ADB

Board of Directors

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R93-16
28 September 2016

Proposed Loan
Qinghai Haidong Urban–Rural Eco Development Project
(People's Republic of China)

1. The Report and Recommendation of the President (RRP: PRC 48102-002) on the proposed loan to the People's Republic of China for the Qinghai Haidong Urban–Rural Eco Development Project is circulated herewith.

2. This Report and Recommendation should be read with *Country Operations Business Plan: People's Republic of China, 2015–2017*, which was circulated to the Board on 25 February 2015 (DOC.IN.53-15).

3. In the absence of any request for discussion and in the absence of a sufficient number of abstentions or oppositions (which should be communicated to The Secretary by the close of business on 19 October 2016), the recommendation in paragraph 37 of the paper will be deemed to have been approved, to be so recorded in the minutes of a subsequent Board meeting. Any notified abstentions or oppositions will also be recorded in the minutes.

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ADB

Report and Recommendation of the President to the Board of Directors

Project Number: 48102-002
September 2016

Proposed Loan
People's Republic of China: Qinghai Haidong Urban–Rural Eco Development Project

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 26 September 2016)

Currency unit – yuan (CNY)

CNY1.00 = $0.1500
$1.00 = CNY6.6655

ABBREVIATIONS

ADB	–	Asian Development Bank
CRVA	–	climate risk and vulnerability assessment
EMDP	–	ethnic minority development plan
ha	–	hectare
HMG	–	Haidong Municipal Government
PAM	–	project administration manual
PMO	–	project management office
PRC	–	People's Republic of China
O&M	–	operation and maintenance

NOTE

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

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PROJECT AT A GLANCE

1. Basic Data

Project Number: 48102-002

Project Name	Qinghai Haidong Urban-Rural Eco Development Project	**Department /Division**	EARD/EASS
Country	China, People's Republic of	**Executing Agency**	Haidong Municipal Government
Borrower	China, People's Republic of		

2. Sector

	Subsector(s)	ADB Financing ($ million)
✓ **Water and other urban infrastructure and services**	Urban flood protection	57.50
	Urban policy, institutional and capacity development	3.00
	Urban solid waste management	10.50
	Urban water supply	15.50
Agriculture, natural resources and rural development	Forestry	15.00
	Land-based natural resources management	5.00
	Rural flood protection	37.50
	Rural solid waste management	2.50
	Rural water supply services	3.50
	Total	**150.00**

3. Strategic Agenda

Strategic Agenda	Subcomponents
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive
Environmentally sustainable growth (ESG)	Disaster risk management
	Eco-efficiency
	Global and regional transboundary environmental concerns
	Urban environmental improvement

Climate Change Information

Adaptation ($ million)	9.44
Climate Change impact on the Project	Medium

4. Drivers of Change

Drivers of Change	Components
Governance and capacity development (GCD)	Organizational development

Gender Equity and Mainstreaming

Effective gender mainstreaming (EGM) ✓

5. Poverty and SDG Targeting

Project directly targets poverty and SDGs: Yes

Location Impact

Rural	Medium
Urban	Medium

6. Risk Categorization: Complex

7. Safeguard Categorization

Environment: B **Involuntary Resettlement:** A **Indigenous Peoples:** B

8. Financing

Modality and Sources	Amount ($ million)
ADB	**150.00**
Sovereign Project loan: Ordinary capital resources	150.00
Cofinancing	**0.00**
None	0.00
Counterpart	**84.30**
Government	84.30
Total	**234.30**

9. Effective Development Cooperation

Use of country procurement systems	Yes
Use of country public financial management systems	Yes

Source: Asian Development Bank

QINGHAI HAIDONG URBAN–RURAL ECO DEVELOPMENT PROJECT

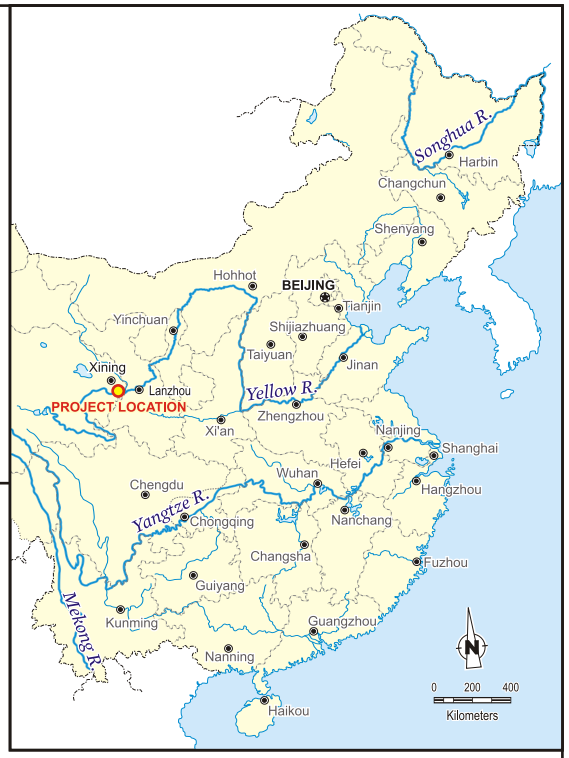
in the

PEOPLE'S REPUBLIC OF CHINA

- Huangshui River
- River Channel Ping'an Segment
- River Channel Ledu Segment
- Ping'an and Ledu Urban Area
- Riverside and Mountain Edge Green Belt
- Yizhou Wetland Area
- Sanitary Landfill Expansion Location
- Reservoir and Water Treatment Plant
- Water Supply Pipeline
- Bridges

