

Project Administration Manual

Project Number: 51005-002

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People's Republic of China: Chongqing Longxi River
Basin Integrated Flood and Environmental Risk
Management Project

ABBREVIATIONS

ADB	–	Asian Development Bank
DDR	–	due diligence report
DMF	–	design and monitoring framework
DRC	–	development and reform commission
EA	–	executing agency
FB	–	finance bureau
EIA	–	environment impact assessment
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
EPB	–	environmental protection bureau
FIRR	–	financial internal rate of return
FMA	–	financial management assessment
FSR	–	feasibility study report
GDP	–	gross domestic product
GRM	–	grievance redress mechanism
IA	–	implementing agency
IWRM	–	integrated water resource management
LAR	–	land acquisition and resettlement
MOF	–	Ministry of Finance
NDRC	–	National Development and Reform Commission
O&M	–	operation and maintenance
PAM	–	project administration manual
PMO	–	project management office
PPMS	–	project performance management system
PIU	–	project implementation unit
PRC	–	People's Republic of China
RP	–	resettlement plan
SDAP	–	social development action plan
SPRSS	–	summary poverty reduction and social strategy
SPS	–	Safeguard Policy Statement
TRTA	–	transaction technical assistance
YREB	–	Yangtze River Economic Belt

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Project Administration Manual Purpose and Process

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

The Chongqing Municipal Government (CMG), the executing agency; the Liangping District Government (LDG), Dianjiang County Government (DCG), and Changshou District Government (CDG), the implementing agencies; are wholly responsible for the implementation of the ADB financed project, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB's. ADB staff is responsible supporting implementation including compliance by CMG, LDG, DCG and CDG of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

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

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

I. PROJECT DESCRIPTION

1. The project will help the Chongqing Municipal Government (CMG) maintain environmental sustainability, leading to improved living conditions in the entire Longxi River watershed, a Yangtze River sub-basin in the municipality. This will be achieved through the implementation of an integrated approach to manage flooding, the water environment, and ecology collectively with a well-balanced mix of structural and nonstructural interventions, including capacity building.

A. Rationale

2. Yangtze River Economic Belt (YREB) covers nine provinces and two specially administered cities in the Yangtze River Basin. It accounts for over 40% of the People's Republic of China's (PRC) population and has 40% of the freshwater resources. It also serves as the drinking water resource for 400 million people, provides 60% of the total fisheries production, has 20% of the total wetland area, and contributes about 45% of the PRC's economic output. YREB has been earmarked as one of the three key growth engines to ensure the PRC's future economic development.¹

3. YREB has benefitted from extensive development since 1990s, particularly in the delta area. Yet, economic growth in the middle and upper reaches of the Yangtze River Basin is lagging and below its potential capacity. The middle and upper reaches of YREB still face significant development challenges because of (i) slow transformation for green development and economic diversification; (ii) limited integration of waterways, ports, and intermodal logistics; (iii) increasing pollution and pressure on natural resources; and (iv) weak institutional coordination for strategic planning.² YREB faces a growing imbalance between economic achievements and the quality of the environment.

4. Since 1980, YREB has suffered over \$0.3 trillion in direct economic damage from recurring floods, accounting for 75% of the total flood damage in the PRC. Most flood damage does not come from the main stem river but from small to moderate-sized river sub-basins. YREB suffered from fatal floods in 2016 that caused \$28 billion of economic damage, declaring emergencies at more than 3,300 locations. Of those, over 3,200 were reported on small tributaries that generally have lower standards of flood protection or where standards have not kept pace with the rapid rate of development or intensifying extreme rainfall events caused by global climatic changes. Since 1980, water pollution has risen by 73% mainly because of the direct discharge of domestic, industrial, and agricultural waste, making water unfit for consumptive and productive use. The upper and middle reaches account for 80% of YREB's total wastewater discharge and the tributaries have the worst water quality in the Yangtze River Basin.³ The hydrological variability caused by rapid urbanization and industrialization has had a large contribution to water pollution and has increased flood frequency and magnitude. The enormity of the losses suffered during 2000–2017 merits a review of policies and practices in the PRC. Priority is yet to be given to improve water interception, water quality, flood risk mitigation, and ecological protection in upstream areas, mainly sub-basins, to ensure the water flowing downstream is clean and free of flood risk.

