

Project Administration Manual

Project Number: 48274-002

Loan Number: {LXXXX }

July 2017

People's Republic of China: Shanxi Urban–Rural
Water Source Protection and Environmental
Demonstration Project

ABBREVIATIONS

| | | |
|----------------|---|--|
| ADB | - | Asian Development Bank |
| CSC | - | construction supervision company |
| DMF | - | design and monitoring framework |
| EIA | - | environmental impact assessment |
| EMP | - | environmental management plan |
| FMA | - | financial management assessment |
| GAP | - | gender action plan |
| GRM | - | grievance redress mechanism |
| ICB | - | international competitive bidding |
| IEE | - | initial environmental examination |
| km | - | kilometer |
| LAR | - | land acquisition and resettlement |
| LIBOR | - | London interbank offered rate |
| LIEC | - | loan implementation environment consultant |
| m ² | - | square meter |
| m ³ | - | cubic meter |
| <i>mu</i> | - | a Chinese unit of measurement (1 <i>mu</i> = 0.067 hectares) |
| NCB | - | national competitive bidding |
| O&M | - | operation and maintenance |
| PMO | - | project management office |
| PPMS | - | project performance management system |
| PRC | - | People's Republic of China |
| SDAP | - | social development action plan |
| SOE | - | statement of expenditures |
| SPFD | - | Shanxi Provincial Finance Department |
| SPG | - | Shanxi Provincial Government |
| WWTP | - | wastewater treatment plant |
| ZCFB | - | Zuoquan County Finance Bureau |
| ZCG | - | Zuoquan County Government |
| ZHCB | - | Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau |
| ZSRMO | - | Zuoquan Shixia Reservoir Management Office |
| ZWRB | - | Zuoquan Water Resource Bureau |

TABLE OF CONTENTS

| | | |
|-------|---|----|
| I. | PROJECT DESCRIPTION | 1 |
| | A. Rationale | 1 |
| | B. Impact and Outcome | 3 |
| | C. Outputs | 3 |
| II. | IMPLEMENTATION PLANS | 7 |
| | A. Project Readiness Activities | 7 |
| | B. Overall Project Implementation Plan | 8 |
| III. | PROJECT MANAGEMENT ARRANGEMENTS | 10 |
| | A. Project Implementation Organizations: Roles and Responsibilities | 10 |
| | B. Key Persons Involved in Implementation | 15 |
| | C. Project Organization Structure | 17 |
| IV. | COSTS AND FINANCING | 18 |
| | A. Cost Estimate Preparation and Revisions | 18 |
| | B. Key Assumptions | 18 |
| | C. Summary Cost Estimates and Financing Plan | 19 |
| | D. Detailed Cost Estimates by Expenditure Category | 21 |
| | E. Allocation and Withdrawal of Loan Proceeds | 22 |
| | F. Detailed Cost Estimates by Financier | 23 |
| | G. Detailed Cost Estimates by Output | 24 |
| | H. Detailed Cost Estimates by Year | 25 |
| | I. Contract and Disbursement S-Curve | 26 |
| | J. Fund Flow Mechanism | 27 |
| V. | FINANCIAL MANAGEMENT | 28 |
| | A. Financial Management Assessment | 28 |
| | B. Disbursement | 29 |
| | C. Accounting | 31 |
| | D. Auditing and Public Disclosure | 31 |
| VI. | PROCUREMENT AND CONSULTING SERVICES | 33 |
| | A. Advance Contracting and Retroactive Financing | 33 |
| | B. Procurement of Goods, Works, and Consulting Services | 33 |
| | C. Procurement Plan | 34 |
| | D. Consultant's Outline Terms of Reference | 41 |
| VII. | SAFEGUARDS | 42 |
| | A. Environment | 42 |
| | B. Resettlement | 43 |
| | C. Ethnic Minorities | 46 |
| VIII. | GENDER AND SOCIAL DIMENSIONS | 47 |
| | A. Summary Poverty Reduction and Social Strategy | 47 |
| | B. Gender Development and Gender Action Plan | 47 |
| | C. Social Development Action Plan | 48 |
| IX. | PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION | 57 |

| | | |
|------|---|----|
| A. | Project Design and Monitoring Framework | 57 |
| B. | Monitoring | 59 |
| C. | Evaluation | 61 |
| D. | Reporting | 62 |
| E. | Stakeholder Communication Strategy | 62 |
| X. | ANTICORRUPTION POLICY | 64 |
| XI. | ACCOUNTABILITY MECHANISM | 64 |
| XII. | RECORD OF CHANGES TO THE PAM | 64 |

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 the government's and the 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 Zuoquan County Government, the executing agency; the four implementing agencies—the Zuoquan Water Resource Bureau; the Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau; the Zuoquan Shixia Reservoir Management Office; and the Zuoquan Forestry Bureau—are wholly responsible for the implementation of the ADB-financed project, as agreed jointly between the borrower and ADB, and in accordance with the government's and ADB policies and procedures. The ADB staff is responsible to support implementation, including compliance by the Zuoquan County Government, of their obligations and responsibilities for project implementation in accordance with ADB policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the PAM; and ensure consistency with the legal agreements. Such agreements shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the PAM and the legal agreements, the provisions of the legal agreements shall prevail.

After ADB Board's approval of the project's report and recommendations of the President, changes in implementation arrangements are subject to agreement and approval pursuant to relevant government and ADB's administrative procedures (including the project administration instructions); and upon such approval, they will be subsequently incorporated in the PAM.

I. PROJECT DESCRIPTION

A. Rationale

1. Rapid economic development in the People's Republic of China (PRC) has led to its severe ecological and environmental degradation. To address these issues while continuing to eliminate absolute poverty, the Government of the PRC has been promoting ecological civilization¹ and has specified targets in its Thirteenth Five-Year Plan on National Economic and Social Development, 2016–2020.² Water resources protection and flood risk mitigation are key elements of ecological civilization and effective means for poverty reduction. The government has identified Zuoquan County, a national-level poverty county in the water-scarce and heavily polluted Hai River basin, as an integral part of the ecological belt for Shanxi Province. Assistance to Zuoquan County is expected to demonstrate the ability and merits of working at county level to advance the government's goal of ecological civilization and poverty reduction.

2. Zuoquan County is in the Hai River basin, bordering Hebei Province on the east. It has a population of 165,042 (in 2015), 57% of which is rural. The county's mean annual precipitation is 520 millimeters, with more than 70% of rainfall occurring from June to September; and its average annual evaporation is 1,620 millimeters. With 33% of its population being poor, Zuoquan County is designated as a national-level poverty county. About 98% of Zuoquan County is in the Qingzhang watershed. Originating in the county, the Qingzhang River flows into the Zhang River in Hebei Province—a tributary of the Hai River. The Qingzhang River, together with the Shixia and Xiajiaozhang reservoirs, is a strategic water source for 1.92 million people in Shanxi Province. As an important source for the Hai River basin, the water quality of Qingzhang River also bears significantly on the water safety of 1.2 million people in the downstream areas in Hebei and Henan provinces.

3. **Soil erosion and sedimentation.** Located on the Loess Plateau, Zuoquan County experiences serious soil erosion, with over 50% of its land eroded to some degree. The vegetation coverage of the Qingzhang River's upstream catchment is generally good, but the vegetation condition for areas near villages and towns and along the roads is poor. Heavy rain has caused soil erosion from these areas with little or without coverage. Soil erosion also comes from non-protected river banks. Sediment from soil erosion has resulted in siltation of rivers, streams, and reservoirs. According to the record of Zuoquan Shixia Reservoir Management Office from 1990 to 2013, the total accumulated siltation volume during these 23 years was 345,000 cubic meters (m³), with an average siltation volume of 15,000 m³ per year. Siltation of the reservoir compromises its flood control function and reduces the water storage capacity. Soil erosion also impairs other vital ecosystem services. Projected increases in storm intensities will likely increase the risk of soil erosion.

4. **Flood risks.** Zuoquan County suffers from frequent floods because of lack of adequate infrastructure. Riverine floods occur in most sections of the Qingzhang River at a flood frequency of one in 5 years. The main urban section contains a structural embankment whereas rural areas only have isolated earth bunds. Bank protection for both sides of the river in the west district (a new city district under development) is almost nonexistent—a few earth bunds built from the 1950s to the 1980s are in dilapidated conditions, and some have been washed down to the river,

¹ Ecological civilization refers to achieving harmony between growth, people, and nature. It includes activities to mitigate ecological damage, relieve pressures on natural resources, and improve the balance between the environment and the economy.

² Government of the People's Republic of China. 2016. *Thirteenth Five-Year Plan on National Economic and Social Development*. Beijing.

causing severe blockages. Flood risks are heightened by the projected increase in climate-induced storm intensities. A major flood in August 1996 caused huge losses, affecting about 100,000 people in all 10 townships in Zuoquan County. About 9,000 houses were destroyed, and nearly 140,000 *mu* of cropland were damaged.³ The flood caused more than 30 deaths and 550 injuries. Flooding not only poses a significant risk to people's lives, but is also a key restraining factor of sustainable development in Zuoquan County.

5. **Low quality and inadequate water supply.** The separate planning process and different ownership structures for water management in Zuoquan County have resulted in serious development gaps in water supply facilities. Zuoquan County has functioning water supply facilities to its 60,000 residents in the county's urban center. However, the water supply to rural residents is lacking or of poor quality without any treatment. The water supply pipes are also aged and leaking. Further, though they have permits to withdraw water from the Shixia Reservoir, most rural enterprises use groundwater without adequate infrastructure to access surface water, resulting in the depletion and unsustainable use of groundwater. These rural enterprises, which hire over 90% of local villagers, are an important income source for rural farmers. Inequitable and unsafe water supply is inconsistent with socially inclusive development, and hinders the government's goal of urban–rural integration.

6. **Insufficient wastewater collection and treatment.** The wastewater collection and treatment capacity in Zuoquan County cannot meet the demand of increasing urbanization. Like elsewhere in the PRC, urbanization has been a key driver of development and economic growth. However, continuous rapid urbanization puts significant pressure on scarce land and natural resources, and contributes to pollution for Zuoquan County. Some sewer networks are aged and leaking, causing pollution to the Qingzhang River. Key issues include (i) wastewater overflowing from some flow interceptors into the Qingzhang River, even in the dry season; (ii) the trunk sewer leaking directly into the Qingzhang River, as it is laid along the river; (iii) the Zuoquan County wastewater treatment plant facing frequent equipment breakdowns; and (iv) the capacities of wastewater collection and treatment being unable to meet current and future needs.

7. **Lack of ecosystem-friendly infrastructure connecting urban center and new district.** Zuoquan County's urban development master plan expected the urban population to grow to about 82,000 in 2020 and 113,000 in 2030.⁴ The urbanization rate is projected to increase to 62% in 2030. The existing Binhe Road, a trunk road connecting the urban center to the new district in peri-urban and rural areas, cannot satisfy current and increasing traffic demands. The east section of the Binhe Road has reached its design capacity, while the west section of about 5 kilometers (km) is yet to be expanded to meet the demand. Moreover, the storm water pipe and the trunk sewer to the new district need to be installed concurrently along the Binhe Road—as an integrated approach to improving water resources management together with road improvement—which will be cheaper than constructing them separately. The Binhe Road provides unique opportunity to pilot test the government's sponge city initiative, which will not only help slow down surface runoff but also reduce nonpoint source pollution from urban runoff.⁵ The experience gained will be used for Zuoquan County's new urban district development.

8. **Weak institutional capacity.** Zuoquan County's water resources management is fragmented, lacking a coordinated and integrated approach to land use planning, and urban and

³ A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters).

⁴ Zuoquan County Government. 2011. *Zuoquan County Urban Development Master Plan, 2011–2030*. Zuoquan.

⁵ The sponge city initiative is the government's policy to promote water conservation. A key principle is to minimize the impact of urban development on the natural water cycle through green infrastructure such as preserved floodplains, storm water wetlands, retention ponds, sunken parks, bio-retention swales, seepage wells, and green roofs.

rural development. The urban and rural water supply systems are separate, with large gaps in water quality and service reliability. Zuoquan County's capacity for project planning and implementation is weak since it has little experience with international organizations. The counterpart staff of the project do not have experience in implementing Asian Development Bank (ADB) projects and are unfamiliar with ADB procedures and requirements. The current flood-warning system is inadequate and cannot provide effective and timely warnings to rural communities.

9. **Strategic fit.** The project is aligned with the PRC's Thirteenth Five-Year Plan on National Economic and Social Development, 2016–2020 for integrated urban–rural development and ecological civilization (footnote 2). It is also consistent with Zuoquan County's urban development master plan (footnote 3). The project conforms to the strategic priorities of ADB's Midterm Review of Strategy 2020;⁶ and is aligned with ADB's country partnership strategy for the PRC, 2016–2020 for managing climate change and the environment, and supporting inclusive economic growth.⁷ It also conforms to ADB's Water Operational Plan, 2011–2020 to increase coverage and improve services for water supply and sanitation, and promote integrated water resources management.⁸

10. **Lessons.** The project design has incorporated lessons from good practices in integrated water resources management financed by ADB and other international development agencies. Major lessons include (i) an integrated management approach, incorporating cross-sector water resources management, urbanization, and environmental issues (including projected climate change impacts); (ii) the inclusion of nonstructural measures and community participation in addition to structural interventions; (iii) coordinated management of urban–rural planning, and management of resources and services to facilitate integration and linkage to infrastructure; and (iv) provision of trainings to strengthen government agencies.

B. Impact and Outcome

11. The project is aligned with the following impact: quality of life and environmental sustainability in Zuoquan County improved (footnote 4).⁹ The project will have the following outcome: living and environmental conditions for urban and rural residents of Zuoquan County improved.¹⁰

C. Outputs

12. The project will include four outputs: (i) Shixia Reservoir operation and its watershed vegetation improved, (ii) Qingzhang River and Binhe Road rehabilitated, (iii) inclusive water supply and wastewater collection services achieved, and (iv) institutional capacity strengthened.

13. **Output 1: Shixia Reservoir operation and its watershed vegetation improved.** This output will support (i) revegetation around the Shixia Reservoir with climate-resilient species, and planting of an ecological forest belt along the Qingzhang headwaters for about 128 hectares (ha); (ii) installation of the Shixia Reservoir spillway gates; (iii) construction of a flood discharge and washout tunnel; and (iv) construction of five hydrological and water quality monitoring stations with a telecommunication system in the Shixia Reservoir catchment area.

⁶ ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila.

⁷ ADB. 2016. *Transforming Partnership: People's Republic of China and Asian Development Bank, 2016–2020*. Manila.

⁸ ADB. 2011. *Water Operational Plan, 2011–2020*. Manila.

⁹ Zuoquan County Government. 2014. *Zuoquan Stormwater and Flood Control Special Plan, 2014–2030*. Zuoquan.

¹⁰ The design and monitoring framework is in Appendix 1.

14. **Output 2: Qingzhang River and Binhe Road rehabilitated.** This output will support (i) dredging of selected sections of the Qingzhang River that are heavily silted (about 11.60 km); (ii) rehabilitation and construction of the embankment of the Qingzhang River (about 8.90 km); (iii) construction of wetland of about 34.35 ha and associated river amenity facilities; and (iv) Binhe Road expansion (about 4.92 km) and storm water drain installation, applying the sponge city initiative.

15. **Output 3: Inclusive water supply and wastewater collection services achieved.** This output will support (i) construction of raw water transmission pipelines (45.30 km), and expansion of a pumping station; (ii) construction of water distribution pipelines (48.32 km), and expansion of four pumping stations; (iii) replacement of water supply pipelines (36.50 km), and construction of two rural domestic water treatment stations; (iv) expansion of the Zuoquan County wastewater treatment plant from 10,000 m³ per day to 15,000 m³ per day, with improvement of treatment technologies and renovation of some equipment; (v) construction of trunk sewers (about 4.97 km); (vi) replacement of the main sewer pipelines (about 1.29 km); and (vii) reconstruction of four overflow manholes.

16. **Output 4: Institutional capacity strengthened.** This output will support institutional and capacity development for (i) project management; (ii) improvement of the flood warning system; (iii) integrated urban–rural water supply study, including water demand and nonrevenue water management; (iv) action plan for sponge city design for the new district development; and (v) training and study visits (domestic and overseas).

Table 1: Summary of Project Outputs and Components

| Output | Component | Content |
|---|---|---|
| 1. Shixia Reservoir operation and its watershed vegetation improved | 1.1 Revegetation around Shixia Reservoir with climate-resilient species, and planting of an ecological forest belt along the Qingzhang headwaters | Planting of forest belts in the following locations: (i) West Qingzhang River (upper stream of Shixia Reservoir): 0.74 square kilometers (km ²) (ii) Xiaolingdi River: 0.44 km ² (iii) Around Shixia Reservoir: 0.10 km ² Total area: 1.28 km ² (128 hectares) |
| | 1.2 Improvement of two gates for Shixia Reservoir spillway, and construction of a flood discharge and washout tunnel | Construction of a sluice with two gates in the spillway of Shixia Reservoir, and a flood discharge and washout tunnel under the spillway |
| | 1.3 Construction of hydrological and water quality automatic monitoring stations around Shixia Reservoir and a water supply configuration station | Construction of five hydrological and water quality automatic monitoring stations with a telecommunication system in the Shixia Reservoir catchment area |
| 2. Qingzhang River and Binhe Road rehabilitated | 2.1 Dredging of selected sections of the Qingzhang River and tributaries that are heavily silted | Length: 11.60 kilometers (km) Volume: 78,700 cubic meters (m ³) |
| | 2.2 River rehabilitation and construction of the embankment | Construction of river embankment of about 8.9 km of the river channel to enhance flood control and restore ecology along the Qingzhang River |

| Output | Component | Content |
|---|---|---|
| | | Shixia Reservoir to Xihetou Village: 7.10 km Taizilianchi Road to Ku River: 1.80 km |
| | 2.3 River rehabilitation and construction of wetland and associated river amenity facilities | Habitat enhancement, including construction of wetland, flood retention zone, waterborne platform, pedestrian walks, bridges, etc. of about 34.35 hectares, or 515.30 <i>mu</i> ^a |
| | 2.4 Low-impact design (LID or sponge city concept) for road improvement, expansion for easement, and storm water drain installation | Improvement of Binhe Road of 4.92 km, including four bridges and storm water drains (13.00 km) together with low-impact facilities designed in accordance with the sponge city concept |
| 3. Inclusive water supply and wastewater collection services achieved | 3.1 Rural water supply system | <p>Raw Water Transmission</p> <ul style="list-style-type: none"> (i) City West raw water pumping station expansion (add capacity of 28,700 m³ per day [m³/d]) (ii) Raw water transmission pipelines (DN 280–450, 45.30 km)^b <p>Rural Industrial Water Supply</p> <ul style="list-style-type: none"> (iii) Wulihou pumping station expansion (added capacity 18,200 m³/d) (iv) Silihou pumping station expansion (added capacity 10,500 m³/d) (v) Majiaguai pumping station expansion (added capacity 17,000 m³/d) (vi) Shigangkou pumping station expansion (added capacity 9,000 m³/d) (vii) Water distribution pipelines (DN 355–450, 48.32 km) <p>Rural Domestic Water Supply</p> <ul style="list-style-type: none"> (viii) Two water treatment stations for rural drinking water supply (1,200 m³/d and 1,500 m³/d); (ix) Replacement of water supply pipelines (DN 63–250, 36.50 km). |
| | 3.2 Water pollution control | <ul style="list-style-type: none"> (i) Zuoquan County wastewater treatment plant expansion and upgrade (expand existing facilities from 10,000 m³/d to 15,000 m³/d; add advanced treatment system, 15,000 m³/d; and replace aging and faulty equipment); (ii) Construction of trunk sewers (DN 400–500, 4.97 km) and associated manholes (124 Nos.) in City West New District; (iii) Replacement of existing DN 600 main sewer with DN 1,000 pipelines (1.29 km), with manholes (25 Nos.); and (iv) Reconstruction of four overflow manholes |
| 4. Institutional capacity strengthened | 4.1 Project management | <ul style="list-style-type: none"> (i) Consultancy service during initial stage (ii) Project implementation support consulting services (iii) Resettlement external monitoring (iv) Training for reservoir management and operating procedures; dam safety management, including dam safety monitoring, compilation and |

| Output | Component | Content |
|--------|--|--|
| | | implementation of the reservoir operation, maintenance, and surveillance manual, and compilation of dam safety reports |
| | 4.2 Flood-warning system | To enhance the existing flood-warning system of Zuoquan County by incorporating real-time information collected from the five hydrological stations to be built under Output 1 and provision of appropriate equipment and software |
| | 4.3 Institutional and capacity strengthening for integrated urban–rural water supply | (i) Integration of water supply services in urban and rural areas (ii) Strengthening the capacity of the newly established water company to meet the challenges of water sector reform (iii) Training for water demand management |
| | 4.4 Institutional and capacity strengthening for sponge city design (low-impact technologies) for city development | (i) Prepare a sponge city action plan for new urban development areas (ii) Prepare the LID standards to be implemented in new urban construction (iii) Develop training of trainers on the sponge city action plan and the LID standards (iv) Prepare monitoring framework for the sponge city and the LID implementation (pilot on Binhe Road) |
| | 4.5 Training and study visits (domestic and overseas) | (i) Training on financial management, procurement, disbursement, environmental and social safeguards, gender, water resources management, and other areas related to project implementation and management (ii) Study visits in above fields, as necessary, for effective project implementation and management |

^a A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters or 0.0667 hectares).