0 1 2.5 5

Kilometers



Huangshui River Channel Ping'an Segment
[Xiaoxia Segment]
Total length 3.98 km

Ping'an District Huangshui River Riverside Greenbelt
New Urban Area Segment
Total area 13.5 ha
Main Urban Area Segment
Total area 8.5 ha

Yizhou Wetland Area
Total area 20 ha
with planned total areas 86 ha

Huangshui River Channel Ledu Rural Area Segment
[Hetanzhai to Haidong Avenue No.1 Segment]
5.00 km of embankment at tributary mouth
North embankment: 5.97 km
South embankment: 5.30 km

[Shangtan Segment]
North embankment: 2.30 km
South embankment: 2.98 km

[Eastern Segment]
Total green area: 49.2 ha

Shangtan Bridge

Zhangjiazhai Bridge

Hetanzhai Bridge

Haidong Avenue No.1 Bridge

Huangshui River Channel Ledu Urban Area Segment
North embankment: 7.50 km
South embankment: 7.50 km

Ping'an District Mountain Edge Greenbelt
[Haidong Industrial Park and New Urban Area Segment]
Total area 62.2 ha

[Zhangjiazhai Segment]
North embankment: 2.07 km
South embankment: 2.35 km

Shuimoying Bridge

Lubanting Bridge

Sanhe WTP
(20,000 m^3/day)

Wenzukuo Reservoir & Fatai Reservoir Supply

Ping'an District Mountain Edge Greenbelt
[Ping'an Urban Area and Eastern Area Segment]
Total green belt area 42.5 ha

Ledu Sanitary Landfill Expansion
Construction of the Phase 3 and Phase 4 of the landfill.
850,000 m^3 capacity

Huangshui River Channel Ledu Rural Area Segment
[Shuimoying Bridge to Lubanting Bridge Segment]
5.00 km of embankment at tributary mouth
North embankment: 11.78 km
South embankment: 16.30 km

Fatai Reservoir & WTP
(1,500 m^3/day)

Wenzukuo Reservoir & WTP (1,500 m^3/day)

ha - hectare km - kilometer m^3/day - cubic meter per day WTP - Water Treatment Plant

16-1845 15-PRC ABV

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the People's Republic of China (PRC) for the Qinghai Haidong Urban–Rural Eco Development Project.[1]

2. The project will improve the ecological and environmental services in Haidong City through more effective water resource and flood management, as well as ecosystem-based adaptation in the Huangshui River watershed. This will involve the improvement of flood mitigation embankments and practices, control of watershed soil erosion, the expansion of water treatment and water supply to upstream rural communities and Haidong, as well as expansion of the city's solid waste disposal capacity. This multidisciplinary approach to urban watershed management will play a critical role in enhancing environmental protection, ecological rehabilitation, and climate change adaptation capacities in the river catchment area, thereby benefiting not only Haidong, but also many downstream communities.

II. THE PROJECT

A. Rationale

3. Qinghai Province, situated mostly on the Qinghai–Tibetan plateau in northwestern PRC, has long been home to a number of ethnic groups due to its location along the old Silk Road.[2] Ethnically diverse and featuring a beautiful and rugged landscape with mountains and pastures, Qinghai is the source of the Mekong, Yangtze, and Yellow rivers, making it a socially and environmentally significant province for the PRC.[3] Given the fragile terrain, Qinghai is promoting urbanization within a northeastern corridor linking its capital, Xining, to Lanzhou, in Gansu Province. While protecting its natural resources, Qinghai also aims to protect urban areas from natural hazards such as flash flooding, which has increased in cities across the PRC as a result of impermeable paved surfaces, deforestation, poor waterway management, and an overall decrease in natural water collection areas.

4. Haidong, the second-largest city in Qinghai, is located within this corridor, immediately east of Xining. A city of 1.7 million residents (30.0% of Qinghai's total population of 5.7 million), Haidong upgraded to a prefecture-level city in 2013, denoting its importance in regional development. Haidong has two districts—Ping'an and Ledu—and four counties.[4] Both districts straddle the Huangshui River, an important tributary of the Yellow River. Strengthening the ecological function of the Huangshui River to protect these critical watersheds is an urgent priority. This involves managing flood risks, reducing soil erosion, improving water quality and availability, increasing climate change resilience, and limiting urban expansion.

5. According to the Haidong master plan, the two districts are expected to add more than half a million residents by 2030.[5] This will put pressure on an already fragile landscape;

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[1] The concept paper was approved on 19 December 2014. ADB. 2014. *Technical Assistance to the People's Republic of China for the Qinghai Haidong Urban–Rural Eco Development Project. Manila* (TA 8846-PRC). "Eco development" refers to ecological development. The design and monitoring framework is in Appendix 1.

[2] Qinghai is home to 54 of the 56 ethnic groups in the PRC. It is also one of the less-developed western regions targeted for accelerated socioeconomic development and poverty reduction by the preferential policies under the National Strategy for Development of the West.

[3] Haidong—located along the Silk Road near a number of significant Buddhist temples, Qinghai Lake, and the train link to Lhasa—attracts many tourists in summer, which generates significant revenue and local employment.

[4] The current population of Ping'an District is 68,100 while the current population of Ledu District is 109,800.

[5] Government of the PRC, Haidong Municipal Government. 2013. *Master Planning of Haidong Urban Area (2013–2030)*. Haidong.