¹ The other flagship projects are the Belt and Road Initiative and the Beijing–Tianjin–Hebei Integrated Regional Development Strategy.

² ADB. 2016. *Yangtze River Economic Belt Environmental Protection and Rehabilitation Project—A Preliminary Study*. Consultant's report. Manila (TA 9044-PRC).

³ YREB produces about 81% of the country's chemical fibers, 58% of pesticides, and 51% of fertilizers. This has come at high environmental costs. Ministry of Ecology and Environment. 2013. [MEP Releases State of Environmental Quality of China in 2012](#).

5. Chongqing Municipality, the largest urban area in the upper YREB, plays a critical role in environmental and conservation efforts in the region.⁴ However, many rural towns and villages in Chongqing are left behind from overall development because of insufficient public infrastructure, continued flood disasters, worsening water pollution, and degraded ecological conditions. The traditional approach taken by CMG to flood control relies solely on structural measures, which are no longer feasible. The link between flood management, environmental degradation, and ecosystem sustainability needs to be addressed. An integrated approach is necessary to adapt to changing social, geophysical, and environmental conditions, leading to integrated flood and environmental risk management (FERM) as an approach to be adopted by the municipality.

6. Chongqing is a core part of the ecological conservation zone of the Three Gorges Reservoir, which plays a pivotal role in mitigating floods in the middle and lower Yangtze River reaches. However, Chongqing has suffered from seven fatal floods since 2007. Longxi River watershed is one of the worst flood-impacted areas, with only 10% of river reach protected by levees for less than 5-year return period floods.⁵ The old concrete dams in Longxi River are no longer beneficial as they are filled up with sediment and their operation is not compatible with emerging FERM needs. The annual average flood damage in Longxi River watershed is about CNY1.71 billion, with fatal flooding in 2010, 2014, 2016, and 2017.

7. Chongqing produces 7% (1.5 billion tons) of household and 18% (355 million tons) of industrial wastewater in YREB annually—among the highest values per unit area in YREB. The annual average solid waste volume is more than 30 million tons in Chongqing, of which only 14% is being treated. Inadequate management of waste has resulted in poor water quality in Chongqing's rivers and lakes, which exceeds the national standard (class III) at various locations, specifically in the Longxi River watershed.⁶ The fast-paced industrialization (50%) and urbanization (45%) rates along the Longxi River corridor, without proper planning, have put pressure on water resources. The floods formed many belts of floating rubbish in the Longxi River, which exacerbated flooding and water pollution. Despite the availability of treatment facilities, over 40% of residents and 80% of industries in the watershed do not benefit due to the lack of sewer network. Unsustainable farming resulted in high sediment yield and poor water operation practices have worsen the water quality in Shuanggui and Sanhe lakes (small lakes) in the watershed. Water quality in Changshou Lake in the lower Longxi River watershed has also deteriorated because of eutrophication.

8. Wetlands account for 2.5% of the total area in Chongqing while green spaces make up 4.3%—the lowest in YREB. In the municipality, the Longxi River watershed suffers the most from human-induced ecological destruction. The hydrology and environment of the Longxi River watershed are modified through long-term human activities, including agriculture and small water infrastructure (e.g., barrages), which regulate river flows and habitat clearance. Since 1990, about 60% of the wetlands and 35% of the vegetated areas in this watershed have disappeared and over 41% of the land area has been exposed to water-induced soil erosion, resulting in reduced river conveyance, flooding, reservoir shrinkage, and water contamination. The climate change impact in the watershed is likely to (i) worsen the water quality because of increased temperature and decreased river flow, and (ii) increase floods as a result of increased rainfall intensity.

⁴ Chongqing Municipality comprises 38 districts and counties over 82,400 square kilometers, and has a population of 33.7 million of which over 39% is rural.