^b DN stands for *diametre nominel*, the metric equivalent of nominal pipe size.

Source: Asian Development Bank and Project Feasibility Study Report (August 2016).

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Table 2: Project Readiness Activities for Zuoquan

| Indicative Activities | 2017 | | | | | | | | | | | Responsibility |
|---|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---|-------------------------|
| | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | |
| Procurement agent recruited | ■ | | | | | | | | | | | ZCG/PMO |
| Advance contracting actions ^a | ■ | ■ | ■ | ■ | ■ | | | | | | | ZCG/PMO |
| Retroactive financing actions | ■ | ■ | ■ | ■ | ■ | | | | | | | ZCG/PMO |
| Approval of FSR | | | | ■ | | | | | | | | SPG |
| Approval of FCUP | | | | ■ | | | | | | | | NDRC |
| Engagement of technical design institutes | ■ | | | | | | | | | | | ZCG/PMO |
| EIA and resettlement plan approved | ■ | ■ | ■ | | | | | | | | | |
| ADB management review | ■ | | | | | | | | | | | ADB |
| Loan negotiations | | | | | ■ | | | | | | | ADB, MOF, SPG, JMG, ZCG |
| ADB Board consideration | | | | | | ■ | | | | | | ADB |
| Loan signing | | | | | | | | ■ | | | | ADB, MOF, SPG, JMG, ZCG |
| Government legal opinion | | | | | | | | | | ■ | | MOF, SPG, JMG, ZCG |
| Government budget inclusion | ■ | ■ | | | | | | | | | | ZCG |
| Loan effectiveness | | | | | | | | | | | ■ | ADB, MOF |

ADB = Asian Development Bank, EIA = environmental impact assessment, FCUP = foreign capital utilization plan, FSR = feasibility study report, JMG = Jinzhong Municipal Government, MOF = Ministry of Finance, NDRC = National Development and Reform Commission, PMO = project management office, SPG = Shanxi Provincial Government, ZCG = Zuoquan County Government.

^a Include procurement of civil works and materials and equipment for subprojects of (i) reforestation, (ii) water supply, (iii) flood embankment, and (iv) training and consultants.

Source: ADB estimates.

| Indicative Activities | 2017 ^a | | | | 2018 | | | | 2019 | | | | 2020 | | | | 2021 | | | | 2022 | | | |
|--|-------------------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Output 4: Institutional Capacity Strengthened | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.1 Conduct training in project management | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.2 Recruit consulting services | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.3 Improve the flood-warning system, and provide necessary training to relevant staff | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.4 Carry out study on integrated urban–rural water supply | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.5 Develop action plan on applying sponge city design for city development | | | | | | | | | | | | | | | | | | | | | | | | |
| B. MANAGEMENT ACTIVITIES | | | | | | | | | | | | | | | | | | | | | | | | |
| Carry out key activities of the gender and social development action plans | | | | | | | | | | | | | | | | | | | | | | | | |
| Conduct and monitor activities of resettlement plan (including land acquisition) and environmental management plan | | | | | | | | | | | | | | | | | | | | | | | | |
| Recruit an independent agency for external resettlement monitoring | | | | | | | | | | | | | | | | | | | | | | | | |
| Conduct annual and midterm project reviews | | | | | | | | | | | | | | | | | | | | | | | | |

^a Includes project implementation preparation and advance action activities.
Source: Asian Development Bank estimates.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

Table 4: Key Parties Involved in Implementation

| Project Implementation Organizations | Management Roles and Responsibilities |
|--|---|
| Shanxi Provincial Finance Department (SPFD) | <ul style="list-style-type: none"> • Provide overall project guidance and coordination • Establish, manage, and administer the project advance account • Supervise counterpart funding requirements • Submit withdrawal applications to the Asian Development Bank (ADB) • Manage and supervise the loan repayment |
| Jinzhong Municipal Finance Bureau | <ul style="list-style-type: none"> • Provide overall project guidance and coordination • Submit withdrawal applications to SPFD • Supervise counterpart funding requirements • Manage and supervise the loan repayment |
| <p>Executing Agency:</p> <p>Zuoquan County Government (Zuoquan County Project Leading Group)</p> | <ul style="list-style-type: none"> • Responsible for overall project planning, management, and implementation • Facilitate disbursement through SPFD • Facilitate project audit • Supervise the implementing agencies • Execute the loan agreement, and sign the project agreement • Secure funds for repayment of the ADB loan, and prepare a repayment plan for the loan and interest in accordance with the loan agreement • Responsible for providing counterpart funds |
| Zuoquan County Project Management Office | <ul style="list-style-type: none"> • On behalf of the Zuoquan County Government, manage all implementation works during preparation and implementation • Coordinate with all involved agencies, departments, and institutes for project implementation • Coordinate implementation of land acquisition and resettlement activities with the bureaus of housing management, and land resources • Implement nonstructural and capacity development components of the project • Engage (i) an external monitoring agency for resettlement and environment, and (ii) consultants for project management and implementation of nonstructural components • Prepare and update the procurement plan and other project documents • Provide ADB with (i) quarterly project progress reports, (ii) semiannual environmental monitoring reports, (iii) a project completion report, and (iv) annual audit reports • Forward external resettlement monitoring and evaluation reports to ADB • Review withdrawal applications prepared by the implementing agencies, and prepare and submit |

| Project Implementation Organizations | Management Roles and Responsibilities |
|---|--|
| | withdrawal applications through SPFD, Jinzhong Municipal Finance Bureau, and Zuoquan County Finance Bureau <ul style="list-style-type: none"> • Carry out project performance and compliance monitoring • Disclose project-related information and documents in accordance with ADB guidelines |
| Zuoquan County Finance Bureau | <ul style="list-style-type: none"> • Provide counterpart funding • Repay the loan proceeds • Review annual financing plan and procurement plan • Review and submit withdrawal applications |
| Implementing Agencies: <ul style="list-style-type: none"> • Zuoquan Water Resource Bureau • Zuoquan Shixia Reservoir Management Office • Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau • Zuoquan Forestry Bureau | <ul style="list-style-type: none"> • Responsible for the day-to-day project implementation activities for all infrastructure subcomponents in Zuoquan County • Design and procure works and goods under all infrastructure components; and administer and monitor the contractors and suppliers, with the support of design institutes, tendering agent, and supervision companies • Undertake contract management, construction supervision, and quality control, with the support of the construction supervision companies • Develop project management procedures, implementation plan, and financial management • Prepare withdrawal applications • Maintain separate project accounts for the project • Prepare and update the environmental management plan and other project documents • Participate in training • Organize project acceptance verification |
| ADB | <ul style="list-style-type: none"> • Support project administration, including the executing and implementing agencies' compliance of obligations and responsibilities in accordance with ADB 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 |

Source: Asian Development Bank.

Table 5: Implementing Agencies for Construction

| No. | Component | Description | Implementing Agency |
|----------|--|---|--|
| 1 | Shixia Reservoir Operation and its Watershed Vegetation Improved | | |
| 1.1 | Revegetation around Shixia Reservoir with climate-resilient species, and planting of an ecological forest belt | Planting of forest belts in the following locations: (i) West Qingzhang River (upper stream of Shixia Reservoir): 0.74 square kilometers (km ²) (ii) Xiaolingdi River: 0.44 km ² (iii) Around Shixia Reservoir: 0.10 km ² Total area: 1.28 km ² (128 hectares) | Zuoquan Shixia Reservoir Management Office (1.2–1.3) and Zuoquan |

| No. | Component | Description | Implementing Agency |
|----------|---|---|--|
| | along the Qingzhang headwaters | | Forestry Bureau (1.1) |
| 1.2 | Improvement of two gates for Shixia Reservoir spillway, and construction of a flood discharge and washout tunnel | Construction of a sluice with two gates in the spillway of Shixia Reservoir, and a flood discharge and washout tunnel under the spillway | |
| 1.3 | Construction of hydrological and water quality automatic monitoring stations around Shixia Reservoir and a water supply configuration station | Construction of five hydrological and water quality automatic monitoring stations with a telecommunication system in the Shixia Reservoir catchment area | |
| 2 | Qingzhang River and Binhe Road Rehabilitated | | |
| 2.1 | Dredging of selected sections of the Qingzhang River and tributaries that are heavily silted | Length: 11.60 kilometers (km) Volume: 78,700 cubic meters (m ³) | Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau (2.1–2.2) and Zuoquan Forestry Bureau (2.3) |
| 2.2 | River rehabilitation and construction of the embankment | Construction of river embankment of about 8.9 km of the river channel to enhance flood control and restore ecology along the Qingzhang River Shixia Reservoir to Xihetou Village: 7.10 km Taizilianchi Road to Ku River: 1.80 km | |
| 2.3 | River rehabilitation and construction of wetland and associated river amenity facilities | Habitat enhancement, including construction of wetland, flood retention zone, waterborne platform, pedestrian walks, bridges, etc. of about 34.35 hectares or 515.30 <i>mu</i> ^a | |
| 2.4 | Low-impact design (LID or sponge city concept) for road improvement, expansion for easement, and storm water drain installation | Improvement of Binhe Road of 4.92 km, including four bridges and storm water drains (13.00 km) together with low-impact facilities designed in accordance with the sponge city concept | |
| 3 | Inclusive Water Supply and Wastewater Collection Services Achieved | | |
| 3.1 | Rural water supply system | <p>Raw Water Transmission</p> <ul style="list-style-type: none"> (i) City West raw water pumping station expansion (add capacity of 28,700 m³ per day [m³/d]) (ii) Raw water transmission pipelines (DN 280–450, 45.30 km)^b <p>Rural Industrial Water Supply</p> <ul style="list-style-type: none"> (i) Wulihou pumping station expansion (add capacity of 18,200 m³/d) (ii) Silihou pumping station expansion (add capacity of 10,500 m³/d) (iii) Majiaguai pumping station expansion (add capacity of 17,000 m³/d) (iv) Shigangkou pumping station expansion (add capacity of 9,000 m³/d) (v) Water distribution pipelines (DN 355–450, 48.32 km) | Zuoquan Water Resource Bureau |

| No. | Component | Description | Implementing Agency |
|-----|-------------------------|---|--|
| | | Rural Domestic Water Supply (i) Two water treatment stations for rural drinking water supply (1,200 m ³ /d and 1,500 m ³ /d); (ii) Five pumping stations and associated facilities; and (iii) Replacement of existing water supply pipelines (DN 63–250, 36.50 km). | |
| 3.2 | Water pollution control | (i) Zuoquan County wastewater treatment plant expansion and upgrade (expand existing facilities from 10,000 m ³ /d to 15,000 m ³ /d; add advanced treatment system, 15,000 m ³ /d; and replace aging and faulty equipment); (ii) Construction of trunk sewers (DN 400–500, 4.97 km) and associated manholes (124 Nos.) in City West New District; (iii) Replacement of existing DN 600 main sewer with DN 1,000 pipelines (1.29 km) with manholes (25 Nos.); and (iv) Reconstruction of four overflow manholes. | Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau |

Note: Numbers in the table are approximate figures.

^a A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters or 0.067 hectares).

^b DN stands for *diametre nominal*, the metric equivalent of nominal pipe size.

Source: Asian Development Bank and Project Feasibility Study Report (August 2016).

Table 6: Operation and Maintenance Arrangement

| No. | Component | Description | Operation Unit |
|----------|---|---|--|
| 1 | Shixia Reservoir Operation and its Watershed Vegetation Improved | | |
| 1.1 | Revegetation around the Shixia Reservoir with climate-resilient species, and planting of an ecological forest belt along the Qingzhang headwaters | Planting of forest belts in the following locations: (i) West Qingzhang River (upper stream of Shixia Reservoir): 0.74 square kilometers (km ²) (ii) Xiaolingdi River: 0.44 km ² (iii) Around Shixia Reservoir: 0.10 km ² Total area: 1.28 km ² (128 hectares) | Zuoquan Shixia Reservoir Management Office (1.2–1.3) and Zuoquan Forestry Bureau (1.1) |
| 1.2 | Improvement of two gates for Shixia Reservoir spillway, and construction of a flood discharge and washout tunnel | Construction of a sluice with two gates in the spillway of Shixia Reservoir, and a flood discharge and washout tunnel under the spillway | |
| 1.3 | Construction of hydrological and water quality automatic monitoring stations around Shixia Reservoir and a water supply configuration station | Construction of five hydrological and water quality automatic monitoring stations with a telecommunication system in the Shixia Reservoir catchment area | |
| 2 | Qingzhang River and Binhe Road Rehabilitated | | |
| 2.1 | Dredging of selected sections of the Qingzhang River and tributaries that are heavily silted | Length: 11.60 kilometers (km) Volume: 78,700 cubic meters | Zuoquan Housing Security, and Urban and Rural Construction and |

| No. | Component | Description | Operation Unit |
|----------|---|--|---|
| 2.2 | River rehabilitation and construction of the embankment | Construction of river embankment of about 8.9 km of the river channel to enhance flood control and restore ecology along the Qingzhang River Shixia Reservoir to Xihetou Village: 7.10 km Taizilianchi Road to Ku River: 1.80 km | Management Bureau (2.1–2.2) and Zuoquan Forestry Bureau (2.3) |
| 2.3 | River rehabilitation and construction of wetland and associated river amenity facilities | Habitat enhancement, including construction of wetland, flood retention zone, waterborne platform, pedestrian walks, bridges, etc. of about 34.35 hectares or 515.30 <i>mu</i> ^a | |
| 2.4 | Low-impact design (LID or sponge city concept) for road improvement, expansion for easement, and storm water drain installation | Improvement of Binhe Road of 4.92 km in length, including four bridges and storm water drains (13.00 km) together with low-impact facilities designed in accordance with the sponge city concept | |
| 3 | Inclusive Water Supply and Wastewater Collection Services Achieved | | |
| 3.1 | Rural water supply system | (i) Raw water transmission (ii) Rural industrial water supply (iii) Rural domestic water supply | Zuoquan Liaorun Water Affair Construction Investment Limited Company Zuoquan Water Resource Bureau |
| 3.2 | Water pollution control | (i) Zuoquan County wastewater treatment plant expansion and upgrade (ii) Construction of trunk sewers (4.97 km) (iii) Replacement of existing main sewer with pipelines (1.29 km) (iv) Reconstruction of four overflow manholes | Zuoquan Wastewater Treatment Center for the wastewater treatment plant Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau for wastewater pipelines and affiliated or associated facilities |

Note: All numbers in the table are approximate figures.

^a A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters or 0.067 hectares).

Source: Asian Development Bank.

17. The Zuoquan County Government (ZCG) will be the executing agency and responsible for the overall planning and implementation of the project. A project leading group and a project management office (PMO) have been established in 2014. The project leading group includes representatives from relevant government departments of Zuoquan County, including the county development and reform commission; and the bureaus on environmental protection, finance, housing and construction, land resources, resettlement, and water resources. The implementing agencies will be the (i) Zuoquan Water Resource Bureau (ZWRB); (ii) Zuoquan Shixia Reservoir

Management Office (ZSRMO); (iii) Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau (ZHCB); and (iv) Zuoquan Forestry Bureau.

B. Key Persons Involved in Implementation

| Executing Agency | |
|-----------------------------------|---|
| Zuoquan County Government | Officer's Name: Zhang Shihua Position: Vice County Governor Telephone No.: +13903546458 Office Address: No.23 North Avenue, Zuoquan County |
| Zuoquan County Finance Bureau | Officer's Name: Li Aijun Position: Deputy Director Telephone No.: +13593109789 Office Address: 7F, Convenient Service Center, Binhe Road, Zuoquan County |
| Zuoquan Project Management Office | Officer's Name: Huo Jianbin Position: Deputy Director Telephone No.: +13835431308 Office Address: Room 1107, Convenient Service Center, Binhe Road, Zuoquan County |

| Implementing Agencies | |
|--|--|
| Zuoquan Shixia Reservoir Management Office | Officer's Name: Liu Linzhong Position: Director of Shixia Reservoir Management Office Telephone No.: +13935404098 Office Address: Shixia Township, Zuoquan County |
| Zuoquan Water Resource Bureau | Officer's Name: Han Lijun Position: Chief Officer Telephone No.: +18635095358 Office Address No.23 North Avenue, Zuoquan County |
| Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau | Officer's Name: Yu Qingzhong Position: Chief Engineer Telephone No.: +13903546090 Office Address: 5F, Convenient Service Center, Binhe Road, Zuoquan County |
| Zuoquan Forestry Bureau | Officer's Name: Zhao Jinguang Position: Head of Greening Office Telephone No.: +13834863091 Office Address: No. 23, BeiDajie, Zuoquan County |

Asian Development Bank

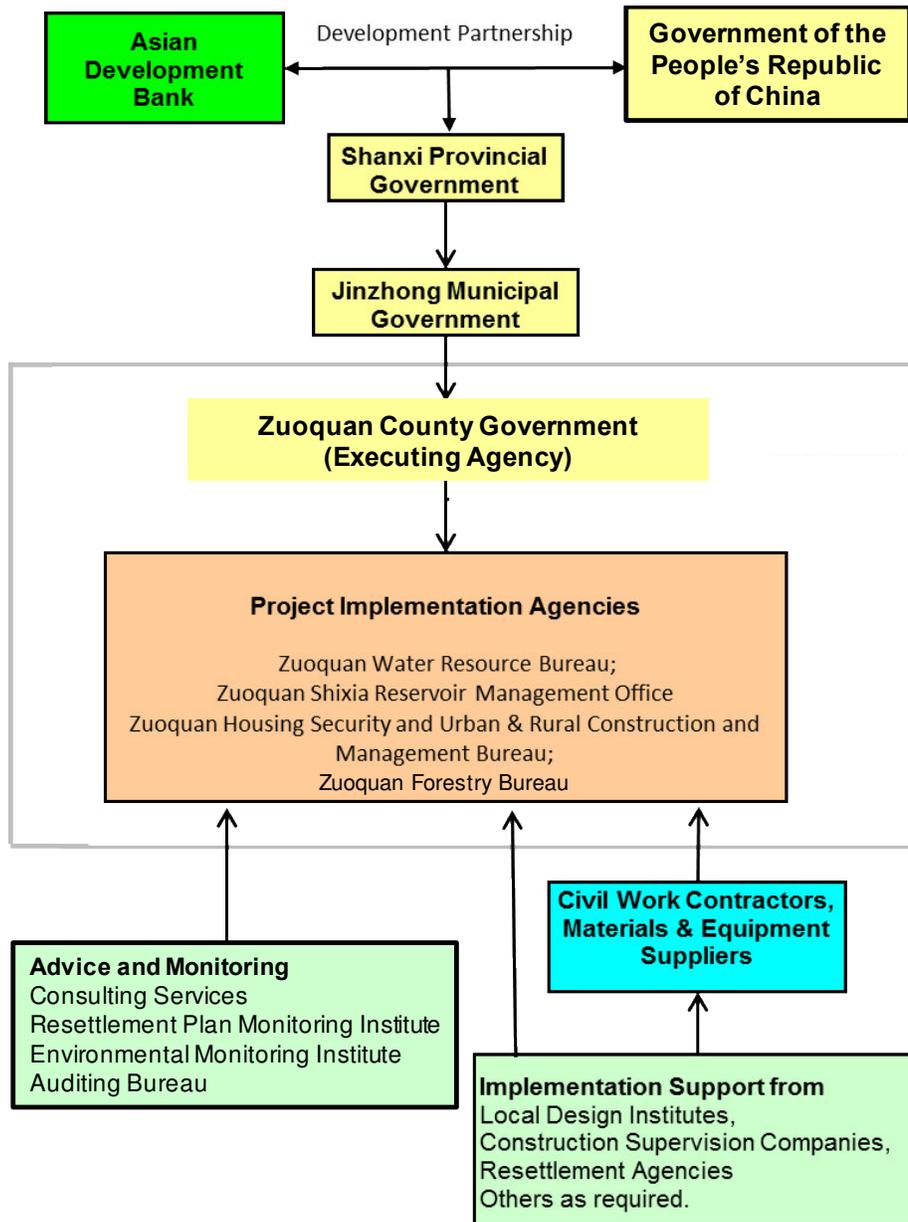
East Asia Department
Environment, Natural
Resources, and Agriculture
Division

Staff Name: Qingfeng Zhang
Position: Director
Telephone No.: +63 2 632 5769 (direct)/6769 (assistant)
Fax No.: +63 2 636 2534/2444
Email address: qingfengzhang@adb.org

Staff Name: Yaozhou Zhou
Position: Principal Water Resources Specialist, CWRD;
and Mission Leader (before loan approval)
Telephone No.: +63 2 632 5943
Email address: yaozhou@adb.org

Staff Name: Yoshiaki Kobayashi
Position: Principal Water Resources Specialist, EARD;
and Mission Leader (after loan approval)
Telephone No.: +63 2 632 5584
Email address: yoshikobayashi@adb.org

C. Project Organization Structure



Note: Shanxi Provincial Finance Department, Jinzhong Municipal Finance Bureau, and Zuoquan County Finance Bureau are representatives of the Shanxi Provincial Government, Jinzhong Municipal Government, and Zuoquan County Government, respectively, for financing and debt management.