Haidong's location in the river valley, surrounded by steep and barren mountains, makes it vulnerable to flash flooding. According to Haidong's historical records, flood events of different levels have occurred every year since 1949, with large-scale floods every 6–7 years. While some flood infrastructure is in place, it is poorly maintained and unevenly distributed across urban and rural areas. Mountainside soil erosion exacerbates flooding risks, increasing the sediment loads and threatening agricultural land downstream.

6. As Haidong continues to grow, public services in urban and rural areas remain inadequate; without upgrades, they will further fail to meet local water supply and solid waste disposal needs. The steep terrain surrounding Haidong has led to the development of small villages in the mountains, including minority villages, which will suffer socially and economically if public service investments remain unbalanced between rural and urban areas.

7. **Strategic fit.** The proposed project is closely aligned with both the PRC government's priorities and the country strategy and operations of the Asian Development Bank (ADB). The PRC's Thirteenth Five-Year Plan, 2016–2020, the National New-type Urbanization Plan (2014), and ADB's PRC country partnership strategy, 2016–2020, support strategic priorities, in the areas of urban and environmental management.[6] Key thematic areas that coincide with the proposed project include (i) strengthening climate resilience; (ii) promoting sustainable use of land and natural resources; (iii) strengthening water security; and (iv) promoting integrated water resource management, wetland protection, and afforestation.

8. **Lessons and special features.** The project design incorporates lessons from previous ADB-financed projects and studies.[7] These cover the need for (i) an integrated approach to river rehabilitation, including structural and nature-based measures; (ii) strong leadership and governance in urban and environmental management; and (iii) better coordinated decision-making on integrated water resource management. These lessons are reflected in several innovative and special features: (i) preparatory in-depth provincial, local, and project-specific climate risk and vulnerability assessments (CRVAs) to pinpoint and raise awareness of climate-related risks, and build ecosystem-friendly adaptation measures into the design of various infrastructure components; (ii) reuse of treated urban wastewater for mountainside forest irrigation, which will showcase an integrated approach to managing both water scarcity and soil erosion; (iii) use of nature-based measures for the temporary storage of floodwaters; and (iv) institutional strengthening to support better coordination and project implementation with regard to integrated water resource management.[8]

B. Impacts and Outcome

9. The expected impacts will be enhanced environmental protection, ecological rehabilitation, and climate change adaptation; and improved flood control standards and urban aesthetics along the Huangshui River (footnotes 5–6). The intended outcome will be an improvement in ecological and environmental services in Haidong.

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[6] Government of the PRC, State Council. 2015. *National Economy and Social Development Thirteenth Five-Year Plan, 2016–2020*. Beijing. Government of the PRC, State Council. 2014. *National New-type Urbanization Plan (2014–2020)*. Beijing. ADB. 2016. *Country Partnership Strategy: Transforming Partnership: People's Republic of China and Asian Development Bank, 2016–2020*. Manila.

[7] Projects that provided lessons include ADB. 2012. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Gansu Urban Infrastructure Development and Wetland Protection Project.* Manila; ADB. 2016. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Henan Hebi Qihe River Environmental Improvement and Ecological Conservation Project.* Manila.

[8] Climate Risk and Vulnerability Assessment (accessible from the list of linked documents in Appendix 2).

C. Outputs

10. The project will have four outputs: (i) integrated flood plain management infrastructure is provided for Huangshui River; (ii) measures to control soil erosion in Haidong's urban catchment are implemented; (iii) rural–urban water supply and solid waste infrastructure is constructed; and (iv) project management capacity is strengthened.

11. Output 1 will support the stabilization of riverbanks and improve integrated flood risk management, rehabilitate riverine wetlands, increase forest coverage within riparian areas, provide environmental education, and improve recreational opportunities for residents through three components. First, the rehabilitation of existing and the addition of new embankments along the main Huangshui River channel will stabilize the riverbanks, securing both agricultural and urban land. Based on the CRVA, climate-proofing measures were incorporated into the project design; the embankment heights were increased to accommodate the projected average increase in flood flows (8%). Second, the establishment of a riverside greenbelt, including new vegetation and pedestrian paths, will allow for public space and seasonal flood water storage, improving local water absorption and decreasing downstream flood risks. Third, the development of an ecological wetland park will rehabilitate existing wetlands and allow seasonal flooding while educating the public on environmental issues.

12. Output 2 will focus on controlling soil erosion to reduce siltation in Huangshui River, pursue dust suppression, and set an urban growth boundary to protect the fragile mountainous landscape adjacent to Ping'an District's urban area. Recognizing the increasing local water scarcity (identified in the CRVA), treated urban wastewater from the existing Ping'an wastewater treatment plant will provide irrigation for the establishment of a mountainside forest. Output 2 will have two components: (i) planting new vegetation to establish a mountainside greenbelt; and (ii) expanding the irrigation network to include approximately 663 hectares of existing mountainside greenbelt using treated wastewater. The irrigation of these afforested areas with reused water has minimal impact on existing water resources while decreasing soil erosion.

13. Output 3 will focus on providing critical urban and rural services; it will contribute to reducing water insecurity for rural and urban areas in Ping'an District, as well as improving solid waste treatment capacity for Ledu District. Output 3 will have two components: (i) building three water treatment plants and new conveyance pipe networks for raw and potable water; and (ii) adding 850,000 cubic meters of capacity to the Ledu landfill and building a leachate treatment facility. Based on the CRVA, climate-proofing measures include providing an alternative supply of drinking water to the Ping'an urban area to reduce the water scarcity risk, and increasing drainage and leachate collection capacity at the landfill site. The provision of basic services to urban and rural areas aims to reduce the rural-urban infrastructure gap.