⁵ Longxi River Basin in Chongqing Municipality has an area of 2,966 square kilometers (about 30 kilometers long) with 2.1 million population. The river originates in Liangping District, passes through Dianjiang County, and merges with the Yangtze River in Changshou District. The basin is located about 200 kilometers north of Chongqing City.

⁶ Following the PRC's Environmental Water Quality Standard (GB 3838-2002), up to class III water is suitable for drinking.

9. Coordination among the upstream and downstream local governments in the Longxi River watershed has not yet been established because of a lack of participatory watershed development planning. The institutional capacity of local governments to implement FERM is still weak. To facilitate sustainable development and enhance livelihoods, accommodate growing population, and attract investments, CMG will support local governments in development planning and implementation. The integrated FERM plan and the implementation of critical measures are urgently required to promote sustainable development in the watershed, including infrastructure development, physical connectivity, and economic competitiveness. Since the watershed is in a less developed region, it can demonstrate environmentally sustainable growth model that can be replicated in other manageable watersheds in Chongqing, YREB, or the entire PRC.

10. CMG has formulated the Longxi River Ecological and Restoration Master Plan 2030, as well as its Thirteenth Five-Year Plan, 2016–2020, which is aligned with the national Thirteenth Five-Year Plan, 2016–2020. The implementation of these plans is consistent with (i) the guidelines on the Yangtze River Basin economic development, issued by the State Council in 2014; (ii) the YREB master plan, 2016–2030, issued by the National Development and Reform Commission (NDRC) in 2016; and (iii) the river chief system, issued by the PRC’s Central Committee and the State Council in 2016 to promote green development, with stricter control over water pollution, environmental protection, rehabilitation, and management of water resources.⁷ CMG intends to pursue this project to bridge the critical development gaps.

11. **Strategic fit.** In January 2018, the NDRC announced the first batch of national priority river basin water environment and sustainable development pilot projects and identified the Longxi River Basin as one of 16 pilot river basins nationwide.⁸ The Chongqing Development and Reform Commission adopted the pilot program in the form of the Longxi River basin development plan, 2018–2025, for which CMG considers this project a kickoff and benchmark for investment in FERM. The project also aims to revitalize the eco-compensation mechanism in the watershed by promoting upstream–downstream links, and will contribute to the PRC’s goal of building a harmonious and prosperous society through environmentally sustainable growth. It is consistent with the PRC’s Thirteenth Five-Year Plan, 2016–2020, which aims to realize “ecological civilization.”⁹ The project is aligned with the Asian Development Bank (ADB) country partnership strategy for the PRC, 2016–2020,¹⁰ mainly the three major principles: (i) managing climate change and environment, (ii) supporting inclusive economic growth, and (iii) fostering knowledge cooperation. It is also consistent with (i) ADB’s Water Operational Plan, 2011–2020, which emphasizes integrated water resources management (IWRM) with a focus on water-related disaster risk management;¹¹ and (ii) sustainable development goals 6, 11, and 13.¹²

12. **Lessons.** The project adopts FERM, a cross-sector approach, in a river basin context.¹³ At the technical level, the project design has incorporated lessons from international practices and previous ADB-financed projects and policy-oriented studies on IWRM and environmental and

⁷ Under the river chief system being applied in the PRC, the heads of local governments are designated as river chiefs to be accountable for water and environmental management in their jurisdictions.

⁸ Government of the PRC. 2018. [Longxi River Basin is Approved as the First National Pilot Basin Integrated Management of Water Environment and Sustainable Development](#).

⁹ Government of the PRC. 2015. *Outline of the Thirteenth Five-Year Plan on National Economic and Social Development, 2016–2020*. Beijing.

¹⁰ ADB. 2016. *Country Partnership Strategy: People’s Republic of China, 2016–2020—Transforming Partnership: People’s Republic of China and Asian Development Bank*. Manila.

¹¹ ADB. 2011. *Water Operational Plan, 2011–2020*. Manila.