IV. COSTS AND FINANCING

18. This section describes the project costs, categories, and components to be financed by ADB and ZCG. Loan proceeds will be disbursed according to the *Loan Disbursement Handbook* (2017, as amended from time to time), and subject to the provisions of the loan and project agreements.

19. Costs are itemized below using the following categories:
- (i) **Civil works.** Includes service contracts for construction and installation of project works; and may include provision of related equipment, materials, and supplies. Financed jointly from the ADB loan and the ZCG counterpart funds.
 - (ii) **Equipment and goods.** Includes procurement contracts for equipment, materials, and supplies. Financed by the ADB loan.
 - (iii) **Land acquisition and resettlement.** Includes expenditures for temporary or permanent occupancy of land and associated resettlement activities. Financed by the ZCG counterpart funds.
 - (iv) **Survey, design, supervision, and monitoring.** Includes expenditures for engineering and related services to design, implement, and monitor project components. Financed by the ZCG counterpart funds.
 - (v) **Consulting services (institutional capacity development).** Includes service contracts to provide training and related services required to increase the professional capacity of staff involved in implementation and subsequent operation of project components. Financed by the ADB loan.
 - (vi) **Consulting services (institutional capacity monitoring).** Includes service contracts let to monitor the implementation and effectiveness of impact mitigation measures; for instance, for resettlement and environmental impacts. Financed by the ADB loan.
 - (vii) **Physical contingencies.** Budgetary provision to cover unexpected costs and cost overruns. Financed by the ZCG counterpart funds.
 - (viii) **Price contingencies.** Budgetary provision to cover inflationary increases in costs. Financed by the ZCG counterpart funds.
20. The above cost categories include taxes, duties, transport, and insurance costs.

A. Cost Estimate Preparation and Revisions

21. Capital and project operation and maintenance (O&M) costs were provided in the feasibility study report prepared on behalf of the PMO by the project design institute, in consultation with the implementing agencies and the project preparatory technical assistance consultants; and under the guidance of the ADB project officer. Costing was completed using government costing standards, and costing information from site investigations, the design institute's project files, and queries with suppliers.

22. Cost revisions during implementation will be prepared by the implementing agency and its contractors.

B. Key Assumptions

23. The following key assumptions underpin the cost estimates and financing plan:
- (i) **Exchange rate.** CNY6.90 = \$1.00

- (ii) Price contingencies based on expected cumulative inflation over the implementation period as follows:

| Item | 2017 | 2018 | 2019 | 2020 | 2021+ | Average |
|----------------------------------|-------|-------|-------|-------|-------|---------|
| Foreign rate of price inflation | 1.40% | 1.40% | 1.50% | 1.50% | 1.50% | 1.48% |
| Domestic rate of price inflation | 2.30% | 2.40% | 2.50% | 2.50% | 2.50% | 2.44% |

- (iii) There are no in-kind contributions.

C. Summary Cost Estimates and Financing Plan

24. The project is estimated to cost \$152.1 million. The summary cost estimates is in Table 7.

Table 7: Summary Cost Estimates (\$ million)

| Item | Amount ^a |
|---|---------------------|
| A. Base Cost^b | |
| 1. Shixia Reservoir operation and its watershed vegetation improved | 13.6 |
| 2. Qingzhang River and Binhe Road rehabilitated | 64.9 |
| 3. Inclusive water supply and wastewater collection services achieved | 43.7 |
| 4. Institutional capacity strengthened | 3.6 |
| Subtotal (A) | 125.8 |
| B. Contingencies^c | 22.1 |
| C. Financing Charges During Implementation^d | 4.2 |
| Total (A+B+C) | 152.1 |

^a Includes taxes and duties of \$8.33 million. Such amount does not represent an excessive share of the project cost. The government will finance taxes and duties of \$2.78 million in the form of cash contribution.

^b In end-2016 prices.

^c Physical contingencies computed at 8.0%. Price contingencies computed at average 1.44% on foreign exchange costs and at 2.44% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest during construction and commitment charges. Interest for the ordinary capital resources loan has been computed at the 5-year United States dollar fixed swap rate plus an effective contractual spread of 0.5% and maturity premium of 0.2%. Commitment charges for the Asian Development Bank loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

25. 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, 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 (the interest rate and other charges during construction will be capitalized in the loan); and such other terms and conditions set forth in the loan and project agreements.

26. The ADB loan will finance \$100 million (65.7%) of the project cost, including civil works, equipment and goods, and consulting services. ZCG will be the legal entity responsible for servicing the ADB loan and will finance \$52.1 million (34.3%) through counterpart funds (Table 8).

Table 8: Summary Financing Plan

| Source | Amount (\$ million) | Share of Total (%) |
|---------------------------|---------------------|--------------------|
| Asian Development Bank | 100.0 | 65.7 |
| Zuoquan County Government | 52.1 | 34.3 |
| Total | 152.1 | 100.0 |

Source: Asian Development Bank estimates.

27. The government has requested that repayment will follow the 10% annuity repayment option. Based on the above loan terms and these repayment option and dates, the average loan maturity is 18.31 years; and the maturity premium payable to ADB is 0.2% (20 basis points) per year. ADB's Controller's Department will provide the final confirmation and issue the loan repayment schedule at loan negotiations.

28. The government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility based on of these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB.

D. Detailed Cost Estimates by Expenditure Category

Table 9: Detailed Cost Estimates by Expenditure Category

| | CNY million | | | \$ million | | | Percent of Total | % of Base Cost |
|---|------------------|----------------|----------------|------------------|----------------|--------------|------------------|----------------|
| | Foreign Exchange | Local Currency | Total Cost | Foreign Exchange | Local Currency | Total Cost | | |
| A. Investment Costs | | | | | | | | |
| 1. Civil works | 0.0 | 503.5 | 503.5 | 0.0 | 73.0 | 73.0 | 48.0 | 58.0 |
| 2. Equipment and goods | 90.5 | 90.5 | 181.1 | 13.1 | 13.1 | 26.2 | 17.2 | 20.9 |
| 3. Land acquisition and resettlement | 0.0 | 97.3 | 97.3 | 0.0 | 14.1 | 14.1 | 9.3 | 11.2 |
| 4. Survey, design, supervision and monitoring | 0.0 | 68.0 | 68.0 | 0.0 | 9.9 | 9.9 | 6.5 | 7.8 |
| 5. Consulting services (institutional capacity development) | 8.6 | 8.6 | 17.1 | 1.2 | 1.2 | 2.5 | 1.6 | 2.0 |
| 6. Consulting services (institutional capacity monitoring) | 0.7 | 0.7 | 1.4 | 0.1 | 0.1 | 0.2 | 0.1 | 0.2 |
| Subtotal (A) | 99.8 | 768.6 | 868.4 | 14.5 | 111.4 | 125.9 | 82.7 | 100.0 |
| B. Contingencies | | | | | | | | |
| 1. Physical | 8.0 | 61.5 | 69.5 | 1.2 | 8.9 | 10.1 | 6.6 | 8.0 |
| 2. Price | 6.8 | 76.0 | 82.7 | 1.0 | 11.0 | 12.0 | 7.9 | 9.5 |
| Subtotal (B) | 14.7 | 137.5 | 152.2 | 2.1 | 19.9 | 22.1 | 14.5 | 17.5 |
| C. Financing Charges During Implementation | | | | | | | | |
| 1. Interest charges | 26.5 | 0.0 | 26.5 | 3.8 | 0.0 | 3.8 | 2.5 | 3.1 |
| 2. Commitment fee | 2.6 | 0.0 | 2.6 | 0.4 | 0.0 | 0.4 | 0.3 | 0.3 |
| Subtotal (C) | 29.2 | 0.0 | 29.2 | 4.2 | 0.0 | 4.2 | 2.8 | 3.4 |
| Total Project Cost (A+B+C) | 143.7 | 906.0 | 1,049.7 | 20.8 | 131.3 | 152.1 | 100.0 | 120.9 |

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

E. Allocation and Withdrawal of Loan Proceeds

Table 10: Allocation and Withdrawal of Loan Proceeds

| No. | Item | Category Total (\$) | Percentage and Basis for Withdrawal from Loan Account |
|--------------|--|------------------------------------|--|
| 1 | Civil works* ^a | 67,793,100 | 92.9% of total expenditure claimed |
| 2 | Goods ^a | 25,299,057 | 100% of total expenditure claimed |
| 3 | Consulting services (including training and study visits) ^a | 2,679,000 | 100% of total expenditure claimed |
| 4 | Interest during construction and commitment fees | 4,228,843 | 100% of amount due |
| Total | | 100,000,000 | |

^a Inclusive of taxes and duties.

Source: Asian Development Bank estimates.

F. Detailed Cost Estimates by Financier

Table 11: Detailed Cost Estimates by Financier (\$ million)

| | Total Costs | ADB Loan | | Zuoquan County Government | |
|---|--------------|--------------|-----------------|---------------------------|-----------------|
| | | Amount | % Cost Category | Amount | % Cost Category |
| A. Investment Costs | | | | | |
| 1. Civil works | 73.0 | 67.8 | 92.9 | 5.2 | 7.1 |
| 2. Equipment and goods | 25.3 | 25.3 | 100.0 | 0.0 | 0.0 |
| 3. Equipment and goods—Non-ADB Financed | 0.9 | 0.0 | 0.0 | 0.9 | 100.0 |
| 4. Land acquisition and resettlement | 14.1 | 0.0 | 0.0 | 14.1 | 100.0 |
| 5. Survey, design, supervision, and monitoring | 9.9 | 0.0 | 0.0 | 9.9 | 100.0 |
| 6. Consulting services (inclusive of training and study tour) | 2.7 | 2.7 | 100.0 | 0.0 | 0.0 |
| Subtotal (A) | 125.9 | 95.8 | 76.1 | 30.1 | 23.9 |
| B. Contingencies | | | | | |
| 1. Physical | 10.1 | 0.0 | 0.0 | 10.1 | 100.0 |
| 2. Price | 12.0 | 0.0 | 0.0 | 12.0 | 100.0 |
| Subtotal (B) | 22.1 | 0.0 | 0.0 | 22.1 | 100.0 |
| C. Financing Charges During Implementation | | | | | |
| 1. Interest charges | 3.8 | 3.8 | 100.0 | 0.0 | 0.0 |
| 2. Commitment fee | 0.4 | 0.4 | 100.0 | 0.0 | 0.0 |
| Subtotal (C) | 4.2 | 4.2 | 100.0 | 0.0 | 0.0 |
| Total Project Cost (A+B+C) | 152.1 | 100.0 | 65.7 | 52.1 | 34.3 |

Note: Numbers may not sum precisely because of rounding.
Source: Asian Development Bank estimates.

G. Detailed Cost Estimates by Output

Table 12: Detailed Cost Estimates by Output (\$ million)

| | Total | Shixia Reservoir Operation and its Watershed Vegetation Improved | | Qingzhang River and Binhe Road Rehabilitated | | Inclusive Water Supply and Wastewater Collection Services Achieved | | Institutional Capacity Strengthened | |
|---|--------------|--|--------------------|--|--------------------|--|--------------------|---|--------------------|
| | | Amount | % Cost Category | Amount | % Cost Category | Amount | % Cost Category | Amount | % Cost Category |
| A. Investment Costs | | | | | | | | | |
| 1. Civil works | 73.0 | 10.1 | 13.8 | 47.4 | 64.9 | 15.5 | 21.2 | 0.0 | 0.0 |
| 2. Equipment and goods | 26.2 | 1.6 | 6.1 | 0.0 | 0.0 | 23.7 | 90.3 | 0.9 | 3.6 |
| 3. Land acquisition and resettlement | 14.1 | 0.0 | 0.3 | 12.9 | 91.7 | 1.1 | 7.9 | 0.0 | 0.0 |
| 4. Survey, design, supervision, and monitoring | 9.9 | 1.9 | 19.2 | 4.6 | 46.3 | 3.4 | 34.6 | 0.0 | 0.0 |
| 5. Consulting services (inclusive of training and study visits) | 2.7 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.7 | 100.0 |
| Subtotal (A) | 125.9 | 13.6 | 10.8 | 64.9 | 51.6 | 43.7 | 34.7 | 3.6 | 2.9 |
| B. Contingencies | | | | | | | | | |
| 1. Physical | 10.1 | 1.1 | 10.8 | 5.2 | 51.6 | 3.5 | 34.7 | 0.3 | 2.9 |
| 2. Price | 12.0 | 1.4 | 11.6 | 6.2 | 51.8 | 4.0 | 33.7 | 0.3 | 2.9 |
| Subtotal (B) | 22.1 | 2.5 | 11.3 | 11.4 | 51.7 | 7.5 | 34.2 | 0.6 | 2.9 |
| C. Financing Charges During Implementation | | | | | | | | | |
| 1. Interest charges | 3.8 | 0.4 | 10.5 | 1.9 | 49.6 | 1.5 | 37.9 | 0.1 | 2.0 |
| 2. Commitment fee | 0.4 | 0.0 | 10.8 | 0.2 | 51.6 | 0.1 | 34.7 | 0.0 | 2.9 |
| Subtotal (C) | 4.2 | 0.4 | 10.5 | 2.1 | 49.8 | 1.6 | 37.7 | 0.1 | 2.1 |
| Total Project Cost (A+B+C) | 152.1 | 16.6 | 10.9 | 78.4 | 51.5 | 52.8 | 34.7 | 4.3 | 2.9 |

Note: Numbers may not sum precisely because of rounding.
Source: Asian Development Bank estimates.

H. Detailed Cost Estimates by Year

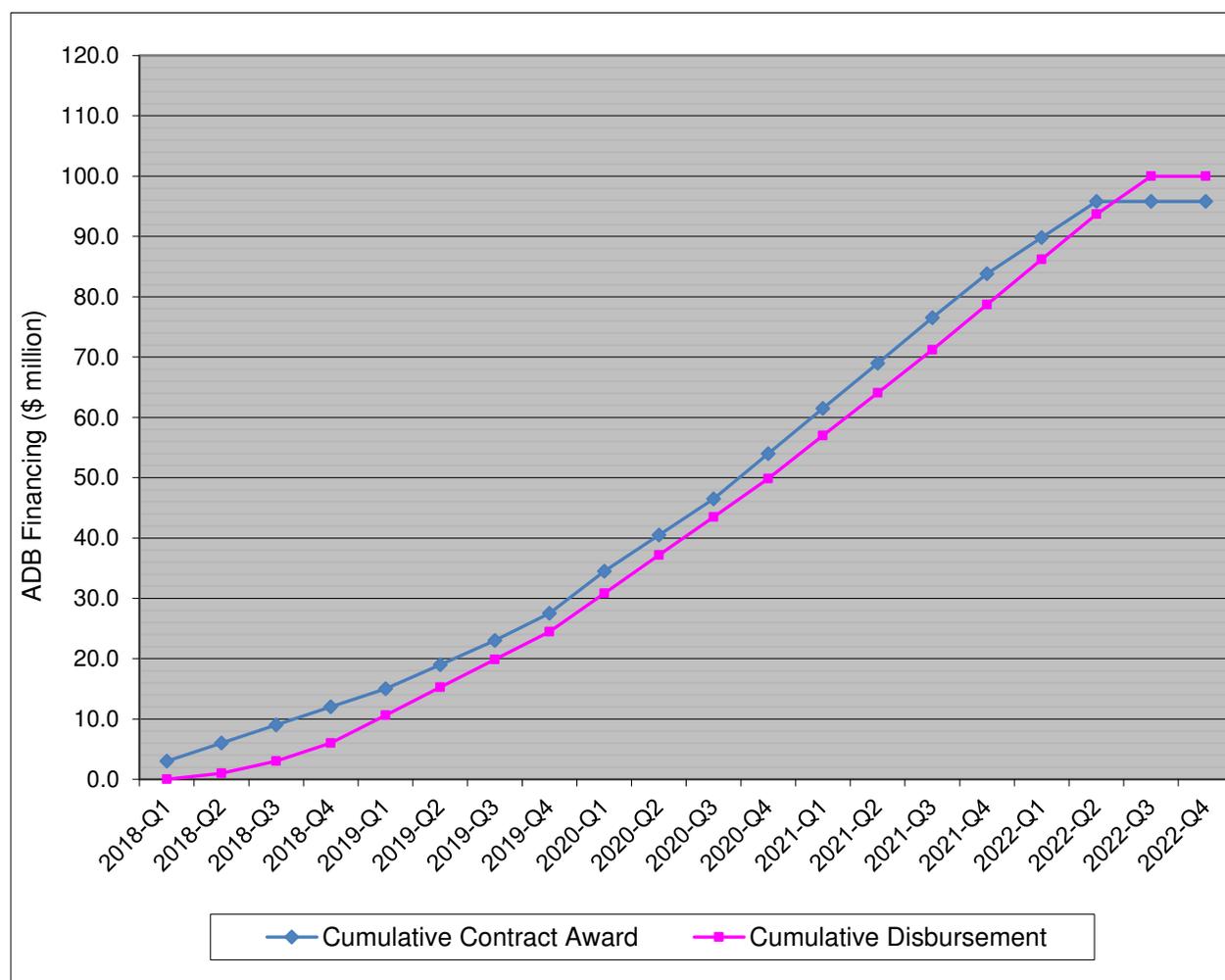
Table 13: Detailed Cost Estimates by Year (\$ million)

| | Total Costs | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|---|------------------------|---------------|---------------|---------------|---------------|---------------|
| A. Investment Costs | | | | | | |
| 1. Civil works | 73.0 | 2.0 | 11.2 | 21.2 | 23.5 | 15.1 |
| 2. Equipment and goods | 26.3 | 1.0 | 4.1 | 5.7 | 8.1 | 7.4 |
| 3. Land acquisition and resettlement | 14.1 | 4.5 | 7.1 | 2.6 | 0.0 | 0.0 |
| 4. Survey, design, supervision and monitoring | 9.9 | .2 | 2.4 | 2.8 | 2.8 | 1.7 |
| 5. Consulting services (inclusive of training and study visits) | 2.7 | 0.6 | 0.3 | 0.6 | 0.5 | 0.6 |
| Subtotal (A) | 125.9 | 8.3 | 25.1 | 32.7 | 34.9 | 24.8 |
| B. Contingencies | | | | | | |
| 1. Physical | 10.1 | 0.4 | 2.0 | 2.6 | 2.8 | 2.3 |
| 2. Price | 11.9 | 0.1 | 1.4 | 2.7 | 3.8 | 3.9 |
| Subtotal (B) | 22.0 | 0.5 | 3.4 | 5.3 | 6.6 | 6.2 |
| C. Financing Charges During Implementation | | | | | | |
| 1. Interest charges | 3.8 | 0.0 | 0.2 | 0.7 | 1.2 | 1.7 |
| 2. Commitment fee | 0.3 | 0.1 | 0.1 | 0.1 | 0.0 | 0.0 |
| Subtotal (C) | 4.2 | 0.2 | 0.3 | 0.8 | 1.2 | 1.7 |
| Total Project Cost (A+B+C) | 152.1 | 9.0 | 28.8 | 38.8 | 42.7 | 32.7 |
| % Total Costs | 100% | 6% | 19% | 26% | 28% | 21% |
| Of Which: | | | | | | |
| ADB Loan | 100.0 | 6.0 | 18.4 | 25.2 | 28.4 | 22.0 |
| Zuoquan County Government | 52.1 | 3.0 | 10.4 | 13.6 | 14.4 | 10.7 |