14. Output 4 will support consulting services, training, and equipment to boost the capacity of the executing and implementing agencies for (i) project implementation and operational management, (ii) financial management, (iii) landfill operation and maintenance, (iv) wetland and forest operation and maintenance, (v) flood risk management, and (vi) nonrevenue water management. The output will also contribute to institutional strengthening, promote cooperation and decision-making at the river basin level, and develop a water safety plan to mitigate water insecurities in Haidong. A capacity development submodule was also included for climate-resilient urban development planning and regional water resource management.

D. Investment and Financing Plans

15. The project is estimated to cost $234.3 million (Table 1).

Table 1: Project Investment Plan
($ million)

Item		Amount[a]
A.	**Base Cost**[b]	
	1. Integrated flood plain management infrastructure for Huangshui River provided	142.8
	2. Measures to control soil erosion in Haidong's urban catchment implemented	35.3
	3. Rural–urban water supply and solid waste infrastructure constructed	26.3
	4. Project management capacity strengthened	3.0
	Subtotal (A)	**207.4**
B.	**Contingencies**[c]	**21.8**
C.	**Financing Charges During Implementation**[d]	**5.1**
	Total (A+B+C)	**234.3**

[a] Includes taxes and duties of $7.5 million to be financed from government resources or Asian Development Bank loan resources. The amount of taxes and duties to be financed by ADB is based on the principles that (i) the amount will be within the reasonable threshold identified during the country partnership strategy preparation process, (ii) the amount of taxes and duties financed by the ADB loan does not represent an excessive share of the project, (iii) the taxes and duties apply only to ADB-financed expenditures, and (iv) the financing of taxes and duties is material and relevant to the success of the project.

[b] In mid-2015 prices.

[c] Physical contingencies computed at 5.1% for civil works, field research and development, training, surveys, and studies. Price contingencies computed at 1.4% per year on foreign exchange costs and 2.1% per year on local currency costs during 2016–2019.

[d] Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 5-year US dollar fixed swap rate plus a spread of 0.5% and 0.1% maturity premium. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

16. The government has requested a loan of $150 million from ADB's ordinary capital resources to help finance the project. The loan will have a 26-year term, including a grace period of 5 years, a straight-line repayment option, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, and a commitment charge of 0.15% per year (the interest and commitment charges during construction are capitalized in the loan), and such other terms and conditions set forth in the draft loan and project agreements. The ADB loan will also finance taxes and duties for eligible ADB-financed expenditures, and transportation and insurance costs included in the base cost. The average maturity is 15.75 years, and the maturity premium payable to ADB is 0.10% per year.

17. The financing plan is in Table 2 and is further detailed in the project administration manual (PAM).[9] The ADB loan will finance 64.0% of the project cost, including civil works, equipment, engineering installation, and capacity strengthening. Haidong Municipal Government (HMG) will finance $84.3 million or 36.0% of the project cost.

18. The borrower of the loan is the PRC; it will make the loan available, through the Qinghai Provincial Government, to HMG on the same terms and conditions as those of the ADB loan. HMG will assume the foreign exchange and interest variation risks of the ADB loan. The PRC, Qinghai Provincial Government, and HMG have assured ADB that counterpart funding will be provided in a timely manner, and any additional counterpart funding required for any shortfall of funds or cost overruns will be provided.

[9] Project Administration Manual (accessible from the list of linked documents in Appendix 2).

Table 2: Financing Plan

Source	**Amount** ($ million)	**Share of Total** (%)
Asian Development Bank		
Ordinary capital resources (loan)	150.0	64.0
Haidong Municipal Government	84.3	36.0
Total	**234.3**	**100.0**

Source: Asian Development Bank estimates.

E. Implementation Arrangements

19. Implementation arrangements are summarized in Table 3 and detailed in the PAM.

Table 3: Implementation Arrangements

Aspects	**Arrangements**		
Implementation period	April 2017–March 2022		
Estimated completion date	31 March 2022		
Loan closing date	30 September 2022, per the loan agreement		
Management			
(i) Oversight body	Haidong project leading group Group leader**:** mayor of HMG Deputy group leaders: senior officials from HMG, Haidong Water Affairs Bureau, Haidong Finance Bureau, Haidong Development Reform Commission Group members: senior officials from Ledu District Government, Ping'an District Government, Haidong Forestry Bureau, Haidong Land Resource Bureau, Haidong Environmental Protection Bureau, Haidong Urban and Rural Planning and Construction Bureau, Haidong City Management and Comprehensive Law Enforcement Bureau, Haidong Communication and Transportation Bureau, Haidong Water Affairs Bureau, Haidong Water Group, and Haidong Forestry Bureau		
(ii) Executing agency	HMG		
(iii) Implementing agencies	Operating under the district governments, the five implementing agencies are: Ledu Housing, Planning, and Construction Bureau; Ledu Water Affairs Bureau; Ping'an Housing, Planning, and Construction Bureau; Ping'an Forestry Resource Bureau; and Ping'an Water Affairs Bureau.		
(iv) Implementation unit	The project management office is established in HMG, and housed in the Haidong Water Affairs Bureau. The office will have approximately eight staff, with a number of staff from the implementing agencies providing additional support.		
Procurement	Procurement Method	No. of Contracts	Value ($ million)
	National competitive bidding	15 Contracts	167.07
Consulting services	Quality- and cost-based selection	171 person-months	2.30
	Consultants' qualification selection	51 person-months	0.58
	Individual consultant selection	12 person-months	0.12
Retroactive financing and advance contracting	Advance contracting and retroactive financing apply to goods, works, and consulting services. The amount to be retroactively financed does not exceed 20% of the loan amount and is incurred prior to loan effectiveness but not earlier than 12 months before the date of signing of the related legal agreement.		
Disbursement	The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, HMG = Haidong Municipal Government.
Source: Asian Development Bank estimates.