¹² United Nations. [Sustainable Development Goals](#).

¹³ R. Osti. 2017. Strengthening Flood Risk Management Policy and Practice in the People’s Republic of China: Lessons Learned from the 2016 Yangtze River Floods. *ADB East Asia Working Paper Series*. No. 11. Manila: ADB.

ecosystem improvement such as (i) promoting IWRM at river basin scale, prioritizing upstream–downstream and urban–rural linkages; (ii) promoting nature-based solutions; (iii) strengthening nonstructural measures with enhancement of the roles of communities and women; (iv) including operation and maintenance (O&M), and monitoring and evaluation with sustainable financial sources; (v) integrating FERM into regional planning; (vi) supporting institutional reforms contributing to FERM; and (vii) providing capacity development for project implementation.¹⁴

B. Impact and Outcome

13. The project is aligned with the following impact: environmental protection, rehabilitation, and management of the Yangtze River improved.¹⁵ The project will have the following outcome: flood and environmental risk in the Longxi River watershed mitigated.

C. Outputs

14. **Output 1: Flood risk management infrastructure constructed.** This will implement (i) flood preventive measures, including constructing embankments and transforming small barrages to gated structures; (ii) water retention measures, including a temporary flood retention area and installing flood diversion structures; and (iii) flood preparedness measures, including constructing shelters and emergency access roads.

15. **Output 2: Wastewater management and pollution control infrastructure developed.** This will implement (i) a wastewater management system, including installing a wastewater collection network; and (ii) water pollution control measures, including constructing a bio-shield (greenbelts) along the riverbanks to trap leached sediment and nutrients from farmlands, and installing solid waste collection bins along the riverbanks.

16. **Output 3: Ecological conservation facilities improved.** This will implement (i) wetland conservation, including restoring wetlands in existing lakes and rivers; (ii) ecological restoration, including landscaping, greening, and gardening along the river and lakes corridors; and (iii) soil and water conservation, including riverbank protection and erosion control.

17. **Output 4: Flood and environmental risk management capacity enhanced.** This will include (i) hydro-meteorological services, including establishing a flood footprint and accountability mechanism, developing and installing a watershed simulation model, and establishing a river monitoring system;¹⁶ (ii) development planning and programming, including formulating a comprehensive FERM plan, drafting land use regulations, and formulating investment road maps in the watershed; and (iii) capacity development of local governments and communities, including climate-resilient community-based FERM that involves a flood early warning system and solid waste management, strengthening Longxi River coordination body in applying the river chief system, and updating reservoir operational guidelines.

¹⁴ ADB. 2013. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Chongqing Urban–Rural Infrastructure Development Demonstration Project II*. Manila; R. Osti. 2017. *Embedding Community-Based Flood Risk Management in Investment: A Part-to-Whole Approach*. *ADB East Asia Working Paper Series*. No. 12. Manila: ADB; Independent Evaluation Department. 2017. *Validation Report: Hunan Flood Management Sector Project in the People's Republic of China*. Manila: ADB.

¹⁵ National Development and Reform Commission. 2016. *Yangtze River Economic Belt Development Plan, 2016–2030*. Beijing.

¹⁶ A footprint is a measure of human impact in the basin, leading to an increase or decrease of flood and environmental risk. The accountability system refers to indicators that enable decision makers to assess the progress.

18. **Project features and value addition.** The project will add value by introducing innovative planning, design, and implementation methods by (i) formulating a comprehensive FERM plan for the watershed as a prerequisite for other development plans to adopt the “promote environment first” approach; (ii) demonstrating a nexus approach for the intertwined flood (water)-waste (environment)-ecosystem under FERM through the integration of structural and nonstructural measures; (iii) developing a FERM footprint and accountability system, considering urban–rural, and upstream–downstream linkages, and cumulative efforts rather than fragmented interventions in the basin; (iv) mainstreaming FERM in sector project planning and design to mitigate damage and reduce risks;¹⁷ (v) introducing discontinuous embankment, with provisions for flood protection in critical locations and flood retention in other spaces;¹⁸ (vi) providing a bio-shield against topsoil and nutrition leaching on farmlands; (vii) pilot testing a flash flood early warning system using high technology;¹⁹ (viii) pilot testing community-based FERM; and (ix) strengthening institutional capacity, including a real-time decision support system in FERM to promote the river chief system.

