will also hire an external environment monitor. Affected persons and stakeholders were consulted during the environmental impact assessment. The EMP includes a grievance redress mechanism, which was discussed and agreed upon with HPMO and HUCIC.

27. **Involuntary resettlement.** The project is resettlement category A. It will affect eight villages or communities in the project area. 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.<sup>28</sup> A total of 77.5 *mu* of land will be occupied temporarily and a total of 4,736.5 square meters (m<sup>2</sup>) of residential housing and 11,038 m<sup>2</sup> of nonresidential building will be demolished. Land acquisition will affect 318 households, entities, and/or stores with 1,140 persons physically displaced, and 42 households with 184 persons temporarily affected, totaling 360 households with 1,324 persons affected.<sup>29</sup> A resettlement plan and a due diligence report were prepared in line with ADB's Safeguard Policy Statement (2009) and endorsed by HMG. The plan was disclosed to the affected persons and uploaded on the ADB website on 17 March 2014. Compensation for lost assets and resettlement allowances will be paid to those affected. Livelihood rehabilitation arrangements in accordance with the resettlement plan should be made prior to the commencement of the related civil works. HPMO and HUCIC will assume responsibility for planning, implementing, financing, and reporting on land acquisition and resettlement. A grievance redress mechanism was established. An external resettlement and social monitor will be engaged to conduct semiannual monitoring and evaluation of resettlement implementation.

28. **Indigenous peoples.** The project is indigenous peoples category C. In Huangzhou District, ethnic minorities represent about 0.25% of the total registered population.<sup>30</sup> The main ethnic minorities in the district are Hui, Miao, Tujia, and Zhuang who are integrated into urban communities. The project area does not have any concentration of ethnic minorities and the project will not have any negative effect on any ethnic minority people. No ethnic minorities are affected by land acquisition and resettlement.

## F. Risks and Mitigating Measures

29. The project has no unusual technical risks. The project's benefits and impacts are expected to outweigh costs and risks. Major risks and mitigating measures are summarized in

<sup>27</sup> Two sluice gates will be constructed to prevent the backflow of Santai River water into Baitan Lake when the Santai River water level is higher than that of Baitan Lake.

<sup>28</sup> A *mu* is a Chinese unit of measurement (1 *mu* = 666.7 square meters).

<sup>29</sup> In which 129 households with 408 persons will be affected by land acquisition of collective land, 187 households with 727 people will be affected by land occupation of state-owned land, 22 households with 79 people will be affected by residential house demolition (also affected by land acquisition), and 2 entities with 5 people will be affected by nonresidential building demolition.

<sup>30</sup> The Sixth National Population Census (2010) indicates that Huangzhou District has a minority population of 924.

Table 4 and described in detail in the risk assessment and risk management plan.<sup>31</sup>

**Table 4: Summary of Risks and Mitigating Measures**

| <b>Risks</b>  | <b>Mitigating Measures</b>  |
|---|---|
| HPMO and HUCIC lack experience in implementing ADB-financed projects, resulting in delay in procurement, disbursement, and construction | Engage start-up consultants to provide technical support for land acquisition and resettlement, procurement, contract management, disbursement, and financial management.<br>The project implementation consultants will provide training on ADB guidelines and procedures. |
| Land acquisition approvals and implementation are delayed   | Promptly implement detailed design and measurement surveys, and finalize the resettlement plan.<br>Ensure early availability of compensation funds to affected people, and strict compliance with the resettlement plan.<br>Provide consulting support at all stages.       |
| Delays in the provision of counterpart funding  | HMFB and the domestic bank will issue commitment letters.<br>HMG is providing assurance for timely provision of counterpart funding.<br>A backup source of funding will be discussed during implementation.   |
| Unsustainable O&M of infrastructure components due to lack of capacity and budget   | Project implementation consultants will provide capacity building and institutional strengthening support for O&M agencies, especially for wetland management.<br>HMG is providing assurances on O&M budget provision.  |
| Low procurement capacity leads to mistakes or delays in the procurement process   | Project implementation consultants and tendering company will provide support and training in project management and planning.<br>Use of advance procurement action is appropriate.<br>Standard bidding documents will be used.   |

ADB = Asian Development Bank, HMFB = Huanggang Municipal Finance Bureau, HMG = Huanggang municipal government, HPMO = Huanggang project management office, HUCIC = Huanggang Urban Construction Investment Company, O&M = operation and maintenance.

Source: Asian Development Bank.

#### **IV. ASSURANCES AND CONDITIONS**

30. The government has assured ADB that implementation of the project shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the PAM and loan documents. The government has agreed with ADB on certain covenants for the project, which are set forth in the loan and project agreements.

#### **V. RECOMMENDATION**

31. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of \$100,000,000 to the People's Republic of China for the Hubei Huanggang Urban Environment Improvement Project, from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board.