III. DUE DILIGENCE

A. Technical

20. A comprehensive feasibility analysis of the engineering components was undertaken. The engineering designs for the embankments, water supply, wastewater reuse, and landfill expansion are suitable for local circumstances, topography, and climate; consistent with strategic and sector priorities; and in line with PRC design guidelines and local regulations. A

CRVA was conducted confirming the project's medium climate risk categorization.[10] Design options were compared before selecting the best possible technologies in view of cost, environmental, and social impacts. Detailed baseline information collected from topographic survey data, geotechnical field data, detailed hydrological analysis, and detailed hydraulic analysis was applied to the design and development of the flood mitigation component. The landscape components (greenbelts and wetland park) incorporated lessons from international and national best practice, and took into account local climatic and hydrological conditions. The capacity-building components were based on a needs assessment for the successful implementation and operation of project facilities.

B. Economic and Financial

21. **Economic analysis.** This was prepared for the overall project and for individual components following ADB guidelines.[11] Information available for the updated subcomponents was verified to support design outcomes. The project components will have quantifiable and nonquantifiable benefits such as avoided flood damage, increased forest cover and landscaping to maintain the balance of soil and water resources, ecotourism and environmental education, improved irrigation and avoided water scarcity, sustainable rural and urban water supplies, more efficient solid waste services and cleaner environment, and reduced health risks. The present value of the economic benefits is CNY1,100.7 million, while economic costs amount to CNY1,019.3 million, resulting in a benefit–cost ratio of 1.1. The economic internal rate of return for the individual components is: output 1 at 12.1%; output 2 at 12.1%; and output 3 at 15.4% for the water supply subcomponent and 23.8% for the solid waste subcomponent. For the overall project, the economic rate of return is 13.1%, with a net present value at CNY70.2 million. Based on the sensitivity analysis, the overall project's economic internal rate of return could fall below 12.0% in the event of investment cost overruns, a decrease in benefits, and a 1-year delay in project implementation.

22. The project will have nonquantifiable benefits such as a better microclimate, greater biodiversity, and higher market value of affected land. Likewise, food for bird, fish, and wildlife species will be in abundance in the improved habitat, and will have significance in species propagation. The large-scale project construction works will provide jobs during implementation and thereafter. The project will promote ecotourism and achieve joint development of upstream and downstream industry chains that foster economic growth in the communities and surrounding areas.

23. **Financial analysis**. The financial sustainability analysis for the project indicates that HMG, receiving regular budget transfers to cover its expenditures, has sufficient funds to finance the counterpart contributions during project implementation and to pay debt service and operation and maintenance (O&M) costs during operation. Average annual counterpart funding accounts for 3.3% of projected revenues, or 0.4% of the expenditures of HMG during implementation. Annual debt service and project O&M costs range from 0.8% to 1.0% of projected revenues during operations. Under the direction of the national Thirteenth Five-Year Plan (footnote 6), requirements for local governments' counterpart funds will be reduced or waived for poor areas in the country engaged in domestic investment projects. This will alleviate

[10] Climate risks were assessed (i) at regional level to gauge the vulnerability of the integrated water management plan for the Huangshui River Basin; and (ii) at Haidong City level to evaluate the vulnerability of the designs of proposed project components and the water resource management elements of the Haidong City Master Plan.

[11] ADB.1999. *Handbook for the Economic Analysis of Water Supply Projects*. Manila; ADB. 1997. *Guidelines for the Economic Analysis of Projects, and Financial Management and Analysis of Projects*. Manila; ADB. 2009. *Financial Due Diligence: A Methodology Note.* Manila.

some of the fiscal burden on local governments' domestic investment projects and divert more resources to foreign-funded projects such as this project.

24. Financial evaluation of the three water treatment plants indicates that full cost recovery is not possible at reasonable tariff assumptions, given the nature of low revenue collection for rural water supply and the relatively small scale of the plants. To achieve a financial internal rate of return of 3.5% for the water supply investment component (compared with the weighted average cost of capital of 2.3%), the water tariff for urban areas should be raised from CNY1.8 per cubic meter to CNY4.9 per cubic meter. If water tariffs are maintained at current levels and about 23.0% of the investment cost of this component is included, the financial internal rate of return may reach 3.5%. However, full recovery of O&M costs can be achieved from the overall tariff revenue generated. The operating margin (estimated based on current tariff levels and full O&M costs) is estimated at 21.6%. This component will generate a positive operating margin even with a 10.0% reduction in tariff revenues and a 5.0% increase in O&M costs. ADB's decision to invest in this component is based on the benefits of bringing safe and adequate water to rural populations as well as the government's commitment to maintain sound fiscal capacity to absorb project costs.

C. Governance

25. ADB's Anticorruption Policy (1998, as amended to date) and its Accountability Mechanism Policy (2012) were explained to and discussed with HMG. A procurement risk assessment of HMG and the project management office (PMO) confirmed that capacity is adequate with assistance of a procurement agency to prepare and arrange all procurement activities according to the PRC's domestic rules; ADB's Procurement Guidelines (2015, as amended from time to time); and Guidelines on the Use of Consultants (2013, as amended from time to time). The specific policy requirements and measures are described in the PAM.