19. The details of each output and components are summarized in Table 1 below:

Table 1: Project Outputs and Subcomponents

No.	Outputs/Components	Major Contents
Output 1: Flood Risk Management Infrastructure Constructed		
L1	Liangping District	
L1.1	Longxi River and Tributary Improvement for Helin Town, Pingjin Town, and Mingda Town	
L1.1.1	Helin Town – Flood Risk Management	
	(i). Barrage at Aiguo Power Station	Fixed concrete dam converted to gated structure
	(ii). Embankment at Longxi River	6.62 km ecological embankment
L1.1.2	Mingda Town - Flood Risk Management	
	(i). Embankment at Longxi River	5.56 km ecological embankment and 1# and 2# barrages rebuilt to gated structure
	(ii). Embankment at Sandengpo Tributary	3.99 km ecological embankment and 3 small footbridges
L1.1.3	Pingjin Town - Flood Risk Management	
	(i). Embankment along Huilong Tributary	8.76 km ecological embankment, 2.14 km dredging, 6 small footbridges and one vehicle bridges
L1.2	Ecological and Environment Improvement of Longxi River Upstream at Liangping Urban and Surrounding Area (Shuanggui Lake Wetland Area)	
	(i). Embankment at Dam Area	0.39 km ecological embankment and associated facilities
	(ii). Embankment at Northern Bank	0.68 km ecological embankment, emergency road, footbridge and associated facilities
L1.3	Jindai Town Longxi River and Tributary Comprehensive Treatment	
	(i). Embankment at Longxi River	4.22 km ecological embankment
	(ii). Embankment at Longdong tributary	6.38 km ecological embankment, 5 small footbridges rebuilt and 9 stepping-stone paths (10–20 meters)
	(iii). Embankment at Shizhu River Tributary	4.53 km ecological embankment, 7 small footbridges rebuilt and 6 stepping-stone paths (10–20 meters)
	(iv). Embankment at Huashigou tributary	0.82 km ecological embankment, 2 small footbridges rebuilt and 2 stepping-stone paths (10–20 meters)

¹⁷ The road design is flood-resistant, and the alignment is to prevent flood and support emergency response.

¹⁸ Discontinuous embankment has several spillways that allow water to overtop and store in temporary retention area.

¹⁹ Automated real-time hydrological observation, flood early warning, and emergency-response aided by mobile phone or radio, remote sensing including satellite observation, and geographic information system technologies.