Takehiko Nakao  
President

8 September 2014

<sup>31</sup> Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

## DESIGN AND MONITORING FRAMEWORK

| Design Summary   | Performance Targets and Indicators with Baselines   | Data Sources and Reporting Mechanisms  | Assumptions and Risks  |
|--|---|--|--|
| <p><b>Impact</b></p> <p>Socially inclusive and environmentally sustainable urbanization in Huanggang</p>   | <p>By 2025:</p> <p>Urbanization rate increased to 55% (2010 baseline: 35.7%)</p> <p>Urban poverty incidence of Huangzhou District reduced to 6.5 % (2012 baseline: 8.1%)</p> <p>Public satisfaction with urban environment and ecology improved in NED and maintained at no less than 85% (2013 baseline: 75%)</p>  | <p>Statistics published by HMG departments</p> <p>HMG annual report</p> <p>Annual reports of HEPB</p>            | <p><b>Assumption</b></p> <p>Relevant parts of the HMG's Twelfth Five-Year Plan and the Huanggang Municipal Urban Master Plan are effectively implemented as scheduled.</p> <p><b>Risk</b></p> <p>Actual economic and population growth of Huanggang lags behind estimates.</p>   |
| <p><b>Outcome</b></p> <p>Improved urban environment in Huanggang</p>   | <p>By 2020:</p> <p>Water quality improved to class IV in Baitan and Chiye lakes (2012 baseline: class V)</p> <p>Return period of seasonal flooding in NED is reduced to 20 years (2012 baseline: 5 years)</p> <p>133 permanent operation and maintenance jobs are created, of which at least 30% are filled by women</p>  | <p>Annual environmental monitoring report of HEPB</p> <p>PCC issued by HDRC</p> <p>Project completion report</p> | <p><b>Assumptions</b></p> <p>Associated and linked facilities are properly operated.</p> <p>Applicable national and local environmental laws are effectively enforced.</p> <p><b>Risk</b></p> <p>Capacity expansion and upgrade of Hongqi pumping station and construction of Nanhu drainage pumping station is delayed.</p> |
| <p><b>Outputs</b></p> <p>1a. Lake enhancement with environment facilities operating</p> <p>1b. River enhancement with environment facilities operating</p> | <p>By 2019 (2012 baseline)</p> <p>539,000 m<sup>3</sup> of sedimentary deposits are removed from Baitan and Chiye lakes</p> <p>14 km of ecological flood retention embankments and 13.3 km of multiuse nonmotorized pathway are operating</p> <p>3.8 ha of subsurface-flow constructed wetlands and 80 ha of surface-flow constructed wetlands are operating</p> <p>201,000 m<sup>3</sup> of sedimentary deposits are removed from four rivers, 343,000 m<sup>3</sup> of riverbank soil excavated, and seven river courses widened</p> <p>21.6 km of ecological embankments are</p> | <p>PCC issued by HDRC</p> <p>PCC issued by HDRC</p>  | <p><b>Assumption</b></p> <p>Government approvals for land use and construction are given in a timely manner.</p> <p><b>Risks</b></p> <p>Land acquisition and resettlement implementation is delayed.</p> <p>Provision of counterpart funding is delayed.</p> <p>Price escalation or labor cost inflation occurs.</p>         |



| Design Summary  | Performance Targets and Indicators with Baselines  | Data Sources and Reporting Mechanisms   | Assumptions and Risks   |
|---|--|---|---|
|   | <p>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>  |   |   |
| <p>2. Solid waste collection and transfer facilities operating and public awareness of solid waste and environmental protection increased</p> | <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><b>Assumption</b><br/>Community participation is active as foreseen.</p> <p><b>Risks</b><br/>Land acquisition and resettlement implementation is delayed.<br/>Price escalation or labor cost inflation occurs.</p> |
| <p>3. Institutional capacity in project implementation and water quality monitor is developed and strengthened</p>                            | <p>Water quality monitoring and forecasting system is established and operating (baseline: no system)</p> <p>At least a total of 15 staff of HPMD, HUCIC, HEPB, and HMG relevant agencies are trained with 20% female participation</p> <p>Project implemented without delays following ADB guidelines</p>   | <p>Project progress reports and ADB supervisory missions</p>  | <p><b>Assumption</b><br/>HPMD, HUCIC, and HEPB are adequately staffed with qualified personnel and retain trained staff.</p>  |

| <b>Activities with Milestones</b>   | <b>Inputs</b>                        |
|---|--------------------------------------|
| <b>1. Urban lake and river enhancement</b>  |                                      |
| 1.1 Complete detailed design of lake and river sediment dredging, embankment strengthening, ecological restoration, and multiuse nonmotorized pathway from Q4 2014 to Q1 2015     | <b>ADB: \$100.0 million</b>          |
| 1.2 Complete detailed design of vegetated buffer strips, aquatic planning, and wetlands by Q1 2015  | <b>HMG: \$71.3 million</b>           |
| 1.3 Acquire land and implement resettlement by Q1 2015  | <b>Domestic bank: \$81.3 million</b> |
| 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   |                                      |
| <b>2. Solid waste management</b>  |                                      |
| 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   |                                      |
| <b>3. Capacity development and institutional strengthening</b>  |                                      |
| 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 |                                      |

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, m<sup>3</sup> = cubic meter, NED = New Eastern District, PCC = project completion certificate, Q = quarter.  
Source: Asian Development Bank.

### **LIST OF LINKED DOCUMENTS**

<http://adb.org/Documents/RRPs/?id=46050-002-3>

1. Loan Agreement
2. Project Agreement
3. Sector Assessment (Summary): Multisector (Public Administration, Urban Solid Waste Management, and Water-Based Natural Resource Management)
4. Project Administration Manual
5. Contribution to the ADB Results Framework
6. Development Coordination
7. Financial Analysis
8. Economic Analysis
9. Country Economic Indicators
10. Summary Poverty Reduction and Social Strategy
11. Gender Action Plan
12. Environmental Impact Assessment
13. Resettlement Plan
14. Risk Assessment and Risk Management Plan