26. A financial management assessment found that HMG and the implementing agencies' lack of knowledge of ADB financial management policies, lack of standardized procedures, and inadequate budget planning processes were the primary financial risks. Given the participation of Qinghai Provincial Government through Qinghai Finance Department, it is concluded that the overall pre-mitigation financial management risk of HMG and the implementing agencies is moderate to substantial. To mitigate these risks, an action plan was agreed with the PMO. With these measures and domestic supervision, the financial management arrangements are adequate. The specific policy requirements and supplementary measures regarding procurement and financial management are described in the PAM.

D. Poverty and Social

27. In 2015, Haidong had a poor population of 175,800 accounting for 33.8% of the provincial poor population. Ping'an and Ledu districts are both key state-level counties for development-oriented poverty reduction. In 2014, Ping'an had 44 poor villages and 7,500 poor people, and Ledu had 141 poor villages and 30,000 poor people. The poverty incidence of the project area is 10.0%.

28. The project will promote the sustainable social and environmental development of Haidong's urban and rural areas. The project has a direct beneficiary population of 217,000 in 180 villages of nine townships within the two districts, i.e., an urban population of 152,000 (70.1%) and a rural population of 65,000 (30.0%). The project has an indirect beneficiary population of 205,600, i.e., an urban population of 26,900 (13.1%) and a rural population of

178,700 (86.9%). The project will generate 135 skilled and 404 unskilled jobs during construction and 162 skilled and 331 unskilled jobs during operations. The PMO and implementing agencies provided assurance that the priority for employment will be vulnerable groups such as women, the poor, and ethnic minorities. A social and gender action plan was prepared to ensure that the positive benefits of the project and programs will be conducted and supported by output 4. These programs will particularly address the needs and risks for women and children. Social and gender indicators will be included in the project performance management system and output 4 provides adequate consulting inputs on implementation and monitoring.[12]

29. **Gender benefits.** The project is categorized as *effective gender mainstreaming*. It will have significant benefits for women because they are primarily responsible for water collection, solid waste disposal, and related household activities. It will contribute to reducing the time and effort spent by women on these activities, allowing them greater participation in income-generating activities, leisure, or family entertainment. The social and gender action plan will help ensure that (i) women's participation in the project is increased, including a target for at least 30.0% employment for women; (ii) up to 50.0% of participants in gender-sensitive environmental awareness and education programs on water saving, solid waste recycling, and forest management are women; (iii) at least 30.0% of participants in capacity-building activities are women; and (iv) gender targets, indicators, and sex-disaggregated data for project monitoring and evaluation are adequate. International and national social development specialists with gender expertise will be provided under the capacity development output to ensure the effective implementation of the social and gender action plan.

E. Safeguards

30. **Environment (category B).** An initial environmental examination with an environmental management plan was prepared in compliance with ADB's Safeguard Policy Statement (2009) and disclosed on the ADB website. The initial environmental examination incorporates findings of domestic environmental impact assessments and topical studies conducted under the project preparatory technical assistance.[13] Construction will cause no loss of valuable ecology or physical cultural resources. Construction dust, noise, erosion, and local disruption to traffic and communities will be temporary. The design of flood mitigation embankments will promote the reestablishment of riverside habitats. Downstream afflux effects of flood mitigation works will be minor and manageable. Strict reservoir operation planning will ensure drinking and irrigation water security for the target rural communities as well as minimum environmental flows even in dry years. Landfill design, enforcement of buffer zone requirements, and operational control will minimize impacts on environment and communities. HMG will be responsible for the overall implementation and compliance with the environmental management plan. Environmental management is supported by capacity development and institutional strengthening activities under output 4. HMG conducted meaningful consultation with potentially affected people and complaints will be handled in accordance with the project's grievance redress mechanism.

31. **Land acquisition and resettlement (category A).** One resettlement plan was prepared following ADB's Safeguard Policy Statement. The project will need to acquire a total area of 1,461 *mu*; 987 households and 3,535 people will suffer land acquisition impacts, distributed across project components.[14] The average annual income loss per household owing to land

[12] Summary Poverty Reduction and Social Strategy (accessible from the list of linked documents in Appendix 2).
[13] Including a survey of wetland resources, biodiversity, and habitats along the Huangshui River within Haidong Municipality; and a CRVA.
[14] A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters).

acquisition is estimated to be 16%; all households losing land opted for cash compensation, as farming is not the main source of income. Also, 744 *mu* of collective land will be leased for the Ping'an urban riverside greenbelt component, affecting 736 households and 2,721 people. About 106.8 *mu* will be occupied temporarily, affecting 145 households with 423 people. Compensation rates for land acquisition and leasing are at replacement cost and are adequate for affected persons' livelihood restoration. Meetings with district officials and related agencies revealed that about 80% of cultivated land to be leased is of poor quality and has low production value (less than CNY700 annually). Consultation results indicated that villagers prefer land leasing to acquisition because they can receive CNY1,040 in annual compensation while retaining land-use rights. Upon the expiration of the 5-year lease term, the lease will be renewed at an updated compensation rate based on the government's published land values. The leasing agreements will be signed between affected villages and/or affected persons and the district forestry bureau.