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

I. Contract and Disbursement S-Curve

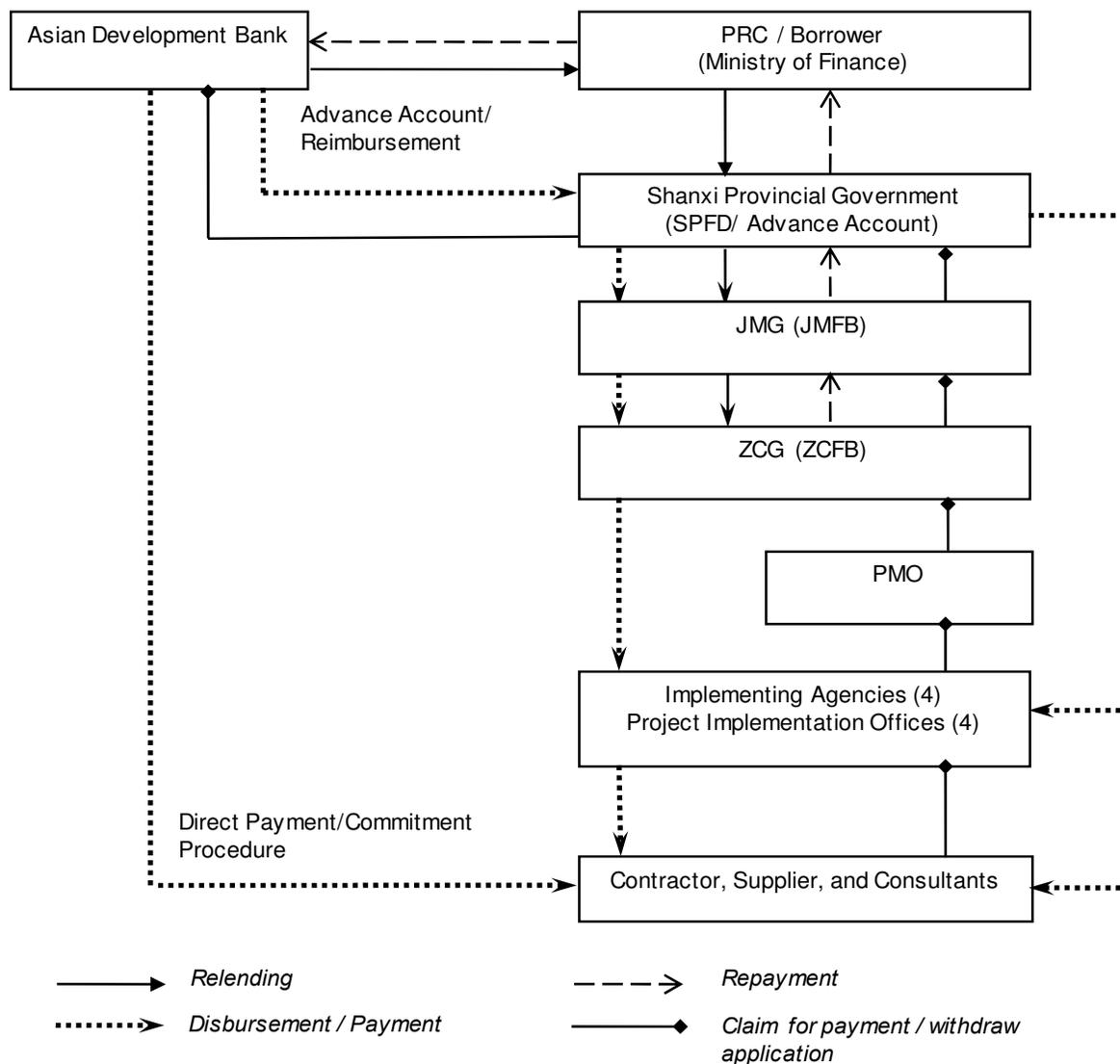


| Year | Contract Awards (\$ million) | | | | | Disbursement (\$ million) | | | | |
|--------------|------------------------------|-----|-----|-----|-------------|---------------------------|-----|-----|-----|--------------|
| | Q1 | Q2 | Q3 | Q4 | Total | Q1 | Q2 | Q3 | Q4 | Total |
| 2018 | 3.0 | 3.0 | 3.0 | 3.0 | 12.0 | 0.0 | 1.0 | 2.0 | 3.0 | 6.0 |
| 2019 | 3.0 | 4.0 | 4.0 | 4.5 | 15.5 | 4.6 | 4.6 | 4.6 | 4.6 | 18.4 |
| 2020 | 7.0 | 6.0 | 6.0 | 7.5 | 26.5 | 5.3 | 5.3 | 7.3 | 7.3 | 25.2 |
| 2021 | 7.5 | 7.5 | 7.5 | 7.3 | 29.8 | 7.1 | 7.1 | 7.1 | 7.1 | 28.4 |
| 2022 | 6.0 | 6.0 | 0.0 | 0.0 | 12.0 | 8.0 | 7.2 | 6.8 | 0.0 | 22.0 |
| Total | | | | | 95.8 | | | | | 100.0 |

Note: Disbursements include capitalized amounts of interest during construction and commitment fees of \$4.2 million. Original contract awards and disbursement targets (baseline projections) starting at effectiveness can only be revised during midterm review, after approval of major change, or approval of an extension of project duration of more than 12 months. The amount of contract award of advance action in 2017 is included in that of 2018.

Source: Asian Development Bank estimates.

J. Fund Flow Mechanism



JMFB = Jinzhong Municipal Finance Bureau, JMG = Jinzhong Municipal Government, PMO = Zuoquan County Project Management Office, PRC = People's Republic of China, SPFD = Shanxi Provincial Finance Department, ZCFB = Zuoquan County Finance Bureau, ZCG = Zuoquan County Government.

Note: The loan funds from the Asian Development Bank will be paid from the SPFD advance account to implementing agencies through pass-through accounts based on expenditures incurred. Funds will only be transferred to the implementing agencies once expenditures are incurred and payment needs to be made.

Source: Asian Development Bank estimates.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

29. The financial management assessment (FMA) was conducted in September 2016 in accordance with ADB's *Guidelines for the Financial Management and Analysis of Projects*¹¹ and the Financial Due Diligence: A Methodology Note.¹² The instrument used for the assessment was ADB's FMA questionnaire.

30. The FMA considered the capacity of the executing and implementing agencies, including fund flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements.

31. The executing agency, the Zuoquan County Government (ZCG), does not have experience in the preparation, implementation, and management of projects funded by ADB. The Zuoquan County Finance Bureau (ZCFB) is responsible, on behalf of ZCG, for (i) financial management of the project, including the ADB loan withdrawal applications and payments; and (ii) overseeing the ADB loan repayment and the counterpart fund arrangements for the project.

32. The Shanxi Provincial Finance Department (SPFD) will operate and administer the advance account and will be responsible for applications and withdrawals of the ADB loan. SPFD has many years of experience in these activities and in the general financial oversight of the ADB- and World Bank-funded projects.

33. The implementing agencies will be the Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau (ZHCB), the Zuoquan Shixia Reservoir Management Office (ZSRMO), the Zuoquan Water Resource Bureau (ZWRB), and the Zuoquan Forestry Bureau; and they are also ZCG's agencies. The project implementation offices (PIOs) established by each implementing agency will be responsible for the day-to-day implementation, organization, and management of the project components. They are also responsible for the daily financial management of subprojects, including project accounting, financial statements preparation, the ADB loan withdrawal and payment, and the counterpart fund withdrawal and payment.

34. ZCFB has adequate financial staff, accounting policies and procedures, internal and external controls, audit arrangements, and reporting system. ZCFB does not have experience on ADB projects. Meanwhile, the designated Financing Division, which is responsible for the ADB project management, also does not have experience on project management, including accounting. The comprehensive training and support is required on the ADB policies and procedures, including project management; disbursement, procurement, and safeguard procedures; and accounting.

35. The implementing agencies have sound financial management systems which can meet the minimum financial management requirements for their current activities. But significant training and support will also be required on the ADB policies and procedures, including project management; disbursement, procurement, and safeguard procedures; and accounting.

¹¹ ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

¹² ADB. 2009. *Financial Due Diligence: A Methodology Note*. Manila.

36. The assessment identified the main financial management risks to include the following:
- (i) **Implementation risk.** Lack of familiarity with the ADB disbursement procedures and requirements which could delay project implementation;
 - (ii) **Compliance risk.** Lack of familiarity with the ADB financial management requirements, particularly relating to accounting, reporting, and auditing, which may delay project reporting and the identification of issues on the use of loan proceeds;
 - (iii) **Financing risk.** Delays in provision of, or inadequate counterpart funding which could delay project implementation; and
 - (iv) **Construction and operational risk.** Inadequate experience in construction and operation management, which will impact project progress and quality of the services to be provided after project completion.

37. The overall financial management risk rating of the project before considering mitigating measures is moderate. The identified financial management risks and the implementation of agreed mitigation measures need to be closely monitored during project implementation.

38. The proposed financial management action plan includes the following:
- (i) covenants in loan agreements to ensure adequate counterpart funds to support capital, O&M, and debt repayment requirements;
 - (ii) training on the ADB disbursement procedures and requirements;
 - (iii) training on the ADB financial management requirements, specifically accounting and reporting, auditing;
 - (iv) close monitoring to quickly identify potential issues in counterpart funding; and
 - (v) a financial expert requirement and some professional engineers to be included in the capacity building package in Output 4 of the project. They will provide professional financial management and engineering support and training for the financial and related staff in the project entities, including financial management manual development.

39. The project's financial management arrangements with appropriate mitigation measures are considered satisfactory.

B. Disbursement

Summary

- (i) Reimbursement procedures for eligible expenditures incurred and paid for by the government out of its budget allocation or its own resources.
- (ii) Advance Account
 - The advance account will be established and maintained by the Shanxi Provincial Finance Department, on behalf of the Shanxi Provincial Government, after the loan becomes effective;
 - The Shanxi Provincial Government will be responsible for the use, management, replenishment, and liquidation of the advance account;
 - The advance account will be exclusively used to finance the Asian Development Bank's share of eligible expenditures; and
 - The outstanding advance (initial advance and subsequent deposits) to the advance account should not exceed the executing agency's estimate of the Asian Development Bank's share of eligible expenditures for the next 6 months which are to be paid through the advance account.

1. Disbursement Arrangements for ADB Funds

40. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),¹³ and detailed arrangements agreed upon between ADB and the government. Online training for project staff on disbursement policies and procedures is available.¹⁴ The project staff will be encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

41. The implementing agencies will be responsible for all disbursement arrangements for expenditures related to the implementation of subcomponents in Zuoquan County, including (i) preparing disbursement projections; (ii) requesting budgetary allocations for counterpart fund; (iii) collecting supporting documents; and (iv) preparing withdrawal applications that will be submitted to ADB by SPFD.

42. Each year, necessary amount of counterpart funding is allocated by ZCG and disbursed upon request from the implementing agencies. For ADB's loan proceeds, withdrawal applications will be prepared by the PMO on behalf of ZCG, and then submit to ADB through SPFD. At the end of each year, realistic projections of the contract awards and/or commitments and disbursements for the following calendar year will be made for an assessment and projection of the ADB funds required to cover the contract awards and/or commitments and disbursements for ongoing loans. The PMO will be responsible for preparing the contract award and/or commitment and disbursement projections each year.

43. Direct payment procedure will generally be used for large civil works, equipment contracts, and consulting service contracts. Reimbursement procedure will also be used as appropriate when the government initially funds ADB's eligible expenditures from its own resources.

44. **Advance fund procedure.** To facilitate project implementation and fund flow upon loan effectiveness, SPFD on behalf of the Shanxi Provincial Government (SPG) will establish the advance account at a commercial bank acceptable to ADB. The loan funds from ADB will be paid from the SPFD advance account to implementing agencies through pass-through accounts based on expenditures incurred. Expenditures not using the advance account may use other disbursement procedures, such as direct payment (to the supplier or contractor), commitment, and reimbursement.

45. The currency of the advance account will be United States dollar. The advance account is to be used exclusively for ADB's share of eligible expenditures. SPG, through SPFD which established the advance account under its name, is accountable and responsible for the proper use of advances to the advance account. SPG, through SPFD, may request for initial and additional advances to the advance account based on estimate of ADB's share of eligible expenditures to be financed through the advance account for the next 6 months. The advance account will be established, managed, and liquidated in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) and other detailed arrangements agreed by ADB and the government. The *Loan Disbursement Handbook* describes which supporting documents should be submitted to ADB and which should be retained by SPG, through SPFD, for liquidation and replenishment of the advance account.

¹³ Available at: http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf.

¹⁴ Disbursement eLearning. http://wpqr4.adb.org/disbursement_elearning.

46. **Statement of expenditure procedure.** To expedite funds flow and simplify the documentation process, the statement of expenditure (SOE) procedure may be used for liquidation and replenishment of the advance account; and reimbursement of eligible expenditures not exceeding \$300,000 per individual payment. Payments exceeding the SOE ceiling will be reimbursed, liquidated, or replenished based on full supporting documentation process. The SOE records should be maintained and made readily available for review by ADB's disbursement and review missions; or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.¹⁵

47. Before the submission of the first withdrawal application, SPG, through the SPFD and the PMO, should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of SPG, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is in accordance with the *Loan Disbursement Handbook* (footnote 9). Individual payments less than such amount should be paid (i) by the executing or implementing agencies, and subsequently claimed from ADB through reimbursement; or (ii) through the advance fund procedure, unless otherwise accepted by ADB.

2. Disbursement Arrangements for Counterpart Fund

48. For the counterpart funds, the implementing agencies will timely allocate the designated funding for the project as specified in the loan and project agreements. Counterpart funds from the governments will be disbursed by the implementing agencies to contractors, service providers, and those affected by land acquisition and resettlement. The disbursement process will follow this process: (i) according to the progress of the contract, the implementing agencies will submit disbursement request to the PMO; and (ii) once approved, counterpart funds will be disbursed from ZCFB.

C. Accounting

49. The executing agency will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project. Consolidated project financial statements will be prepared annually by ZCG through the PMO in accordance with the government's accounting laws and regulations, which are consistent with international accounting principles and practices.¹⁶

D. Auditing and Public Disclosure

50. The executing agency will cause the detailed consolidated project financial statements to be audited in accordance with International Standards on Auditing and the Government Auditing Standards of the PRC (where these are consistent with International Standards on Auditing), by an independent auditor acceptable to ADB. The audited project financial statements together with the auditor's opinion will be presented in the English language by the executing agency to ADB within 6 months from the end of the fiscal year.

¹⁵ SOE forms are available in Appendix 7B of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

¹⁶ Applicable laws, regulations, and guidelines include the (i) Accounting Law of the PRC (2000); (ii) State-Owned Construction Enterprise Accounting Control Regulations; (iii) Capital Construction Financial Control Regulations; and (iv) Accounting Methods of Projects Financed by the World Bank.

51. The audit report for the project financial statements will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan were used only for the purposes of the project; and (iii) whether the borrower or executing agency was in compliance with the financial covenants contained in the legal agreements, where applicable.

52. 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.

53. ZCG, the executing agency; and the implementing agencies have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.¹⁷ 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 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 policies and procedures.

54. Public disclosure of the audited project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Public Communications Policy 2011. After the review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements no later than 14 days of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.¹⁸

¹⁷ ADB's approach and procedures regarding delayed submission of audited project financial statements:

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

¹⁸ This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2011. *Public Communications Policy*. Paragraph 97(iv) and/or 97(v).

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

55. ZCG has been advised that retroactive financing may only apply to up to 20% of the amount of the ADB loan in respect for expenditures incurred before loan effectiveness, but not earlier than 12 months before the signing of the loan and project agreements. The borrower, the executing agency, and the implementing agencies have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project. Advance contracting and retroactive financing will be used for (i) water supply, (ii) revegetation, (iii) flood embankment, and (iv) consulting services.

56. All advance contracting and retroactive financing will be undertaken in conformity with ADB's Procurement Guidelines (2015, as amended from time to time)¹⁹ and ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).²⁰ The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB's approval.

B. Procurement of Goods, Works, and Consulting Services

57. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines (2015, as amended from time to time), (footnote 19). International competitive bidding (ICB) will be used for civil works contracts estimated to cost over \$40 million. National competitive bidding (NCB) will be used for civil works contracts estimated to cost over \$100,000 up to \$40 million. For goods and equipment, ICB will be used for contracts valued at above \$5 million; while NCB will be used for goods and equipment from over \$100,000 up to \$5 million.

58. A procurement plan indicating goods, works, and consulting service contract packages and expected contract preparation and implementation timeline is in subsection C.

59. 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), (footnote 20).²¹ An estimated 171 person-months (16 international, 155 national) of consulting services are required to (i) facilitate project management and institutional strengthening, including financial management; and environmental and social safeguards; (ii) conduct external resettlement and social monitoring; (iii) advise on initial project implementation support, including project management and procurement; (iv) conduct integrated urban–rural water supply capacity building; and (v) development of action plan for applying sponge city concept in the new district of Zuoquan. The PMO will engage a team of specialists following ADB's Guidelines on the Use of Consultants (2013, as amended from time to time) through quality- and cost-based selection, consultants' qualifications selection, and individual selections (footnote 20).

60. The PMO will engage a national project management and procurement specialist by ADB funding for initial project management activities, particularly capacity development for implementation of the project performance management system (PPMS); advance procurement; and consultant recruitment, including recruitment of a team of consultants for project management

¹⁹ Available at: <https://www.adb.org/documents/procurement-guidelines>

²⁰ Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>

²¹ 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>

support. The implementing agencies will engage national consultants by self-funding for detailed design, construction supervision, and quality inspection.

61. For works contracts estimated to cost \$10 million or more, prior review of the following documents is required: invitation for bids, bidding documents, bid evaluation report, draft negotiated contract, signed contract, and contract variations. ADB's no-objection is required for each step of procurement. All contracts under advance contracting are subject to prior review. ADB's approval of the procurement documents (prequalification, bidding, contract, etc.) is required. Procurement for goods and works contracts with value less than \$10 million are subject to post review. Documents in English language must be submitted for post review not later than 1 month after they are completed or issued.

C. Procurement Plan

Basic Data

| | |
|--|---|
| Project Name: Shanxi Urban–Rural Source Protection and Environmental Demonstration Project | |
| Project Number: 48274 | Approval Number: xxxx |
| Country: People's Republic of China | Executing Agency: Zuoquan County Government |
| Project Procurement Classification: B | Implementing Agencies: (i) Zuoquan Water Resource Bureau (ii) Zuoquan Shixia Reservoir Management Office (iii) Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau (iv) Zuoquan Forestry Bureau |
| Procurement Risk: Moderate | |
| Project Financing Amount: \$152.10 million ADB Financing: \$100.00 million Non-ADB Financing: \$52.10 million | Project Closing Date: 30 June 2023 |
| Date of First Procurement Plan: | Date of this Procurement Plan: 4 July 2017 |

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

a. Procurement and Consulting Methods, and Thresholds

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

Procurement of Goods and Works

| Method | Threshold (US\$) | Comments |
|---|----------------------------------|----------|
| International Competitive Bidding for Works | > \$40,000,000 | |
| International Competitive Bidding for Goods | > \$5,000,000 | |
| National Competitive Bidding for Works | > \$ 100,000 and =< \$40,000,000 | |
| National Competitive Bidding for Goods | > \$ 100,000 and =< \$5,000,000 | |
| Shopping for Civil Works | =< \$100,000 | |
| Shopping for Goods | =< \$100,000 | |

Consulting Services

| Method | Comments |
|-----------------------------------|---|
| Quality- and Cost-Based Selection | Five submissions: (i) shortlist, (ii) technical evaluation; (iii) financial evaluation and overall ranking of proposals, (iv) draft negotiated contract, and (v) signed contract. Use of this method is subject to Guidelines on the Use of Consultants by the Asian Development Bank and its Borrowers (2013, as amended from time to time), and paragraph 48 of PAI 2.03. |

| Consulting Services | |
|---------------------------------------|--|
| Method | Comments |
| Consultant's Qualifications Selection | Four submissions: (i) evaluation of expressions of interest and request for proposals, (ii) technical and financial evaluation, (iii) draft negotiated contract, and (iv) signed contract. |
| Individual Consultant Selection | Two submissions: (i) proposal for engagement of consultant, including shortlist; and (ii) signed contract. |

b. Goods and Works Contracts Estimated to Cost \$1 Million or More

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

| Package Number | General Description | Estimated Value (\$ million) | Procurement Method | Review [Prior / Post/Post (Sampling)] | Bidding Procedure | Advertisement Date (quarter/year) | Comments |
|-----------------------|--|-------------------------------------|---------------------------|--|--------------------------|--|--|
| ZQ-G2 | Water supply pipes and equipment for pumping stations (City North and Raw Water pipes; and pump stations for City West, Shigangkou, Silihou) | 13.64 | ICB | Prior | 1S1E | Q4/2017 | PRC model bidding document for goods First NCB goods contract |
| ZQ-WS-W1 | Revegetation of upstream of Shixia Reservoir (Qingzhang Xiyuan) | 3.12 | NCB | Post | 1S1E | Q3/2017 | PRC model bidding document for works Advance action |
| ZQ-WS-W3 | Civil works of new flood discharge tunnel | 3.33 | NCB | Post | 1S1E | Q4/2017 | PRC model bidding document for works |
| ZQ-WS-W5 | Civil works of Binhe Road with low-impact design facilities, storm water pipeline, and sewer pipelines | 28.84 | NCB | Prior | 1S1E | Q4/2017 | PRC model bidding document for works |
| ZQ-IW-W1 | Civil works for water supply pipelines (raw water and north line) and pumping stations (Chengxi, Shigangkou, Silihou) | 6.41 | NCB | Prior | 1S1E | Q3/2017 | PRC model bidding document for works First NCB works contract Advance action |

1S1E = single-stage one-envelop, ICB = international competitive bidding, NCB = national competitive bidding, PRC = People's Republic of China, Q = quarter.

Source: Asian Development Bank estimates.

c. Consulting Services Contracts Estimated to Cost \$100,000 or More

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

| Package Number | General Description | Estimated Value (\$ million) | Recruitment Method | Review (Prior / Post) | Advertisement Date (quarter/year) | Type of Proposal | Comments |
|---------------------|--|------------------------------|--------------------|-----------------------|-----------------------------------|------------------|--------------------------|
| ZQ-CS1 ^a | Project implementation consulting services for project management support and capacity development | 1.20 | QCBS (90:10) | Prior | Q4/2017 | FTP | International assignment |
| ZQ-CS2 | External resettlement monitoring services | 0.199 | CQS | Prior | Q4/2017 | BTP | National assignment |

BTP = biodata technical proposal, CQS = consultants' qualification selection, QCBS = quality- and cost-based selection, FTP = full technical proposal, Q = quarter.

^a A budget of \$500,000 for training will be included as part of loan financing outside of this package; but the preparation of a training and study tour plan, and arrangement of the trainings and tours are included in the terms of reference of this consulting package.

Source: Asian Development Bank estimates.

d. Goods and Works Contracts Estimated to Cost Less than \$1 million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)

65. The following table groups smaller-value consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months. There are no smaller-value goods and works contracts:

| Consulting Services | | | | | | | | |
|---------------------|---|------------------------------|--------------------|--------------------|-----------------------|-----------------------------------|------------------|---------------------------------------|
| Package Number | General Description | Estimated Value (\$ million) | Number of Contract | Recruitment Method | Review (Prior / Post) | Advertisement Date (quarter/year) | Type of Proposal | Comment |
| ZQ-CS3a | Project start-up consulting services— project implementation specialist | 0.05 | 1 | ICS | Prior | Q3/2017 | N/A | National assignment Advance action |
| ZQ-CS3b | Project start-up consulting services— resettlement specialist | 0.04 | 1 | ICS | Prior | Q3/2017 | N/A | National assignment Advance action |
| ZQ-CS3c | Project start-up consulting services— water supply specialist | 0.03 | 1 | ICS | Prior | Q3/2017 | N/A | National assignment Advance action |

ICS = individual consultant selection, N/A = not applicable, Q = quarter.

Source: Asian Development Bank estimates.

2. Indicative List of Packages Required under the Project

66. The following table provides an indicative list of all procurement (goods, works and consulting services) over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the 18-month period):

| Goods and Works | | | | | | | |
|-----------------|---|---|------------------------------|--------------------|---------------------------------------|-------------------|--------------------------------------|
| Package Number | General Description | Estimated Value (Cumulative) (\$ million) | Estimated Number of Contract | Procurement Method | Review [Prior / Post/Post (Sampling)] | Bidding Procedure | Comment |
| ZQ-G1 | Equipment supply and installation for five hydrological and water quality monitoring stations | 1.59 | 1 | NCB | Post | 1S1E | PRC model bidding document for goods |
| ZQ-G3 | Equipment and installation for City South water supply pipes and pump stations | 7.01 | 1 | ICB | Prior | 1S1E | PRC model bidding document for goods |
| ZQ-G4 | Equipment supply and installation of WWTP expansion and reconstruction | 3.06 | 1 | NCB | Post | 1S1E | PRC model bidding document for goods |
| ZQ-WS-W2 | Revegetation of upstream of Shixia Reservoir (Xiaolingdi River and Shixia Reservoir) | 2.11 | 1 | NCB | Post | 1S1E | PRC model bidding document for works |
| ZQ-WS-W4 | Civil works of new spillway gate | 1.54 | 1 | NCB | Post | 1S1E | PRC model bidding document for works |
| ZQ-RR-W1 | Civil works of river rehabilitation and dredging | 12.29 | 1 | NCB | Prior | 1S1E | PRC model bidding document for works |
| ZQ-RR-W2 | Civil works of auxiliary facilities for river rehabilitation (wetlands, waterside pavilion, walkway, etc.) waterside pavilion, walkway, small bridges | 10.41 | 1 | NCB | Prior | 1S1E | PRC model bidding document for works |
| ZQ-IW-W2 | Civil works for water supply pipelines (South line) and Majiaguai and Wulihou pumping stations | 3.32 | 1 | NCB | Post | 1S1E | PRC model bidding document for works |
| ZQ-IW-W3 | Civil works for WWTP expansion and reconstruction | 1.60 | 1 | NCB | Post | 1S1E | PRC model bidding document for works |

1S1E = single-stage one-envelop, ICB = international competitive bidding, NCB = national competitive bidding, PRC = People's Republic of China, WWTP = wastewater treatment plant.

Source: Asian Development Bank estimates.

4. Non-ADB Financing

68. The following table lists goods, works and consulting services contracts over the life of the project, financed by non-ADB sources:

| Goods and Works | | | | |
|---------------------|------------------------------|------------------------------|--------------------|---------|
| General Description | Estimated Value (Cumulative) | Estimated Number of Contract | Procurement Method | Comment |
| | | | | |
| | | | | |

| Consulting Services | | | | |
|---|------------------------------|------------------------------|--------------------|---------|
| General Description | Estimated Value (\$ million) | Estimated Number of Contract | Recruitment Method | Comment |
| External environmental monitoring | 0.25 | 1 | Domestic procedure | |
| Equipment supply for flood warning system | 1.00 | 1 | Domestic procedure | |

Source: Asian Development Bank estimates.

5. National Competitive Bidding

a. Regulation and Reference Documents

69. The procedures to be followed for NCB shall be those set forth in *The Government Procurement Law of People's Republic of China* approved on 29 June 2002 and *Law of the People's Republic of China on Bid Invitation and Bidding of the People's Republic of China* promulgated on 30 August 1999 with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of ADB's Procurement Guidelines (footnote 19).

b. Procurement Procedures

(i) Competitive Bidding Procedure (Procurement Law Art. 26 and Law on Bidding Art. 10).

70. Public tendering is the acceptable method of government procurement, and public invitation is the accepted bid invitation mode.

(ii) Eligibility

71. The eligibility of bidders shall be as defined under section I of the Procurement Guidelines; accordingly, no bidder or potential bidder should be declared ineligible for reasons other than those provided in section I of the Guidelines, as amended from time to time.

(iii) Advertising

72. All invitations to prequalify or to bid shall be advertised in the national press (China Daily Newspaper) or a free and open access website (www.chinabidding.com). 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 twenty-eight (28) days shall be given. The preparation period shall count (i) from the date of

advertisement; or (ii) 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.

(iv) Bidding Period

73. The minimum bidding period is 28 days prior to the deadline for the submission of bids.

(v) Participation by Government-Owned Enterprises

74. Government-owned enterprises in the borrower's country may be permitted to bid if they can establish that they (i) are legally and financially autonomous, (ii) operate under commercial law, and (iii) are not a dependent agency of the borrower and/or the project's executing agency.

(vi) Rebidding

75. Re-bidding shall not be allowed solely because the number of bids is less than three.

c. Bidding Documents

(vii) Qualification requirements

76. 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.

(viii) Bid Submission and Opening

77. Bidders shall be allowed to submit bids by mail or by hand.

78. 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.

(ix) Bid Evaluation and Award

79. 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 and/or the project's executing agency.

80. 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 (i) to be substantially responsive to the bidding documents, and (ii) 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) ADB Policy Clauses

81. 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.

82. A provision shall be included in all bidding documents for the NCB works and goods contracts financed by ADB stating that the borrower shall reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question.

83. A provision shall be included in all bidding documents for the NCB works and goods contracts financed by ADB stating that ADB will declare a firm or individual ineligible, either indefinitely or for a stated period, to be awarded a contract financed by ADB, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices; or any integrity violation in competing for, or in executing, the ADB-financed contract.

D. Consultant's Outline Terms of Reference

84. The outline terms of reference for the consulting services packages are detailed in Attachment 1.

VII. SAFEGUARDS

A. Environment

85. **Environment due diligence.** The project is classified as category B for environment. An initial environmental examination (IEE) and an environmental management plan (EMP) were prepared and disclosed on ADB's website on 18 November 2016.²² The IEE complies with ADB policies and requirements, including ADB's Safeguard Policy Statement (2009).²³ The IEE concludes that the project's anticipated environmental impacts can be addressed through the mitigation measures prescribed in the EMP. The EMP includes mitigation and monitoring requirements and institutional responsibilities to ensure proper environmental management throughout the project construction and operation.

86. **Updating the environmental management plan and inclusion in bidding documents.** In the design stage, ZCG will forward the EMP to the design institutes for incorporating the mitigation measures into the detailed technical designs. In the event any changes are made to the designs approved by ADB, the EMP will be updated as needed. To ensure that bidders respond to the EMP provisions, the PMO and the implementing agency will prepare and provide the following specification clauses for incorporation into the bidding documents: (i) a list of environmental management requirements to be budgeted by the bidders in their proposals; (ii) environmental clauses for contractual terms and conditions; and (iii) the updated IEE and EMP, and the domestic environmental impact assessment reports.

87. **Environmental management plan implementation.** ZCG will be responsible for ensuring that the project will be designed, constructed, decommissioned, and operated in accordance with (i) the national and local government environmental, health, and safety laws, regulations, procedures, and guidelines; (ii) ADB's Safeguard Policy Statement (2009); and (iii) the IEE, including the EMP. ZCG holds the final responsibility for the implementation and compliance with the EMP. A full-time environmental officer has been assigned in the PMO to coordinate implementation of the EMP. The contractors and construction supervision companies (CSCs) will be responsible for internal environmental monitoring and supervision during construction, respectively. Environmental impact monitoring will be conducted by the local environment monitoring stations, contracted by ZCG. Roles and responsibilities to implement the EMP are defined in the EMP. The project implementation management support consulting services will include a loan implementation environment consultant (LIEC), environmental engineer, and constructed wetland specialist. These specialists will support the PMO and contractors in implementing the EMP.

88. **Budget requirements for the environmental management plan.** ZCG shall make available the necessary budgetary and human resources to fully implement the EMP. If any unanticipated environmental risks and impacts arise during construction or operation of the project that were not considered during the environmental assessments, ZCG, through the implementing agencies, shall promptly inform ADB in writing of the occurrence of such risks or impacts, with detailed description of the event and the proposed action plan for incorporation in the updated EMP. The total estimated cost for the EMP implementation is CNY32.70 million (\$4,939,577) for 5-year construction (Table EMP-8 of the EMP). The estimated cost for the PMO is CNY265,000 (0.81%) and for contractors is about CNY31,645,000 (96.77%). About CNY790,000 (2.42%) will

²² Initial Environmental Examination (accessible from the list of linked documents in Appendix 2 of the report and recommendation of the President).

²³ ADB. Safeguard Categories. <https://www.adb.org/site/safeguards/safeguard-categories>.

be paid from the ADB loan consulting services and the remaining costs by the implementing agencies. Total costs are small given the large scale of the project and when spread over 5 years.

89. **Capacity building.** The project agencies do not have previous experience with ADB-funded projects or safeguard requirements. To ensure effective implementation of the EMP, a capacity building program will be implemented on the EMP implementation, supervision, and reporting; the grievance redress mechanism (GRM); and the design and O&M of the project technical designs, including “sponge city” guidelines and the constructed wetlands. Training will be provided by the LIEC and other experts under the loan implementation consultant services. Trainees will include the PMO, the implementing agencies, the contractors, and the CSCs. Training programs will cover the (i) EMP adjustment and implementation; (ii) GRM; (iii) environmental protection and monitoring; and (iv) sponge city and/or constructed wetland O&M.

90. **Grievance redress mechanism.** A GRM has been developed in compliance with ADB’s Safeguard Policy Statement (2009) requirement to address environmental, health, safety, and social concerns associated with project construction, operation, and land acquisition arrangements. The details of the GRM, including a time-bound flow chart of procedures, are included in the project EMP and resettlement plan. The complaint channels are slightly different for environmental and resettlement issues, but the PMO will maintain an integrated system to document, follow up, and report on all cases.

91. **Climate change.** A climate risk vulnerability assessment indicated that the project infrastructure is at moderate to high risk of adverse climate change impact. Water components (outputs 2 and 3) are at moderate risk from greater variability in precipitation, rising temperatures, and/or increased storm intensity. Ecosystems and natural resources components (output 1 and part of output 2) are rated high risk because of the strong likelihood of physiological stress from rising temperatures; and increased probability of heatwaves in summer, leading to increased mortality rates, loss of biodiversity, and reduced productivity and provision of ecosystem services. The overall design is geared toward climate resilience. Each project component incorporates adaptation measures, including raising embankment heights and increasing reservoir storage capacity to cope with climate-induced flooding; adopting a mix of climate-resilient native species for the revegetation and forest planting components; enhanced hydrological and water quality monitoring; and capacity building on water resources management that is mindful of projected climate risks. The project is expected to reduce carbon dioxide emission by 640 tons per year. Climate mitigation is estimated to cost \$3.25 million and climate adaptation is estimated to cost \$18.52 million.²⁴ ADB will finance 93% of mitigation and adaptation costs.

B. Resettlement

92. **Resettlement impact category.** The project is classified as category A for involuntary resettlement due to significant land acquisition and resettlement (LAR) impacts. ZCG, with the support of a local institute, prepared the resettlement plan according to ADB’s Safeguard Policy Statement (2009). The resettlement planning and implementation is designed to ensure that the affected persons will be better off or at least not worst off as result of the project.

93. **Land acquisition and resettlement scope.** The project needs to permanently occupy a total of 3,693.95 *mu* of land, including 2,309.04 *mu* of state-owned land; and 1,398.29 *mu* of

²⁴ Details on the estimates of climate risk adaptation and mitigation measures can be found in the Climate Risk Vulnerability Assessment and Management Report (accessible from the list of linked document in Appendix 2 of the report and recommendation of the President).

collective land; and the cultivated land area is 528.26 *mu*.²⁵ As this project is an environmental improvement project, the greening works do not change the nature of farmland; and do not need to acquire (changing the land property and the ownership) 384.64 *mu* of village lands (to be rented or leased for planting trees).

94. This project will permanently acquire 1,049.65 *mu* of collective land (including 528.26 *mu* of cultivated land and 521.39 *mu* of non-cultivated land), and demolish 8,099.62 square meters (m²) of residential housing area and 2,475 m² of business building area, which affects a total of 33 villages in 4 townships and/or towns: Hanwang, Liaoyang, Longquan, and Shixia, involving 591 affected households with 1,384 affected persons. Of these, 24 households with 104 persons and four enterprises owned by affected people with 32 employees will be physically displaced or relocated. Among the affected people, the female population is 670; and 37 households belong to the vulnerable groups.

95. The project will temporarily occupy 231 *mu* of collective land during construction, which affects 231 households with 647 persons. Altogether, the project affects a total of 2,031 persons in 822 households.

96. **Resettlement plan.** ZCG, with the assistance of consultants engaged under the project preparatory technical assistance, prepared a resettlement plan in line with ADB's Safeguard Policy Statement (2009) and related laws and regulations of the Jinzhong Municipal Government (JMG) SPG, and the national government. ZCG has endorsed the resettlement plan, and disclosed the relevant information to affected people. The resettlement plan has been also disclosed on ADB's website on 19 December 2016. The resettlement plan will be updated before the contract award for relevant civil works involving the LAR impacts.

97. **Legal and policy framework.** The LAR compensation standards will follow the Land Administration Law of the People's Republic of China (2004), the Decision of the State Council on Deepening the Reform and Rigidly Enforcing Land Administration (SC [2004] No.28, 21 October 2004), and other applicable guidelines. They will also be based on local policies regarding the LAR in Shanxi Province, Jinzhong Municipality, and Zuoquan County; and ADB's Safeguard Policy Statement (2009). SPG and ZCG will provide necessary assistance for relocation and rehabilitation during resettlement implementation.

98. All affected people are eligible to compensation and assistance. The compensation rates on land acquisition shall be executed according to the Notice on the Adjustment of the Province's Unified Average Annual Output Value (AAOV) by SPG (JinZhengFa [2013] No. 22) as follows: CNY28,800–CNY43,200 per *mu* for cultivated land; CNY26,400–CNY40,320 per *mu* for garden land; CNY24,000–CNY37,440 per *mu* for woodland; CNY21,600–CNY34,560 per *mu* for grassland; CNY4,800–CNY5,760 per *mu* for construction land in city, town, or village; and industrial mining land; and CNY4,800–CNY5,760 per *mu* for transportation land. The compensation rate is CNY1,440/*mu* for green crops. The annual compensation rate is CNY1,440/*mu* for temporarily occupied land. The annual compensation rate for rented non-cultivated land is CNY960/*mu*. The final compensation rates for house demolition will be determined based on the appraisal price under the replacement principle.

99. An independent real estate appraisal agency (will be jointly determined by the affected people and the project implementation units) undertakes the housing appraisal for this project. The guiding prices for compensation for house demolition are CNY2,300/m² for brick-concrete

²⁵ Including 348.64 *mu* of land to be rented and 1,049.65 *mu* of land to be acquired.

structure, and CNY1,980/m² for brick-wood structure. In addition, the affected people will receive transition subsidy of CNY8/m², and moving subsidy of CNY10/m². For those who have signed the resettlement compensation agreement and completed the house demolition prior to the deadline prescribed by local governments, each household will receive award a certain percentage of the total compensation as the incentive fee. The ground attachments and ancillary buildings will be compensated with replacement cost.

100. **Resettlement and income restoration.** To minimize the impact, detailed resettlement and livelihood restoration measures are developed. These measures are developed based on socioeconomic surveys and analysis on the affected households and villages, and referring to the successful experience from similar local projects. These measures include monetary compensation for land acquisition, endowment insurance, employment opportunities created by existing and new enterprises in Zuoquan County, skills training for affected people, employment of affected people by the project itself, and other non-monetary compensation supports. The resettlement and livelihood restoration measures also include monetary compensation for demolished houses, and providing resettlement houses for the affected people's households choosing in-kind compensation. According to survey, 23 relocated households selected cash compensation. They will buy apartments in the real-estate market of Zuoquan County. A household chose the replacement house to be provided by the government.

101. **Institutional arrangements.** The ZSRMO is responsible for the implementation of the water source protection of the Qingzhang headwaters. The ZHCB is responsible for the implementation of Qingzhang River rehabilitation and integrated low-impact facilities (including the river dredging works, river flood control and ecological rehabilitation works, construction of wetland park and associated amenity facilities, and sewage treatment plant works), water pollution control works, and related roads and bridges improvement and widening works. The ZWRB is responsible for the implementation of rural water supply system. The Zuoquan County PMO is the coordinating agency for the overall management; and the implementing agency for the resettlement, including the resettlement plan preparation, implementation, and management, progress reporting, internal monitoring, and engagement of external monitor. Each subproject implementation unit will be responsible for implementation the resettlement plan with the assistance of local authorities, including the confirmation of affected land and houses, consultation with the affected people, financing and payment of compensation fund, and the implementation of measures for resettlement of the affected people. The township (town) government and village committees will be actively involved in the implementation of the resettlement plan. To guarantee the smooth implementation of the project, the Zuoquan County PMO will organize training on how to implement the land acquisition and house demolition compensation and resettlement.

102. All resettlement costs have been included in the total project budget. Calculated at the price level of October 2016, the total resettlement cost of this project is CNY105,134,307 (about 9.77% of the total project budget of CNY1.075 billion), including the basic resettlement cost of CNY74,760,634 for land acquisition and house demolition, accounting for 71.11% of the total resettlement cost. Other costs at CNY20,816,055 include land tax, resettlement monitoring fee, management fees for resettlement, personnel training costs for resettlement agencies, and the assistance fund for helping and supporting the vulnerable groups, accounting for 19.8%; while the contingency of CNY9,557,669 accounts for 9.09%.

103. **Grievance redress mechanism.** A GRM has been developed in compliance with ADB's Safeguard Policy Statement (2009) requirement to address people's concerns associated with project construction, operation, land acquisition, and leasing arrangements. The details of the

GRM, including a time-bound flow chart of procedures, are included in the resettlement plan. The GRM will be functional before the resettlement plan update and implementation.

104. Affected persons may file an appeal on any aspect of resettlement including compensation rates. The means of appeal; and the names, locations, persons responsible, and telephone numbers of the appeal accepting agencies will be communicated to the displaced persons at a meeting, through an announcement or the resettlement information booklet, so that the displaced persons know their right of appeal. Mass media will be used to strengthen publicity and reporting, and comments and suggestions on resettlement from all parties concerned will be shared by the resettlement organization. All agencies will accept grievances and appeals from the affected people for free, and costs so reasonably incurred will be disbursed from the contingency costs. During the whole design and construction periods of the project, these appeal procedures will remain effective to ensure that the affected people can use them to address relevant issues. Affected people can also submit complaints to ADB which will be handled by the project team. If an affected person is still not satisfied and believes he or she has been harmed due to noncompliance with the ADB policy, he or she may submit a complaint to ADB's Accountability Mechanism.²⁶

105. **Monitoring.** A detailed plan for both the internal and external monitoring is included in the resettlement plan. The PMO will submit an internal monitoring report through project progress report to ADB. Furthermore, the PMO will employ an external resettlement monitoring institute or firm to deliver independent and unbiased external monitoring reports. A baseline study of affected people will be completed for the resettlement plan before the LAR begins and the first monitoring report will be submitted together with the baseline study report. After that and until project completion, semiannual monitoring reports will be prepared and submitted to ADB during resettlement implementation and annually for 2 years after completion of resettlement.