32. The resettlement plan was disclosed to the affected people and posted on the ADB website in June 2016. During project implementation, HMG and the implementing agencies will establish a proper grievance redress mechanism, allocate resettlement staff, and coordinate with relevant government departments for land acquisition, leasing, and income restoration activities. HMG has committed to provide adequate and timely budget for land acquisition, leasing, and resettlement costs; all compensation amounts and resettlement benefits to affected persons will be distributed prior to dispossession of land or livelihood. HMG and the implementing agencies will conduct internal monitoring and report on land acquisition and resettlement activities in project progress reports. HMG and the implementing agencies will also engage an external monitor for semiannual monitoring and evaluation of resettlement plan implementation; these reports will be forwarded directly to the PMO and ADB.

33. **Indigenous peoples (category B).** The four counties in Haidong are minority autonomous counties; the local population includes 18 ethnic minorities. In 2014, Haidong had a minority population of 618,500, accounting for 44.3% of official city residents; among these, a Hui population of 273,700 (19.0%), a Tibetan population of 132,400 (9.2%), and a Tu population of 115,000 (8.0%). Within the direct project areas, ethnic minorities comprise about 10.0% of the population. Of these, 10,054 Hui people (4.6% of direct beneficiaries) and 4,192 Tibetans (1.9%), together with Menggu and Tu, will benefit from better access to public services and enjoy the improved living environment. While most of the minority populations in the direct project area are scattered throughout Ledu and Ping'an districts, Shihuiyao Xiang County contains three Tibetan villages with a concentrated total minority population of 370 that will benefit from rural water supply.

34. An ethnic minority development plan (EMDP) was prepared and focuses on measures to facilitate the inclusion of ethnic minorities in all project activities, and to ensure that their customs and beliefs are respected throughout project implementation. Two key targets for the EMDP are for 15% of jobs going to the poor and ethnic minorities, and 50% of those participating in the public awareness program are ethnic minorities. The EMDP was disclosed to ethnic minorities in the areas targeted by the project. EMDP implementation and monitoring is supported under output 4. Monitoring and reporting arrangements for the ethnic minority safeguard are included in the PAM and the project agreement.

F. Risks and Mitigating Measures

35. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.[15] The overall risk level is medium. The integrated benefits and impacts are expected to outweigh costs and risks.

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
Organizational and financial—lack of overall capacity to manage the project in the areas of interagency coordination, proper governance, and procurement	Training has been, and will continue to be, provided to HPMO and the implementing agencies in (i) procurement, (ii) financial management, (iii) and O&M. Support will be given for water basin governance and management to improve the existing water allocation and forecasting systems.
Safeguards—project implementation is slowed by delays in land acquisition and resettlement, including resistance from landholders who do not want their land to be affected by river construction works.	Key mitigation measures to be implemented include (i) compensation and resettlement distributed prior to dispossession of land or livelihood, (ii) continued access to leased areas for cultivation, and (iii) continual supervision by HPMO staff, external monitors, and ADB.
Technical—(i) feasibility studies used to inform the project design will prove to be inadequate; and (ii) construction and management of the components is undertaken without regard to the impact mitigation and management measures recommended, particularly at the sanitary landfill.	More accurate flood modeling work during detailed engineering design will be used for the design of the proposed flood and river bank protection works. The project team will ensure that landfill operating staff have adequate training and skills and conduct regular monitoring (sampling and lab analysis) for effluent, including all regulatory parameters.

ADB = Asian Development Bank, HPMO = Haidong project management office, O&M = operation and maintenance, TA = technical assistance.
Source: Asian Development Bank.

IV. ASSURANCES AND CONDITIONS

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

V. RECOMMENDATION

37. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of $150,000,000 to the People's Republic of China for the Qinghai Haidong Urban–Rural Eco Development Project, from ADB's ordinary capital resources, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 26 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board.

Takehiko Nakao
President

28 September 2016

[15] Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

DESIGN AND MONITORING FRAMEWORK

Impacts the Project is Aligned with

Environmental protection, ecological rehabilitation, and climate change adaptation enhanced (National Economy and Social Development Thirteenth Five-Year Plan, 2016–2020; and National New-type Urbanization Plan, 2014–2020)[a]

Flood control standards and urban aesthetics along the Huangshui River improved (Master Planning of Haidong Urban Area, 2013–2030)[b]

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome Ecological and environmental services in Haidong improved	**By 2021 (Baseline 2016)** a. Flood risk reduced to a minimum of 20-year return period for farmland and at least 30-year return period for residential and commercial areas (Baseline for farmland: below 1-in 5-year return period; baseline for residential and commercial areas: 1-in 20-year return period) b. Public satisfaction with ecological management in Haidong increased to 70% (Baseline= 61.35%)[c]	a. Annual environmental monitoring report from Haidong EPB and modeling performed using the hydrologic modeling system of Hydrologic Engineering Center[c] b. Social survey results provided by the end of project from the PMO	Changes to government priorities lead to inadequate financial and human resources provided to properly manage project facilities
Outputs 1. Integrated flood plain management infrastructure for the Huangshui River provided	**By 2020 (Baselines 2016)** 1a. 70.0 km of new embankments on main channel and tributary (Baseline: 0) 1b. 71.2 ha of new riverside greenbelt established[d] (Baseline: 0) 1c. 20.0 ha Yizhou ecological wetland park newly established (Baseline: 0) 1d. 335 new temporary jobs created for construction, with at least 30% for women (Baseline: 0)	1a. Review mission MOUs, internal and external environment annual monitoring reports, project completion report; 1b–1d. Haidong City Annual Report	
2. Measures to control soil erosion in Haidong's urban catchment are implemented	2a. 105 ha of new mountainside greenbelt established[e] (Baseline: 0) 2b. New reclaimed-water irrigation system installed for 663 ha of mountainside greenbelt (Baseline: 0)	2a–2b. Review mission MOUs, project completion report	
3. Rural–urban water supply and solid waste infrastructure constructed	3a. Three new WTPs with total capacity of 23,000 m^3/day built in Ping'an District (Baseline: 0) 3b. 35 km of new water conveyance pipes installed for rural–urban	3a. Review mission MOUs , project completion report; internal and external environment annual monitoring	Water supply for Sanhe and Shihuiyao townships and surrounding villages is not guaranteed in dry and very dry years