106. Pursuant to ADB's Safeguard Policy Statement (2009), the ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (footnote 23).

C. Ethnic Minorities

107. The project is categorized as C for the indigenous peoples safeguard. The project will not have any impact on the dignity, human rights, traditional lands or culture of the ethnic minority communities as defined under ADB's Safeguard Policy Statement (footnote 23). The project area does not have buildings with cultural or religious significance to ethnic minorities.

108. **Prohibited investment activities.** Pursuant to ADB's Safeguard Policy Statement (2009), the ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009), (footnote 23).

²⁶ For further information, see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

VIII. GENDER AND SOCIAL DIMENSIONS

A. Summary Poverty Reduction and Social Strategy

109. A poverty and social analysis was undertaken in accordance with ADB guidelines. The analysis collected information to assist in the design of the project by identifying the poor, examining causes of poverty and recommending poverty reduction measures within the scope of the project. Several measures are adopted in the project design for social inclusion and improving living standards of local residents, including (i) the project area to cover rural villages for tree plantation in upstream watersheds, flood protection and environmental improvement along the Qingzhang River, and water supply in rural villages and townships; (ii) involvement of local communities in project design and implementation; (iii) targeted job opportunities for local people, especially for the poor and women; and (iv) providing benefits to communities through several means, such as water supply, waste management, annual payments to villages for afforestation on collective lands, and eco-compensation to upstream communities.

110. A total of 98,627 people will directly benefit from the project, including 45,137 men and 53,490 women. Among them, 58% are in rural villages and townships, and 42% are in urban area; and 11% are below the national poverty line. The project will provide several opportunities for local beneficiaries, including (i) new job opportunities during construction and operation; (ii) improved living conditions through rural water supply, wastewater management, reduced flood risks, and other environmental services; (iii) economic opportunities boosted by better environment and water security; (iv) improved road and traffic safety; and (vi) training and capacity building.

B. Gender Development and Gender Action Plan

111. The project has been designed as effective gender mainstreaming. Women focus group discussions found that environmental improvements, better service of water supply and wastewater treatment are anticipated to have a significant positive gender impact. The project will also create women's employment opportunities. A gender action plan (GAP) has been prepared to ensure that women are kept fully informed and consulted throughout the project and they participate in and benefit from the project. Gender specific indicators have also been included in the project's design and monitoring framework (DMF). The GAP includes measures to address gender concerns in all project components and capacity development, which include (i) ensuring that there will be sufficient project management support consultants with appropriate awareness of gender issues to effectively oversee the implementation and monitoring of the GAP; (ii) ensuring the effective inclusion of women in all project activities; and (iii) ensuring that the targets set for the employment of women are met, and the work conditions of and pay for men and women are equitable. Resettlement plan measures will mitigate any possible negative impacts of the project on women due to the LAR impacts.

112. The GAP includes provisions to ensure that staff of the PMO and the implementing agencies are fully briefed on gender in development and the GAP at the commencement of project implementation. The staff responsible for social safeguards and gender will work with women's federations, contractors, related government agencies, and community and/or village office staff to facilitate the participation of women in opportunities for project works; and ensure that all PRC labor laws and core labor standards are respected. The staff will also ensure that (i) the gender-disaggregated baseline and survey data will be collected; and (ii) the GAP is implemented, monitored semiannually, and reported to ADB through regular progress reports. Social development specialists engaged for project management support will mentor the staff, as

necessary; and facilitate achievement of the project's gender and development objectives. The GAP will be monitored during the ADB review missions as well. See Table 14 below for the GAP.

C. Social Development Action Plan

113. A social development action plan (SDAP) has been prepared to facilitate continued consultation and participation of communities in the project, as well as ensure that labor rights and entitlements are observed and that the needs of poor households are considered.

114. The SDAP requires that (i) local people will receive priority with respect to employment in project works; and (ii) contractors will sign labor contract with construction workers, and follow labor regulations.

115. The SDAP also includes activities to communicate and disseminate knowledge and awareness on environmental protection in Qingzhang River upstream and downstream areas, and in the county urban area; and on water saving to all water users in the project area. Meanwhile, training on awareness about HIV/AIDs, STI, and communicable diseases will be conducted to all construction workers and managers. See Table 15 below for the SDAP.

Table 14: Gender Action Plan

| Action or Activities | Target and Indicators | Responsible Agencies (1) and Assisting Agencies (2) | Timeline | Budget and Source |
|---|--|---|--------------|---|
| 1. Output 1: Shixia Reservoir Operation and Its Watershed Vegetation Improved | | | | |
| 1.1 Employ staff with a priority to women for upstream water environmental protection awareness along Qingzhang and Xiaolingdi rivers under the eco-compensation plan. ^a | Target: Six staff, including at least two women Baseline: 0 | (1) ZSRMO (2) CESB, PAO, PMO, STG, Women's Federation | 2017–2021 | Eco-compensation fee from ZSRMO |
| 1.2 Include female villagers as key target group of environmental protection awareness and training activities. Undertake consultations with villagers, including separate meetings with women. | Target: 1,500 villagers participate in these activities, including at least 40% are women Baseline: 0 | (1) STG, villages (2) PMO, ZSRMO, Women's Federation | 2017–2021 | CNY300,000, from project budget |
| 1.3 Employ female villagers as paid workers to plant trees in water source protection area. | Target: At least 10 villagers in each of 17 upstream villages, with not less than 40% are women Baseline: 0 | (1) Contractors (2) PMO, Women's Federation, villages | 2017–2021 | Included in construction budget |
| 2. Output 2: Qingzhang River and Binhe Road Rehabilitated | | | | |
| 2.1 Employ sanitation workers with priority to women for cleaning Qingzhang River and nearby regions. | Target: 20 staff, including at least 30% are women Baseline: 0 | (1) CESB (2) PMO | 2018–2021 | CESB's operational budget |
| 2.2 Include women in project area as key target group when conducting environmental protection knowledge dissemination activities. Undertake consultations with villagers and citizens, including separate meetings with women. | Target: 30,000 villagers and citizens participate in these activities, including at least 40% are women Baseline: 0 | (1) CESB (2) Liaoyang Township Government, PMO, STG, Women's Federation, villages and/or communities | 2017–2021 | CNY500,000 from project budget |
| 2.3 Employ staff with a priority to women as wetland park management and service team members. | Target: Eight villagers, including at least three women Baseline: 0 | (1) Forestry Bureau (2) PAO, PMO, Women's Federation | 2019–2021 | Forestry Bureau's operational budget |
| 3. Output 3: Inclusive Water Supply and Wastewater Collection Services Achieved | | | | |
| 3.1 Provide clean and reliable water supply (drinking water) to villages in three townships | Targets: 31,196 population (49% are women) Baseline: 0 | (1) WSMU (2) PMO | 2021 onwards | Project budget for water supply component |
| 3.2 Women participate when conducting consultation on how to collect water tariff in each village. Conduct general as well as women-specific consultations. | Target: 43 consultations, including at least 30% with female participants in each consultation Baseline: 0 | (1) WSMU (2) PMO, villages | 2017–2019 | WSMU's operational budget |

| Action or Activities | Target and Indicators | Responsible Agencies (1) and Assisting Agencies (2) | Timeline | Budget and Source |
|---|---|---|-----------|--|
| 3.3 Include women as key target group for water-saving related communication and training activities. | Target: 15,000 villagers participate in these activities, including at least 40% are women Baseline: 0 | (1) PMO, WSMU (2) Hanwang, Liaoyang, and Longquan township governments; PAO, Women's Federation, villages | 2017–2021 | CNY300,000 from project budget |
| 3.4 Conduct public hearing about water and wastewater tariff, if water and wastewater tariff will increase; involving women or female representatives from common citizens and/or villagers in project area. Conduct general as well as women-specific consultations. | Target: One public hearing meeting in relevant townships, with at least 40% are women in all public hearings Baseline: 0 | (1) Zuoquan County Price Bureau, Zuoquan County wastewater treatment plant (2) PAO, PMO, Women's Federation | 2017–2021 | County and/or wastewater treatment plant's operational budgets |
| 4. Output 4: Institutional Capacity Strengthened | | | | |
| 4.1 Provide capacity building in project management and implementation for staff from ZCG, the PMO, the implementing agencies, and the PIOs. | Target: 30 staff, with at least 30% are women Baseline: 0 | (1) PMO and ZCG (2) Implementing agencies and PIOs | 2017–2021 | Included in the project budget |
| 4.2 Provide training in operations and maintenance of project facilities. | Target: 100 staff, with at least 30% are women Baseline: 0 | (1) PMO and ZCG (2) Implementing agencies and PIOs | 2017–2021 | Included in the project budget |
| 5. Outputs 1–3: Project Employment | | | | |
| 5.1 New temporary and permanent jobs, with priority to women. | Target: 1,750 temporary jobs and 33 permanent jobs, with at least 25% for women Baseline: 0 | (1) Contractors, implementing agencies (2) County Human Resource and Social Security Bureau, PAO, PMO, Women's Federation, communities | 2017–2021 | Included in the construction budget |
| 6. Mitigation Measures to Address Social Impacts and/or Risks | | | | |
| 6.1 Conduct public health training on HIV/AIDs, sexually transmitted infections, and communicable diseases to all workers. When training female workers, specific disease prevention knowledge for women will be included. | Target: 1,750 workers, including at least 25% are women Baseline: 0 | (1) Center for Disease Control, contractor (2) PMO, Women's Federation | 2017–2021 | Contractor's budget |
| 6.2 All women workers will have signed contracts and enjoy full labor rights according to labor law and local regulations. Contractors or employers under the project will implement specific rights of women workers, including pregnant and nursing women. | Target: 1,750 contracts, including at least 25% with women Baseline: 0 | (1) Contractor (2) County Human Resource and Social Security Bureau | | |

| Action or Activities | Target and Indicators | Responsible Agencies (1) and Assisting Agencies (2) | Timeline | Budget and Source |
|--|---|--|-----------|---------------------------|
| 6.3 For LAR-affected groups, women have equal rights to sign LAR documents and receive compensation according to the resettlement plan. | Target: 591 households, including at least 30% inclusion of women's names in the LAR agreements Baseline: 0 | (1) Implementing agencies (2) PMO | 2017–2019 | Resettlement plan |
| 7. Project Management | | | | |
| 7.1 A certain percentage of the project management staff will be women; and assign the project management staff, including women, for implementation and reporting of the GAP. | Target: At least 30% are women. The PMO and each implementing agency have focal persons responsible for the GAP. Baseline: 0 | (1) Implementing agencies, PMO | 2017–2021 | Project management budget |
| 7.2 The PMO's and the implementing agencies' staff are trained regularly and will include knowledge and skills of the GAP. | Target: All the PMO's and the implementing agencies' staff will receive training twice a year. Baseline: 0 | (1) PMO (2) Loan consultants | 2017–2021 | Capacity building budget |
| 7.3 Sex-disaggregated data will be collected in the management information system to ensure the monitoring, evaluation, and reporting of the GAP. | Target: Indicators involving gender included in the project performance management system Baseline: 0 | (1) PMO (2) Loan consultants (social and gender specialist) | 2017–2021 | Project management budget |
| 7.4 Recruitment of social and gender specialist as part of the loan implementation consultancy | Target: A social and gender specialist has been recruited. Baseline: 0 | (1) Implementing agencies, PMO | 2017–2021 | Project management budget |

CESB = County Environment and Sanitation Bureau; CNY = Chinese yuan, GAP = gender action plan, LAR = land acquisition and resettlement, PAO = Poverty Alleviation Office; PIO = project implementation office, PMO = project management office; STG = Shixia Township Government; WSMU = water supply management unit ZCG = Zuoquan County Government, ZSRMO = Zuoquan Shixia Reservoir Management Office.

^a "Priority" in the GAP means that the project will reach out to potential female employees and encourage them to be involved in the project-related jobs or activities.
Source: Asian Development Bank.

Table 15: Social Development Action Plan

| Actions | Targets | Responsible Agencies (1) and Assisting Agencies (2) | Timeline | 54Budget and Source |
|---|--|--|-----------|--|
| 1. Output 1: Shixia Reservoir Operation and Its Watershed Vegetation Improved | | | | |
| 1.1 One solid waste treatment tank or similar facility for each village (17 villages) in upstream area alongside or near the Qingzhang and Xiaolingdi rivers will be constructed. ^a | Target: 17 sites Baseline: 0 | (1) County Environment and Sanitation Bureau (CESB), Project Management Office (PMO) (2) Shixia Township Government (STG) | 2017–2021 | CESB's operational fund |
| 1.2 Employ one staff in each management section of upstream Qingzhang and Xiaolingdi rivers to (i) make sure that areas alongside the rivers are clean and without solid wastes, and (ii) assist in communicating knowledge and awareness about environmental protection to local villagers | Target: 6 staff, all poor; and at least 2 women Baselines: 0, 0 | (1) Zuoquan Shixia Reservoir Management Office (ZSRMO) (2) Poverty Alleviation Office (PAO), PMO, STG, Women's Federation | 2017–2021 | Eco-compensation from ZSRMO |
| 1.3 Conduct activities to communicate about the knowledge, attitude, and awareness of environmental protection to local villagers in all upstream areas. The posters, guidelines or handbooks, training, meeting, workshop, and other related tools will be used in this process. STG will assign special groups or persons and make feasible working plans to conduct this task. Activities will be organized at least twice a year. | Target: 1,500 participants, including at least 40% women and 40% poor Baselines: 0, 0%, 0% | (1) STG, villages (2) PAO, PMO, Women's Federation, ZSRMO | 2017–2021 | CNY300,000 from the project budget (in Chinese yuan [CNY]) |
| 1.4 Disseminate knowledge, training, and awareness on proper use of fertilizers and pesticide, and without pollution to the water | Target: 1,500 participants, including at least 40% women and 40% poor Baselines: 0, 0%, 0% | (1) STG, villages (2) PAO, PMO, Women's Federation, ZSRMO | 2017–2021 | CNY300,000 from the project budget |
| 1.5 Employ local villagers in water source protection area to plant trees, etc. under the project | Target: At least 10 villagers in each village, no less than 40% women and 80% poor Baselines: 0, 0%, 0% | (1) Contractor (2) PAO, PMO, Women's Federation, villages | 2017–2021 | Included in the construction budget |
| 1.6 Provide annual fee for tree plantation and forest development in village lands | Target: 17 villages Baseline: 0 | (1) PMO | 2017–2021 | Project budget |

| Actions | Targets | Responsible Agencies (1) and Assisting Agencies (2) | Timeline | 54Budget and Source |
|--|---|---|--------------|---|
| 2. Output 2: Qingzhang River and Binhe Road Rehabilitated | | | | |
| 2.1 Employ new sanitation workers, with a priority to local poor and women villagers or citizens, to collect and transfer the industrial and domestic solid waste along the river channel to clean and keep a better living environment in downstream of Qingzhang River channel and surrounding regions | Target: 20 workers, at least 30% women and 30% poor Baseline: 0 | (1) CESB (2) PAO, PMO, Women's Federation | 2018–2021 | CESB's operational budget |
| 2.2 Conduct special environmental protection knowledge dissemination activities in downstream of Qingzhang River and county urban area by various ways and tools (such as mass media advertisement, posters, short message). Activities will be organized at least twice a year. | Target: 30,000 villagers and citizens Baseline: 0 | (1) CESB (2) PMO, STG, Liaoyang Township Government, villages and/or communities | 2017–2021 | CNY500,000 from project budget |
| 2.3 Employ local villagers as staff of wetland park management and services | Target: 8 villagers, including at least 3 women and 3 poor Baselines: 0, 0, 0 | (1) Forestry and Garden Bureaus (2) PAO, PMO, Women's Federation | 2019–2021 | Forestry and Garden Bureaus' operational budget |
| 2.4 Disseminate information about flood risks through flood alarm system | Target: 10 villages Baseline: 0 | (1) Zuoquan Water Resource Bureau (2) PMO | 2019–2021 | Project budget |
| 3. Output 3: Inclusive Water Supply and Wastewater Collection Services Achieved | | | | |
| 3.1 Provide clean and reliable water supply (drinking water) to villages in three townships | Targets: 31,196 population (49% women) Baselines: 0 (0%) | (1) Water supply management units (WSMUs) (2) PMO | 2021 onwards | Project budget for water supply component |
| 3.2 In each village of water supply area, conduct a consultation; and plan for collecting water tariff directly or indirectly from villagers | Target: 43 consultations, of which 22 in south area; and 21 in north area Baselines: 0, 0, 0 | (1) WSMUs (2) PMO, villages | 2017–2019 | WSMUs' operational budget |
| 3.3 Poor persons (who get minimum living subsidy) in water supply area or wastewater network service area will have 2 tons/person of water and wastewater fee free per month | Target: Based on minimum living subsidy data in each year Baseline: 0 | (1) WSMUs, wastewater treatment plant (WWTP) (2) Civil Affairs Bureau, PAO, PMO | 2021 onwards | WSMUs' and WWTP's operational budgets |

| Actions | Targets | Responsible Agencies (1) and Assisting Agencies (2) | Timeline | 54Budget and Source |
|---|--|---|-----------|--|
| 3.4 Conduct activities to communicate and disseminate knowledge and awareness on water saving to all water users in project areas by various methods (posters, mass media advertisement, meeting, short messages, etc.) Activities will be organized at least twice a year. | Target: 15,000 participants in total, at least 40% women and 20% poor Baselines: 0, 0%, 0% | (1) PMO, WSMUs (2) Hanwang, Liaoyang, and Longquan township governments; PAO, Women's Federation, villages | 2017–2021 | CNY300,000 from the project budget |
| 3.5 Conduct public hearing about water and wastewater tariff according to laws and regulations, if water and wastewater tariff will increase | Target: One public hearing meeting in relevant townships, including at least 40% women and 20% poor representatives Baseline: 0 | (1) Zuoquan County Price Bureau, WWTP (2) PAO, PMO, Women's Federation | 2020 | County's and/or WWTP's operational budgets |
| 4. Outputs 1–3: Project Employment and Local Construction Materials | | | | |
| 4.1 New temporary and permanent jobs for poor, women, project-affected, and local people in priority. This requirement will be involved in all components' construction contracts. | Target: 1,750 temporary jobs during construction (including 25% women and 25% poor) and 33 permanent jobs during operation (including 25% women and 20% poor) Baselines: 0, 0%, 0%; 0, 0%, 0% | (1) Contractors, implementing agencies (2) County Human Resource and Social Security Bureau, PAO, PMO, Women's Federation, communities | 2017–2021 | Project budget |
| 4.2 Use of local resources and local construction materials | Target: At least 30% purchase of products and other resources (contractor camps details) in CNY, come from local areas Baseline: 0% | (1) Contractors (2) PMO | 2017–2021 | Project budget |
| 5. Mitigation Measures to Address Social Impacts and/or Risks | | | | |
| 5.1 Minimizing risk of HIV/AIDs, STI and communicable diseases: (i) local Center for Disease Control (CDC) provide training to health focal points of the contractor teams; (ii) trained contractors' focal points to provide training to all workers and managers in accordance with the provision under bid contracts; (iii) distribute educational pamphlets and posters at contract sites and local | Target: 1,750 construction workers, including at least 25% women and 20% poor Baselines: 0, 0%, 0% | (1) CDC, contractor (2) PMO, Women's Federation | 2017–2021 | Contractor's budget |

| Actions | Targets | Responsible Agencies (1) and Assisting Agencies (2) | Timeline | 54Budget and Source |
|---|---|--|-----------|------------------------------------|
| communities; (iv) CDC support free protective kits to construction workers | | | | |
| 5.2 Contractors will sign labor contracts with construction workers and follow labor regulations. | Target: 1,750 contracts in compliance with labor regulations, including at least 25% with women and 20% with poor Baselines: 0, 0%, 0% | (1) Contractors (2) County Human Resource and Social Security Bureau, PAO, Women's Federation | 2017–2021 | CNY300,000 from the project budget |
| 5.3 For resettlement-affected groups, women have equal rights with men to sign resettlement documents. | Target: 591 households, including at least 30% have women's name in resettlement agreements Baselines: 0, 0% | (1) Implementing agencies (2) PMO | 2017–2019 | Resettlement plan |
| 6. Grievance Redress Mechanism | | | | |
| 6.1 The PMO will set up special telephone number, website, or Weibo and Weixin ID to receive complaint, designate specialized persons to receive, reply and handle the complaints as well as manage the archives. | Target: Have full documents for each grievance redress process and 100% grievances resolved Baselines: No, 0% | (1) PMO (2) Contractors, communities, related government agencies | 2017–2021 | Project management budget |
| 6.2 The PMO will provide specialized complaint redress reception room. | Target: Have full documents for each grievance redress process and 100% grievances resolved Baselines: No, 0% | (1) PMO (2) Contractors, communities, related government agencies, | 2017–2021 | Project management budget |
| 6.3 Grievance redress telephone number and contact ways, address of the PMO and other necessary information will be disclosed in government website, local television and newspapers as well as the notice boards of related township governments and villages and other platforms. | Target: Have full documents for each grievance redress process and 100% grievances resolved Baselines: No, 0% | (1) PMO (2) Contractors, communities, related government agencies, | 2017–2021 | Project management budget |
| 6.4 The PMO will be closely connected with the government administrative system, public security system, juridical system, and civil meditation system to ensure the complaint will | Target: Have full documents for each grievance redress process and 100% grievances are resolved. Baselines: No, 0% | (1) PMO (2) Contractors, communities, related government agencies, | 2017–2021 | Project management budget |

| Actions | Targets | Responsible Agencies (1) and Assisting Agencies (2) | Timeline | 54Budget and Source |
|--|--|--|-----------|---------------------------|
| be handed in a legal, reasonable, and effective way. | | | | |
| 7. Project Management | | | | |
| 7.1 A certain percentage of project management staff members will be women; and assign project management staff, including women, for the implementation and reporting of the social development action plan (SDAP). | Target: At least 30% are women. The PMO and each implementing agency have focal persons responsible for the SDAP. Baselines: 0%, No | (1) PMO, implementing agencies | 2017–2021 | Project management fee |
| 7.2 All staff of the PMO and the implementing agencies are trained regularly and will include knowledge and skills of the SDAP. | Target: All staff of the PMO and the implementing agencies will receive the training at least twice a year. Baseline: 0 | (1) PMO (2) loan consultants (social and gender specialist) | 2017–2021 | Capacity building budget |
| 7.3 Sex- and poverty-disaggregated data will be collected in the management information system to ensure the monitoring, evaluation, and reporting of the SDAP. | Target: Indicators involving social development and gender included in project performance monitoring system Baseline: No | (1) PMO (2) loan consultants (social and gender specialist) | 2017–2021 | Project management budget |
| 7.4 Recruitment of social and gender specialist as part of the loan implementation consultant | Target: A social and gender specialist has been recruited. Baseline: 0 | (1) PMO, implementing agencies | 2017–2021 | Project management budget |

^a Changcheng Village (长城村), Chuankou Village (川口村), Daofogou Village (道佛沟村), Dianshang Village (店上村), Gaojiazhuang Village (高家庄), Guantou Village (管头村), Heyu Village (合玉村), Jiangjiazhuang Village (姜家庄), Majiazhuang Village (马家庄), Shagbaihou Village (上白侯村), Shiyancun Village (狮岩村), Songgou Village (嵩沟村), Weijiazhuang Village (魏家庄), Xiajiao Village (下蛟村), Xiaolingdi Village (小岭底村), Zhaojiazhuang Village (赵家庄), Zhuning Village (竹宁村).
Source: Asian Development Bank.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

| Impact the Project is Aligned With | | | |
|---|---|---|--|
| Quality of life and environmental sustainability in Zuoquan County improved. (Zuoquan Urban Development Master Plan, 2011–2030 and Zuoquan Stormwater and Flood Control Special Plan, 2014–2030) ^a | | | |
| Results Chain | Performance Indicators with Targets and Baselines | Data Sources and Reporting Mechanisms | Risks |
| Outcome Living and environmental conditions for urban and rural residents of Zuoquan County improved | By 2022, a. Farmland and population protected: 148.75 ha (2016 baseline: 0), and 20,000 households (2016 baseline: 0) b. Water supply to 9,234 rural households to meet national quality standard: GB5749-2006 (2016 baseline: 0) c. Wastewater treatment rate increased to 90% (2015 baseline: below 75%) | a.–b. ZCG’s annual statistics and the Zuoquan Water Resource Bureau’s annual reports c. Zuoquan Housing Security, and Urban and Rural Construction and Management Bureau’s annual statistics | Urban growth exceeds forecasts and exerts more pressure on available urban infrastructure Sponge city action plan not applied in Zuoquan County’s new city development ^b |
| Outputs 1. Shixia Reservoir operation and its watershed vegetation improved 2. Qingzhang River and Binhe Road rehabilitated | By 2021, 1a. Forest belt of at least 128 ha planted along two headwaters and revegetation around the Shixia Reservoir (2016 baseline: 0) 1b. A sluice with two gates installed for the Shixia Reservoir spillway (2016 baseline: not applicable) 1c. A flood discharge and washout tunnel constructed and operated (2016 baseline: Not applicable) 1d. 1,500 villagers, of which at least 40% are women, reported with increased awareness on environmental protection (2016 baseline: Not applicable) By 2021, 2a. 8.90 km of Qingzhang River rehabilitated and embankment constructed (2016 baseline: 0) 2b. 11.60 km of Qingzhang River dredged (2016 baseline: 0) 2c. A wetland with area of about 34.35 ha constructed (2016 baseline: Not applicable) 2d. Binhe Road expanded by 4.92 km and improved with permeable pavement and bio-retention swales (2016 baseline: Not applicable) | 1a.–d. Project progress and completion reports, and loan review missions 1d. Internal and external monitoring reports for GAP implementation 2a.–d. Project progress and completion reports, and loan review missions | Climate-induced changes in temperature and river flows result in less favorable conditions for vegetation growth and/or riparian and aquatic ecosystems Improper land use management and enforcement upstream result in continued siltation and pollution |

| Results Chain | Performance Indicators with Targets and Baselines | Data Sources and Reporting Mechanisms | Risks |
|---|---|--|-------|
| <p>3. Inclusive water supply and wastewater collection services achieved</p> <p>4. Institutional capacity strengthened</p> | <p>2e. 30,000 villagers and citizens, at least 40% of which are women, with increased awareness of river protection (2016 baseline: Not applicable)</p> <p>By 2022,</p> <p>3a. 45.30 km of raw water transmission pipelines constructed and a pumping station expanded, with increased capacity of 28,700 m³/d (2016 baseline: 0)</p> <p>3b. 48.32 km of water distribution pipelines and four pumping stations expanded (2016 baseline: 0)</p> <p>3c. 36.50 km of existing water supply pipelines and two rural domestic water treatment stations constructed, with total capacity of 2,700 m³/d (2016 baseline: 0)</p> <p>3d. Zuoquan County wastewater treatment plant expanded and upgraded from capacity of 10,000 m³/d to 15,000 m³/d (2016 baseline: 0)</p> <p>3e. 4.97 km of trunk sewers and associated manholes constructed, and 1.29 km of existing main sewer pipelines replaced (2016 baseline: 0)</p> <p>3f. Views of 15,000 villagers, at least 40% of which are women, incorporated in water-related awareness-raising and training activities (2016 baseline: Not applicable)</p> <p>By 2022,</p> <p>4a. Flood warning improved and extended to cover additional 50,000 people (2016 baseline: 0)</p> <p>4b. Sponge city action plan for new urban development areas developed and accepted by ZCG by end 2021 (2016 baseline: Not applicable)</p> <p>4c. Capacity in project management and implementation of at least 30 staff increased, of which at least 30% are women, from ZCG, project management office, implementing agencies, and project implementation offices (2016 baseline: Not applicable)</p> <p>4d. At least 100 staff, of which at least 30% are women, trained in operation and maintenance of project facilities and their capacity improved (2016 baseline: Not applicable)</p> | <p>2e. Survey by the project management office of ZCG</p> <p>3a.–f. Project progress and completion reports, and loan review missions</p> <p>4a.–d. Project progress and completion reports, and loan review missions</p> <p>4d. Monitoring reports for GAP implementation</p> | |
| <p>Key Activities and Milestones</p> <p>1. Shixia Reservoir operation and its watershed vegetation improved</p> <p>1.1 Complete detailed engineering design and bidding documents (Q1 2017–Q4 2017).</p> <p>1.2 Complete resettlement plan update and land acquisition (Q2 2017–Q3 2018).</p> | | | |

| | | | | |
|--|-------------------------|------------------------|-------------|----------------|
| <p>1.3 Conduct procurement of civil works and equipment (Q3 2017–Q1 2019).</p> <p>1.4 Complete civil works construction and equipment installation, including revegetation, two spillway gates, a flood discharge and washout tunnel, and five hydrological stations (Q3 2017–Q2 2022).</p> <p>2. Qingzhang River and Binhe Road rehabilitated</p> <p>2.1 Complete detailed engineering design and bidding documents (Q1 2017–Q3 2017).</p> <p>2.2 Complete resettlement plan update and land acquisition (Q2 2017–Q3 2018).</p> <p>2.3 Conduct procurement of civil works and equipment (Q3 2017–Q1 2019).</p> <p>2.4 Complete dredging, embankment, and wetland and associated facilities (Q3 2018–Q4 2021).</p> <p>2.5 Complete the Binhe Road expansion applying the sponge city concept (Q2 2018–Q4 2020).</p> <p>3. Inclusive water supply and wastewater collection services achieved</p> <p>3.1 Complete detailed engineering design and bidding documents (Q1 2017–Q4 2018).</p> <p>3.2 Complete resettlement plan update and land acquisition (Q2 2017–Q3 2018).</p> <p>3.3 Conduct procurement of civil works and equipment (Q2 2017–Q2 2019).</p> <p>3.4 Complete civil works construction and equipment installation for rural water supply (Q1 2018–Q2 2021).</p> <p>3.5 Complete civil works construction and equipment installation for wastewater collection and treatment (Q3 2017–Q2 2022).</p> <p>3.6 Conduct test and trial operation of water supply and wastewater treatment (Q3 2021–Q4 2022).</p> <p>4. Institutional capacity strengthened</p> <p>4.1 Conduct training in project management (Q2 2017–Q2 2022).</p> <p>4.2 Recruit consulting services (Q3 2017–Q3 2018).</p> <p>4.3 Improve flood-warning system, and provide necessary training to relevant staff (Q3 2018–Q4 2022).</p> <p>4.4 Carry out study on integrated urban–rural water supply (Q1 2018–Q4 2022).</p> <p>4.5 Develop action plan on applying sponge city design for city development (Q2 2018–Q3 2020).</p> | | | | |
| <p>Project Management Activities</p> <p>Carry out key activities of GAP and social development action plan (Q2 2017–Q4 2022).</p> <p>Conduct and monitor activities of resettlement plan (including land acquisition) and environmental management plan (Q2 2017–Q4 2022).</p> <p>Recruit an independent agency for external resettlement monitoring (Q2 2017–Q4 2017).</p> <p>Conduct annual and midterm project reviews (Q3 2017–Q4 2022).</p> | | | | |
| <p>Inputs</p> <table> <tr> <td>Asian Development Bank:</td> <td>\$100.0 million (loan)</td> </tr> <tr> <td>Government:</td> <td>\$52.1 million</td> </tr> </table> | Asian Development Bank: | \$100.0 million (loan) | Government: | \$52.1 million |
| Asian Development Bank: | \$100.0 million (loan) | | | |
| Government: | \$52.1 million | | | |
| <p>Assumptions for Partner Financing</p> <p>Not applicable</p> | | | | |

GAP = gender action plan, ha = hectare, km = kilometer, m³/d = cubic meter per day, Q = quarter ZCG = Zuoquan County Government.

^a Zuoquan County Government. 2011. *Zuoquan Urban Development Master Plan, 2011–2030*. Zuoquan; and Zuoquan County Government. 2014. *Zuoquan Stormwater and Flood Control Special Plan, 2014–2030*. Zuoquan.

^b The sponge city initiative is the government's policy to promote water conservation. A key principle is to minimize the impact of urban development on the natural water cycle through green infrastructure such as preserved floodplains, storm water wetlands, retention ponds, sunken parks, bio-retention swales, seepage wells, and green roofs.

Source: Asian Development Bank estimates.

B. Monitoring

1. Project Performance Monitoring

116. The project performance management system (PPMS) indicators, their relevance, and monitoring practicalities will be discussed with the executing agency, the implementing agencies,

and project beneficiaries during project implementation. Disaggregated baseline data for output and outcome indicators gathered during project processing will be updated and reported quarterly through the semiannual progress reports of the PMO and after each ADB review mission. These semiannual reports will provide information necessary to update ADB's project performance reporting system.²⁷ At the start of project implementation, the PMO and the implementing agencies, with the project implementation consulting 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. The PMO will be responsible for monitoring and reporting on project performance. The basis for performance monitoring will be the design and monitoring framework (DMF), which identifies performance targets for the impact, outcomes, and outputs of the project. By collecting data from the sources identified in the DMF, the PMO will be able to report on an annual basis the performance of the project. Specific reporting requirements will be set out in the agreement between ADB and the government. The PMO 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 ZCG. The relevance and practicability of data collection for indicators was confirmed with the PMO and the implementing agencies. Meanwhile, the agreed socioeconomic and environmental indicators to be used will be further enhanced to measure project impacts. The PMO and the implementing agencies agreed and confirmed that they will (i) refine and integrate the PPMS framework at the start of project implementation; (ii) confirm that targets are achievable; (iii) develop recording, monitoring, and reporting arrangements; and (iv) establish systems and procedures no later than 6 months after project inception.

2. Compliance Monitoring

117. ZCG, the implementing agencies, and the project management consultants will conduct compliance monitoring; and submit reports and information to ADB concerning the use of the loan proceeds, project implementation, the implementing agencies' project implementation performance, 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 3 months after the completion of the project facilities. The compliance status of loan and project covenants will be reported and assessed through quarterly progress report. The ADB review missions will verify the status.

3. Safeguards Monitoring

a. Environment

118. Three types of environmental safeguard monitoring will be conducted under the EMP: (i) internal monitoring—to be conducted by the implementing agency and the construction supervision companies (CSCs); (ii) external monitoring—of air, water, noise and soil standards—to be conducted by the local external monitoring station (EMS); and (iii) compliance monitoring—to be conducted by the loan implementation environment consultant (LIEC), to ensure the EMP is being implemented. The project monitoring program is in Table EMP-4 of the EMP (Attachment 2). Monitoring shall comply with the PRC standards for environmental monitoring and quality. ADB will oversee project compliance based on the semiannual environmental monitoring reports provided by the PMO and site visits, as required.

²⁷ ADB's project performance reporting system is available at:
<http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

119. **Project readiness inspection.** Before construction, the LIEC will assess the readiness of the PMO and the implementing agencies for environmental management, based on a set of indicators (Table A1.3 in the EMP) and report to ADB and the PMO. This assessment will demonstrate that environmental commitments are being met and environmental management systems are in place before construction starts, and/or suggest corrective actions to ensure that all requirements are met.

120. **Environmental acceptance reporting.** Following the PRC Regulation on Project Completion Environmental Audit (Ministry of Environmental Protection, 2001), within 3 months after the completion of major components, an environmental acceptance report for each shall be prepared by a licensed environmental monitoring institute. The report will be reviewed and approved by the Zuoquan County PMO and reported to ADB. The environmental acceptance reports of the component completions will indicate the timing, extent, effectiveness of completed mitigation and of maintenance, and the needs for additional mitigation measures and monitoring during operations.

b. Resettlement

121. Internal and external monitoring of resettlement plan implementation will be conducted. Monitoring methodologies are specified in the resettlement plan. Zuoquan County PMO will carry out internal supervision and monitoring to ensure compliance with the provisions of the resettlement plan and submit internal resettlement monitoring reports semiannually during project implementation, to be submitted together with the regular project progress report. An external monitoring agency acceptable to ADB will be engaged by Zuoquan County PMO prior to commencement of the resettlement plan implementation and land acquisition. The external monitoring agency will conduct a pre-resettlement plan implementation baseline study of the affected persons. Semiannual external monitoring reports will be prepared and submitted to ADB during the resettlement plan implementation, and annual evaluation reports will be submitted to both the PMO and ADB for 2 years after conclusion of the resettlement plan implementation.

c. Gender and Social Development Action Plans

122. Monitoring indicators for the GAP and the SDAP have been incorporated into the PPMS. Clear targets and indicators have been established and some indicators are also captured in the DMF. The regular project progress reports to ADB will include, at least semiannually, reporting on those indicators. Assistance will be provided for the executing agency and the implementing agencies by the social and gender development consultant who will help to set up effective monitoring systems and work with the focal points in ZCG and the implementing agencies to ensure implementation of the GAP and the SDAP.

C. Evaluation

123. ADB, ZCG, and the implementing agencies will undertake a semiannual review mission to evaluate the progress of project implementation. ADB, ZCG, and the implementing agencies will undertake a comprehensive midterm review 2 years after the start of project implementation to have a detailed evaluation of the scope, implementation arrangements, resettlement, achievement of scheduled targets, and progress on the agenda for policy reform and capacity

building measures. Feedback from the PPMS activities will be analyzed. Within 3 months of physical completion of the project, the PMO will submit a project completion report to ADB.²⁸

D. Reporting

124. The executing agency 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) 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 the next 12 months; and (iii) a project completion report within 3 months of physical completion of the project. To ensure that projects will continue to be both viable and sustainable, project accounts and the executing agency's audited financial statement together with the associated auditor's report should be adequately reviewed.

E. Stakeholder Communication Strategy

125. Project information will be communicated through public consultation, information disclosure mechanism in ADB's and government's website, meetings, interviews, focus group discussions, and community consultation meetings, in accordance with ADB's requirements of information disclosure policy. Main stakeholders are the different government agencies, beneficiaries, affected persons, and participants in the project implementation. Stakeholder communication is also part of the SDAP and the GAP, and will be monitored accordingly.

126. **Environment.** Meaningful consultation, participation and information disclosure was conducted during project preparation. Information disclosure and public consultation included newspaper disclosure; informal communication with key stakeholders, including residents, local authorities and sector specific institutions and authorities; questionnaire surveys; and wider stakeholder meetings attended by affected people and other concerned stakeholders. A GRM has been defined to prevent and address community concerns, reduce risks, and assist the project in maximizing environmental and social benefits.

127. **Involuntary resettlement.** All affected households, town and/or township leaders, and town and township governments will be 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, the PMO, the implementing agencies, and other relevant leaders will further discuss and consult with the affected persons' representatives the impacts on every town and/or township and the detailed compensation plan to ensure affected persons' interests are protected and to provide employment opportunities for the affected persons' livelihoods as result of project implementation. The PMO and the implementing agencies will disclose the resettlement plan in the offices and to affected people. The resettlement plan was disclosed on ADB's website on 19 December 2016. The resettlement information booklet was distributed to affected households. This 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. Each implementing agency will establish a project resettlement unit for supervision of implementation, continued public consultation, monitoring of progress, and

²⁸ Project completion report format available at <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

response to grievances. The grievance redress procedures will be established and explanations have been included in the resettlement information booklet.

128. **Gender and social development action plan.** Consultations with communities have taken place and will continue at different points in the preparation and implementation of the GAP and SDAP within the components, and will be designed not only to inform people about the component 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 paid to the participation of women and any other vulnerable groups, such as the poor.

129. **Public disclosure of information.** Public disclosure of all project documents will be undertaken through the implementing agencies and on ADB's website, including the project data sheet, the DMF, the environmental impact assessment report, the resettlement plans, and the report and recommendation of the President. Disclosure of social and environmental monitoring reports will be undertaken during project implementation.

X. ANTICORRUPTION POLICY

130. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.²⁹ 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 and/or 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.³⁰

131. To support these efforts, relevant provisions are included in the loan and project agreements and the bidding documents for the project.

XI. ACCOUNTABILITY MECHANISM

132. 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 an effort in good faith 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.³¹

XII. RECORD OF CHANGES TO THE PAM

133. All revisions and/or updates during the course of implementation should be retained in this section to provide a chronological history of changes to implemented arrangements recorded in this project administration manual.

- 4 July 2017 during loan negotiations

²⁹ Anticorruption Policy: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

³⁰ ADB's Integrity Office web site: <http://www.adb.org/integrity/unit.asp>

³¹ Accountability Mechanism. <http://www.adb.org/Accountability-Mechanism/default.asp>.

TERMS OF REFERENCE FOR CONSULTING SERVICES

1. The consulting services to be financed by the Asian Development Bank (ADB) loan are divided into five packages: (i) Package ZQ-CS1: Project implementation consulting services for project management support and capacity development (international firm), (ii) Package ZQ-CS2: External social and resettlement monitoring services (national agencies), (iii) Package ZQ-CS3: Project implementation start-up support consulting services (national consultants), (iv) Package ZQ-CS4: Institutional and capacity strengthening for integrated urban–rural water supply; and (v) support on sponge city planning and implementation.

2. The scope and tasks of the consulting services financed by the ADB loan are described below. The Zuoquan project management office (PMO) on behalf of the Zuoquan County Government will be responsible for engaging all the consulting service contract packages in accordance with ADB’s Guidelines on the Use of Consultants (2013, as amended from time to time).

3. In addition to the consulting services financed by the ADB loan, domestically funded consulting services will also be recruited by the PMO. The PMO will (i) recruit a procurement agency to provide tendering support, including preparation of bidding documents, invitation for bids, and bid evaluation reports; and (ii) engage domestic design institutes to carry out preliminary and detailed designs. Construction supervision engineers will also be recruited for overseeing and inspecting the construction sites to ensure compliance with national regulations, safety standards, and ADB’s requirements. Different engineering consultants will be recruited for design of different subcomponents in flood control, wetland restoration, landscaping, and wastewater collection.