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	water supply (Baseline: 0 km) 3c. 850,000 m^3 of capacity added to Ledu landfill (Baseline: 0) 3d. 95 new temporary jobs created for construction with at least 30% for women (Baseline: 0)	reports 3b–3d. Haidong City annual report	
4. Project management capacity strengthened	4a. At least 30 people, including HMG, PMO, implementing agencies, and PIO staff with new capacity for project management and implementation, ADB procedures and requirements (30% women) (Baseline: 0) 4b. New standard operating procedure developed and at least 10 people in the landfill O&M unit with new capacity for executing landfill standard operating procedure (30% women) (Baselines: not developed, 0) 4c. At least 15 people in the wetland and forest O&M units with new skills and knowledge in wetland or forest management (Baseline: 0) 4d. Enhanced knowledge and understanding of at least 60 government staff in the application of IWRM, integrated urban ecological planning and management, solid waste management, and wetland development and management. (Baseline: 0) 4e. 100% staff of PMO and PIOs with increased knowledge and skills in ADB safeguard policy implementation and gender mainstreaming concepts (at least 30% women participants). (Baseline: 0%)	4a–4e. Review mission MOUs, project completion report	

Key Activities with Milestones

1. Integrated flood plain management infrastructure for the Huangshui River provided

1.1 Detailed design and engineering by Q1 2017

1.2 Acquire land and implement resettlement by Q3 2017

1.3 Procure works and goods by Q2 2019 1.4 Construct project facilities by Q3 2019 1.5 Turn over facilities and make operational by Q2 2020 **2. Measures to control soil erosion in Haidong's urban catchment implemented** 2.1 Detailed design and engineering by Q1 2017 2.2 Acquire land and implement resettlement by Q2 2017 2.3 Procure works and goods by Q4 2017 2.4 Construct project facilities by Q3 2020 2.5 Turn over facilities and make operational by Q1 2021 **3. Rural–urban water supply and solid waste infrastructure constructed** 3.1 Detailed design and engineering by Q1 2017 3.2 Acquire land and implement resettlement by Q2 2017 3.3 Procure works and goods by Q3 2018 3.4 Construct project facilities by Q1 2020 3.5 Turn over facilities and make operational by Q3 2020 **4. Project management capacity strengthened** 4.1 Recruit and mobilize the start-up consultants by Q3 2016 4.2 Recruit and mobilize the implementation support consultants by Q2 2017 4.3 Finalize institutional arrangement between executing agency and implementing agencies and start implementation of resettlement plan, EMP, and SGAP by Q1 2017 4.4 Provide training to build capacity from 2017–2020 4.5 Monitor and report on the implementation of the resettlement plan, EMP, and SGAP from 2017–2021 4.6 Conduct project-specific surveys to measure results for the midterm review (2019) and project completion (2021)
Inputs ADB: $150,000,000 (loan) Government: $84,300,000
Assumptions for Partner Financing Not applicable.

ADB = Asian Development Bank, EMP = environmental management plan, EPB = environmental protection bureau, FSR = feasibility study report, ha = hectare, HMG = Haidong Municipal Government, IWRM = integrated water resource management, km = kilometer, MOU = memorandum of understanding; m^3 = cubic meter, m^3/day = cubic meter per day, O&M = operation and maintenance, PIO = project implementation office, PMO = project management office, SGAP = social and gender action plan, WTP = water treatment plant.

[a] Government of the People's Republic of China, State Council. 2015. *National Economy and Social Development Thirteenth Five-Year Plan, 2016–2020*; Government of the People's Republic of China, State Council. 2014. *National New-type Urbanization Plan, 2014–2020.* Beijing.

[b] Government of the People's Republic of China, Haidong Municipal Government. 2013. *Master Planning of Haidong Urban Area, 2013–2030.* Haidong.

[c] Hydrologic Modeling System of Hydrologic Engineering Center (HEC-HMS) available at the US Army Corps of Engineers Hydrologic Engineering Center Website. http://www.hec.usace.army.mil/software/hec-hms).

[d] Extent: area of established shrubs and trees.

[e] Extent: area of established trees.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

http://www.adb.org/Documents/RRPs/?id=48102-002-3

1. Loan Agreement
2. Project Agreement
3. Sector Assessment (Summary): Water and Other Urban Infrastructure and Services
4. Project Administration Manual
5. Contribution to the ADB Results Framework
6. Development Coordination
7. Financial Analysis
8. Economic Analysis
9. Country Economic Indicators
10. Summary Poverty Reduction and Social Strategy
11. Gender Action Plan: Social and Gender Action Plan
12. Initial Environmental Examination
13. Resettlement Plan
14. Indigenous Peoples Plan: Ethnic Minority Development Plan
15. Risk Assessment and Risk Management Plan

Supplementary Documents

16. Financial Management Assessment
17. Project Procurement Risk Assessment
18. Detailed Economic Analysis
19. Climate Risk and Vulnerability Assessment
20. Nonrevenue Water Assessment for Ping'an District