Table A1.1: Summary of Consulting Services Packages

| No. | Package Name | Details |
|--|--|---|
| 1. Packages Financed by the Asian Development Bank (ADB) Loan | | |
| ZQ-CS1 | Project implementation consulting services for project management support and capacity development | An international firm with international and national experts Selected by the project management office (PMO) through ADB’s quality- and cost-based selection (QCBS, 90:10) method Expected duration: 6 years |
| ZQ-CS2 | External social and resettlement monitoring services | A national firm selected by the PMO through ADB’s consultant qualification selection (CQS) method Expected duration: Intermittent input from the project start to 2 years after the completion of resettlement |
| ZQ-CS3 | Project implementation start-up support consulting services | Individual consultants: a project implementation management specialist, a resettlement specialist, and a water supply specialist Expected duration: 12 months Selected by the implementing agency (IA) through ADB’s individual consultant selection (ICS) method |

| No. | Package Name | Details |
|--|--|--|
| ZQ-CS4 | Institutional and capacity strengthening for integrated urban–rural water supply | An international firm with international and national experts, an international team leader, and national deputy team leader Selected by the PMO through ADB's QCBS (90:10) method Expected duration: 1 year |
| ZQ-CS5 | Support on sponge city planning and implementation | An international firm with international and national experts, an international team leader, and national deputy team leader Selected by the PMO through ADB's QCBS (90:10) method Expected duration: 1 year |
| 2. Packages Financed by Counterpart Funding | | |
| A | National design institutes | The IA will engage and finance domestic design institutes to carry out preliminary and detailed engineering designs. Domestic procurement regulations will be followed. |
| B | National tendering agency | The IA will engage a domestic tendering agency with experience in the international and national competitive bidding for the ADB projects. Domestic procurement regulations will be followed. |
| C | National construction supervision engineers | The project implementation units will engage a domestic consultant for each works contract following domestic regulations on engineering supervision and procurement. Expected duration: from 1 month before the commencement of construction works to 1 month after the completion |

Source: Asian Development Bank.

1. Project Implementation Consulting Services for Project Management Support and Capacity Development (Package ZQ-CS1)

4. Project implementation consulting services for project management support and capacity development will be engaged through the quality- and cost-based selection (QCBS) method with a standard quality–cost ratio of 90:10 and full technical proposal procedure. The estimated input includes 10 person-months of international and 100 person-months of national consultant inputs.

Table A1.2: Summary of Consultant Inputs for Project Implementation Consulting Services for Project Management Support and Capacity Development (Package ZQ-CS1)

| Area of Expertise ^a | | International (person-month) | National (person-month) |
|--------------------------------|--|---------------------------------|----------------------------|
| 1 | Team Leader: Project management specialist | 10 | |
| 2 | Deputy Team Leader: Construction management specialist | | 30 |
| 3 | Procurement and contract management specialist | | 12 |
| 4 | River engineer | | 8 |
| 5 | Water supply and wastewater specialist | | 6 |

| Area of Expertise ^a | | International (person-month) | National (person-month) |
|--------------------------------|---|---------------------------------|----------------------------|
| 6 | Road engineer | | 2 |
| 7 | Financial management specialist and economist | | 8 |
| 8 | Environment specialist | | 10 |
| 9 | Social and resettlement specialist | | 10 |
| 10 | Reservoir and dam specialist | | 6 |
| 11 | Wetland specialist | | 3 |
| 12 | Flood warning specialist | | 3 |
| 13 | Afforest specialist | | 2 |
| Total Person-Months | | 10 | 100 |

^a In addition, some specialists will be engaged as resource persons to carry out specific training programs and events. Source: Asian Development Bank estimates.

5. Detailed tasks include, but are not limited to, the following:
- (i) Assist the PMO and the implementing agencies in setting up the institutional framework, operational procedure, document control, design supervision, and contract management systems for the project; and the work plan to guide and facilitate the project implementation. This should utilize and adapt, as necessary, the arrangements set up for the earlier ADB projects in Shanxi Province;
 - (ii) Establish a project performance management system based on the framework developed during the project preparatory technical assistance in accordance with ADB's 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 activities;
 - (iv) Conduct technical review, and provide expert comments on detailed engineering design in accordance with the design codes and standards;
 - (v) Reviewing designs, drawings, and the bidding documents, including the identification of potential technical problems and suggestions for their means of resolution; and incorporation of environmental mitigation measures, where appropriate;
 - (vi) Ensure that (a) the bidding documents include contractors' provision of equipment operation and maintenance (O&M) manuals in Chinese, and (b) training in equipment O&M is adequately provided for;
 - (vii) Conduct technical, financial, and procedural review of bid evaluation; and hold contract negotiations;
 - (viii) Conduct routine site visits; and provide technical inputs to construction planning, supervision, and monitoring for quality control of the project construction;
 - (ix) Conduct contract management, including monitoring construction progress, preparing semiannual progress reports, reviewing the contractors' claims for payments, coordinating project implementation among contractors and various stakeholders, and coordinating daily operational tasks;
 - (x) Conduct technical review for construction supervision and management, including (a) approval of construction methods; (b) ensuring work is undertaken according to the intent of contract specifications; (c) control over construction

- quality; (d) adherence to contract work programs and recovery of slippage; (e) site health and safety procedures; (f) recordkeeping systems to protect client interests in event of claims; and (g) claims assessment and determination;
- (xi) Provide expert inputs, review, and justification for contract variation; and prepare necessary documentations in accordance with the requirements of ADB and the Government of the People's Republic of China (PRC), if necessary;
 - (xii) Provide expert inputs on asset commissioning and handover, including a review of documentation provided by the contractors; and ensure that they have fully discharged their training obligations;
 - (xiii) Review current dam operation manual; and help in updating the manual to include operation of spillway gate and silt flushing tunnels, and other associated facilities;
 - (xiv) Establish an efficient and effective financial management system for the project implementation in accordance with ADB's policy and procedural requirements, and implement such financial management system;
 - (xv) Identify areas for improvement and training needed with respect to the quality of financial statements, disclosure, and notes to the financial statements; and develop templates for the annual financial statements;
 - (xvi) Review disbursement applications and supporting documents;
 - (xvii) Collect all necessary information, edit, draft, and submit the reports required under the loan and project covenants on a timely manner;
 - (xviii) Review and update the environmental management plan (EMP), and assist in conducting internal monitoring of the EMP implementation;
 - (xix) Assist the PMO and the implementing agencies in managing the environmental external monitoring agency for conducting periodic environmental impact monitoring in compliance with the approved monitoring plan defined in the EMP;
 - (xx) Review the gender action, resettlement, and social development action plans; and conduct semiannual internal monitoring of the implementation of the gender action, resettlement, and social development action plans;
 - (xxi) Provide expert opinions to ensure effectiveness of the project components' environmental mitigation measures and enhancement package implementation;
 - (xxii) Collect periodic information for the update of the project performance management system;
 - (xxiii) Prepare necessary information for ADB's loan administration missions, including the loan midterm, annual, and completion review missions;
 - (xxiv) Update the project financial status, project cost tables and financing plan, economic and financial analyses, and safeguard implementation;
 - (xxv) Organize and provide semiannual training on effective project financial management, procurement, disbursement, safeguards, and anticorruption measures;
 - (xxvi) Organize and provide semiannual training on the skills necessary for construction supervision, project management, and implementation of social and environmental safeguards for ADB's requirements;
 - (xxvii) Consult with concerned stakeholders, particularly the poor; and ensure the poor's participation in the public hearing process for tariff increase in accordance with the policies and regulations of the PRC government;
 - (xxviii) Provide training on prevention and control of transmissible diseases and HIV/AIDS, and community disturbance to contractors;

- (xxix) Advise and train contractors, and supervise companies on ADB's policy and procedural requirements to ensure their full compliance;
- (xxx) Sample and monitor environmental data related to the project, and contract out the official environmental monitoring services to an accredited environmental monitoring station;
- (xxxi) Ensure project environmental readiness, including (a) all contractor contracts include, and will comply with, the EMP; and (b) relevant sections of the EMP are incorporated in construction plans and contracts;
- (xxxii) Assist the PMO and the implementing agencies to implement the grievance redress mechanism (GRM), including (a) establish and publicize the GRM; and (b) collate and evaluate grievances received;
- (xxxiii) Develop procedures to (a) monitor the EMP implementation progress; (b) collate and evaluate data collected in the EMP environmental monitoring program; and (c) prepare and submit the semiannual environmental monitoring reports to ADB (to continue until the project completion report preparation);
- (xxxiv) Undertake training of project agencies as required by the EMP training plan;
- (xxxv) Provide hands-on support and on-the-job training to the PMO, the implementing agencies, and contractors on the specific requirements of the EMP, as required;
- (xxxvi) Undertake site visits to all implementing agencies during subproject construction and operation;
- (xxxvii) Assist in the ongoing public consultation process as described in the project environmental impact assessment;
- (xxxviii) Conduct the EMP compliance assessments, identify any environment-related implementation issues, and propose necessary responses in corrective action plans;
- (xxxix) Undertake training of project agencies as required by the EMP training plan;
- (xl) Assist the PMO in preparing the semiannual environmental monitoring progress reports for submission to ADB;
- (xli) Recommend resolutions to any issues or problems on implementing the EMP and resettlement plan;
- (xlii) Develop and submit the semiannual progress reports, including the internal social, resettlement, and environmental monitoring reports, with quality acceptable to ADB; and
- (xlili) Prepare a project completion report within 3 months of project completion.

2. External Social and Resettlement Monitoring Services (Package ZQ-CS2)

6. A national resettlement consulting institute or firm will be engaged for the duration of project implementation to act as an external resettlement monitor. The institute or firm, with estimated input of 2 person-months of international and 18 person-months of national consultant inputs will be engaged through the consultant qualification selection method. All the consultants will be duly qualified with respective qualifications and with at least 8 years of experience in their respective fields relevant to the project's requirements. Specific tasks include

- (i) Conduct baseline surveys for the resettlement plans prior to commencement of land acquisition and house demolition;
- (ii) Assess the implementation agencies' resettlement readiness prior to implementation;

- (iii) Conduct semiannual investigations to assess resettlement implementation; and prepare monitoring and evaluation reports that summarize progress, key issues, and recommendations;
- (iv) Assess the effectiveness of the GRM, and follow-up on any complaints to ensure that they are resolved timely and adequately;
- (v) Prepare semiannual resettlement monitoring and evaluation reports for submission to ADB and the Zuoquan County Government;
- (vi) Once the land acquisition and resettlement is completed, conduct surveys in the project counties to assess the affected household's satisfaction with resettlement implementation, particularly income restoration and house and/or business relocation; and assist the PMO in documenting the results in the resettlement completion report.

3. Project Implementation Start-Up Support Consulting Services (Package ZQ-CS3)

a. Objective and Scope of Work

7. The purpose of the project implementation start-up support consulting services is to assist the implementing agency in project implementation to (i) procure national companies for construction supervision; (ii) procure an international company for project support and capacity development; (iii) assist the PMO in preparing civil works and procurement contracts; (iv) update resettlement plans, and prepare the implementing agencies to commence implementation; (v) provide support to resettlement activities; (vi) review design of water supply projects; (vii) review bidding documents and bill of quantities; and (viii) establish a filing system for document reporting, tracking, and retaining.

8. The project implementation start-up support consulting services will include a total input of 12 person-months by three individual national consultants to work for the implementing agency. The individual experts will be engaged in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The consultants will be selected and engaged following the individual consultant selection method and will work on an intermittent basis with a schedule agreed with the PMO. The three experts to be recruited are the (i) project procurement and management specialist, (ii) resettlement specialist, and (iii) water supply specialist.

b. Project Procurement and Management Specialist

9. The project procurement and management specialist will have a university degree or above in management, accounting, or related field with demonstrated knowledge in procurement procedures and processes. He or she will have at least 10 years of experience in management of foreign-funded projects, including procurement of civil works, goods, and services in the PRC, such as international competitive bidding, preferably on projects funded by ADB or other international funding agencies. Knowledge of ADB's or other international funding agency's procurement guidelines and procedures will be required. This position requires English language proficiency. Tasks and responsibilities of the specialist include, but are not limited to, the following:

- (i) Organize and maintain a project filing system according to specifications by the PMO and ADB. This filing system is for both hard copy and electronic files and will be used by all start-up consultants, the PMO, and the implementing agencies;
- (ii) Provide administrative and operational assistance to the PMO and the implementing agencies;

- (iii) Assist in preparing procurement packages for advance contracting;
- (iv) Organize procurement processes; and prepare documents, including bidding documents, specifications, bid evaluation reports, etc., for preparation of procurement packages intended for advance contracting;
- (v) Provide assistance to the PMO and the tender evaluation committee during the tendering process in preparing the following in accordance with ADB's procurement guidelines: (a) detailed terms of reference for relevant packages in consultation with relevant technical experts, (b) invitations to bid, (c) answers to bidders' queries, and (d) bid evaluation reports;
- (vi) Coordinate with ADB during tender evaluation;
- (vii) Assist the PMO and the implementing agencies in preparing necessary documents for contract signing, and contractor and/or consultant mobilization;
- (viii) Prepare a report on the status of project start-up and procurement; and
- (ix) Handover documents and files to the project implementation support consultant firm, and report on the current status and outstanding issues.

c. Resettlement Specialist

10. The resettlement specialist will have a university degree or above in resettlement, social, or related field with demonstrated experience. He or she is proficient in English and shall have at least 10 years of experience in resettlement in the PRC on projects funded by ADB or other international funding agencies. Knowledge in resettlement safeguard policies and procedures by ADB or other international funding agencies is required. Tasks and responsibilities of the resettlement specialist include, but are not limited to, the following:

- (i) Assist the implementing agencies in updating the resettlement plans based on final design, detailed measurement surveys, and census of affected persons;
- (ii) Assist the PMO and the implementing agencies to ensure adequate resettlement readiness prior to implementation;
- (iii) Assist the PMO and the implementing agencies to establish an effective GRM with reporting of complaints, follow-up actions, and results;
- (iv) Provide training to the PMO and the implementing agencies to understand ADB's policies and compliance requirements for resettlement;
- (v) Assist the PMO and the implementing agencies in establishing an internal resettlement monitoring and reporting system, which will be included in the project progress reports; and
- (vi) Assist the PMO and the implementing agencies in handing over relevant documents and files to the project implementation support consultant firm, and brief on the current status and outstanding issues.

d. Water Supply Specialist

11. The water supply specialist will have a university degree or above in water supply with demonstrated experience. He or she is proficient in English and shall have at least 15 years of experience in water supply in the PRC on projects funded by ADB or other international funding agencies. Tasks and responsibilities of the resettlement specialist include, but are not limited to, the following:

- (i) Conduct technical review, and provide expert comments on detailed engineering design in accordance with the design codes and standards;
- (ii) Reviewing designs, drawings, and the bidding documents, including the identification of potential technical problems and suggestions for their means of

resolution; and incorporation of environmental mitigation measures, where appropriate;

- (iii) Ensure that (a) the bidding documents include contractors' provision of equipment O&M manuals in Chinese, and (b) training in equipment O&M is adequately provided for; and
- (iv) Conduct routine site visits; and provide technical inputs to construction planning, supervision, and monitoring for quality control of the project construction.

4. Institutional and Capacity Strengthening for Integrated Urban–Rural Water Supply (Package ZQ-CS4)

12. This contract is proposed to be a single-service delivery package using ADB's QCBS procedure with an indicative budget of \$360,000. This contract will provide assistance on integration of water supply services in urban and rural areas; strengthen the capacity of the water utility responsible for the project's water components; and assist the newly established water company to meet the challenges of water sector reform.

13. The detailed scope of work will include the following:
- (i) Assess current performance across the whole service area and the development of an operational improvement plan to improve and harmonize service standards;
 - (ii) Review the financial management status in the water utility, including institutional organization, manpower sourcing, and control system; and offer suggestions on improvement of the financial management pertinent to existing problems;
 - (iii) Design organization set-up to operate the water supply utility, and identify staff responsibility in key positions;
 - (iv) Review and upgrade of billing and income collection systems;
 - (v) Establish financial projections for the water utility;
 - (vi) Help to develop a capital investment plan linked to current performance and taking account of changes in future demand;
 - (vii) Help to develop an asset management plan;
 - (viii) Provide advice on the management information system of the water utility;
 - (ix) Prepare a framework for water demand management (WDM); and assist the designated agency in preparing a comprehensive WDM program for each water use sector: agriculture; commercial, domestic, and industry; and
 - (x) Provide technical advice to the designated agency on implementation of the WDM activities, including industry water efficiency plans; repair and maintenance of agricultural storage and conveyance infrastructure; development of the information, education, and communication materials and distribution; monitoring and reducing nonrevenue water reduction for the water utility.

5. Support on Sponge City Planning and Implementation (Package ZQ-CS5)

14. This contract is proposed to be a single-service delivery package using ADB's QCBS procedure with an indicative budget of \$300,000. This contract will provide assistance on planning and implementation of the sponge city development in Zuoquan.

15. This contract will provide assistance on the following: (i) preparation of a sponge city action plan for the urban area of Zuoquan County; (ii) preparation of the low-impact development (LID) standards; (iii) development of training materials related to the sponge city action plan and the LID standards; and (iv) preparation of a monitoring framework for sponge city interventions.

The focus area of the plan will be the new planned expansion areas to the west of the existing urban area.

16. The detailed scope of work will include the following:
- (i) Support the local government in preparing a sponge city action plan, including the following:
 - a. Conduct an assessment of hydrological and meteorological conditions in Zuoquan County; and establish clear LID goals and stormwater control targets (such as total runoff control, peak runoff control, runoff pollution control, rainwater utilization, etc.) for various land uses, landscape areas, and urban development zones that are designated in the *Regulatory Detailed Planning of Zuoquan Urban Area (2011–2030)*; and
 - b. Identify the LID technologies and practices that can be implemented in Zuoquan County to support the achievement of the LID goals and targets across various types of urban development (buildings and neighborhoods, roads, green space, and water systems);
 - (ii) Support the local government in preparing the technical standards, including construction details, and O&M requirements; and stormwater control-related calculation methods for the LID technologies and practices that are recommended in the sponge city action plan;
 - (iii) Conduct an economic assessment of the sponge city action plan to determine the economic viability of selected targets and project cost impacts related to the various LID technologies and practices proposed;
 - (iv) Conduct consultations with various local government departments, including the bureaus for communication and transportation; environmental protection; housing security, and urban and rural construction and management; and water resources, during preparation of the sponge city action plan and the technical standards;
 - (v) Identify requirements for design and construction review, approval, and inspection of the LID technologies and practices; and integrate with current review, approval, and inspection processes for urban development in Zuoquan County;
 - (vi) Develop training materials, such as a toolkit and guidance materials; and conduct training of trainers to promote the implementation of the sponge city action plan and related LID technologies and practices; and
 - (vii) Prepare a monitoring framework to assess the impact of the LID technologies and practices on stormwater control targets, and conduct a pilot test of the monitoring framework in the Binhe Road area.

6. Reporting Requirements

17. All reports required for the consulting services contracts under the project must be prepared in both Chinese and English languages. The PMO will decide on the number of copies of reports to be provided by the consultants to the PMO; and will distribute reports to relevant PMG and local government agencies. An electronic copy of all reports in English language will be submitted to ADB.

Table A1.3: Reporting Requirements

| Category | Schedule | Target Audiences |
|---|---|-------------------------|
| Inception report | Within 1 month after the PMO issues the notice to proceed of consulting service | PMO, ADB |
| Semiannual progress reports | During implementation period, semiannual (end of Jan and Jul) | PMO, ADB |
| Midterm report | Middle point of implementation | PMO/ADB |
| Project completion report | 1 month before ADB's PCR mission | PMO/ADB |
| Environment monitoring reports | Semiannual | PMO/ADB |
| Semiannual external resettlement reports | Semiannual | PMO/ADB |
| Revisions to environmental monitoring plan | After preparation of the detailed engineering design | PMO/ADB |
| Draft program for domestic and international study tours ^a | End of the first year | PMO/ADB |
| Reports for each capacity development activity | Two months after completion of activity | PMO/ADB |
| All training materials | After each lecture | PMO |
| All public education materials | After preparation | PMO |

ADB = Asian Development Bank, PCR = project completion review, PMO = project management office, PRC = People's Republic of China.

^a International study tours must comply with the PRC regulations and guidelines.

Source: Asian Development Bank.

Procurement Guidelines and Resources

Procurement Guidelines

<http://www.adb.org/documents/procurement-guidelines>

<http://www.adb.org/countries/prc/project-learning-resources>

Guidelines on Use of Consultants by ADB and Its Borrowers

<http://www.adb.org/documents/guidelines-use-consultants-asian-development-bank-and-its-borrowers>

Consulting Services Recruitment Notice:

<http://csr.adb.org>

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>

Consulting Services Operations Manual

<http://www.adb.org/sites/default/files/institutional-document/31340/csom.pdf>

Procurement Documents:

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

Guide on Bid Evaluation

www.adb.org/Procurement/guide-bid-apr06.pdf

Procurement Plans

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

Electronic Procurement

<http://www.mdbegp.org/www/eGPInteractiveus/tabid/69/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>