No.	Outputs/Components	Major Contents
	(v). Embankment at Xiaojiagou tributary	2.40 km ecological embankment, 3 small footbridges rebuilt and 9 stepping-stone paths (10–20 meters)
L1.4	Baisha River Ecological and Environmental Improvement	
	(i). Embankment at Baisha River	6.34 km ecological embankment, 3.3 km dredging, barrage structures (2 hydraulic flap-gates), and one small footbridge
D1	Dianjiang County – Longxi River Comprehensive Environmental Treatment and Ecological Conservation Demonstration Project	
D1.1	Pushun Town - Flood Risk Management	
	(i). Embankment at Longxi River	3.75 km ecological embankment
D1.2	Gao'an Town - Flood Risk Management	
	(i). Embankment at Longxi River	27.16 km ecological embankment, 4 emergency access bridges
D1.3	Gaofeng Town - Flood Risk Management	
	(i). Embankment at Longxi River	4.0 km ecological embankment and 1 emergency access bridge
	(ii). Flood risk management facility	Emergency evacuation shelter (3,000 m ²)
D1.4	Zhoujia Town - Flood Risk Management	
	(i). Flood risk management facility	Emergency evacuation shelter (3,000 m ²)
D1.5	Xinmin Town - Flood Risk Management	
	(i). Embankment at Xinmin Tributary	1.69 km ecological embankment
D1.6	Guixi Sub-district – Flood Risk Management	
	(i). Embankment at Sanhe Lake	7.5 km ecological embankment
C1	Changshou District	
C1.1	Dandu Town Flood Control and Water Resource Protection	
	(i). Embankment at Longxi River	4.45 km ecological embankment, one small footbridge, 3.25 km emergency road, and associated facilities
C1.2	Dayuxi Tributary Comprehensive Treatment	
C1.2.1	Haitang Town - Flood Risk Management	
	(i). Embankment at Dayuxi Tributary	7.4 km ecological embankment, 1.8 km emergency access road, 1 small footbridge, 2 emergency bridges rebuilt, 2 km dredging
	(ii). Embankment at Tuqiao Tributary (NBF)	1 km ecological embankment
	(iii). Flood risk management facility	Emergency shelter (5,000 m ²)
C1.2.2	Yuntai Town - Flood Risk Management	
	(i). Embankment at Dayuxi, Qingmailiangyuan, and Yuntaihe Tributaries	10.2 km ecological embankment, 3 emergency bridges rebuilt, 1 km dredging
C1.2.3	Shiyan Town - Flood Risk Management	
	(i). Flood risk management facility	1 emergency bridge rebuilt
C1.3	Longxi River Tributary Comprehensive Treatment	
C1.3.1	Shuanglong Town - Flood Risk Management	
	(i). Embankment at Shuanglong and Qilin Tributaries	11.45 km ecological embankment, 3 emergency bridges rebuilt and associated facilities

No.	Outputs/Components	Major Contents
	(ii). Flood diversion works at Wangjiagou	518.86 m flood diversion channel to the retention area
	(iii). Embankment	3.36 km embankment
C1.3.2	Longhe Town – Flood Risk Management	
	(i). Embankment at Longhe Tributary	23.4 km ecological embankment, 4.3 km emergency access road, 1 small footbridge rebuilt, 2 emergency bridges rebuilt, and associated facilities
C1.3.3	Linfeng Town - Flood Risk Management	
	(i). Embankment at Longhe Tributary	8.0 km ecological embankment, 6 small footbridges rebuilt, 2 emergency bridges rebuilt, 2 km dredging, and associated facilities
Output 2: Wastewater Management and Pollution Control Infrastructure Developed		
L2.1	Longxi River and Tributary Improvement for Helin Town, Pingjin Town and Mingda Town	
	(i). Bio-shield at Helin Town	Vegetation buffer zone (30,093 m ²)
	(ii). Bio-shield at Mingda Town	Vegetation buffer zone (20,443 m ²)
	(iii). Bio-shield at Pingjin Town	Vegetation buffer zone (23,793 m ²)
L2.2	Ecological and Environment Improvement of Longxi River Upstream at Liangping Urban and Surrounding Area (Shuanggui Lake Wetland Area)	
	(i). Solid Waste Collection at Zhangxingqiao Binhe Area	60 Refuse bins and associated facilities
L2.3	Jindai Town Longxi River and Tributary Comprehensive Treatment	
	(i). Bio-shield at Longxi River	Vegetation buffer zone (15,539 m ²)
	(ii). Bio-shield at Longdong Tributary	Vegetation buffer zone (13,923 m ²)
	(iii). Bio-shield at Shizhu River Tributary	Vegetation buffer zone (15,256 m ²)
	(iv). Bio-shield at Xiaojiagou Tributary	Vegetation buffer zone (10,385 m ²)
D2	Dianjiang County – Longxi River Comprehensive Environmental Treatment and Ecological Conservation Demonstration Project	
D2.1	(i). Bio-shield at Gao'an Town	Vegetation buffer zone (99,829 m ²)
D2.2	(ii). Bio-shield at Gaofeng Town	Vegetation buffer zone (36,146 m ²)
D2.3	(iii). Bio-shield at Xinmin Town	Vegetation buffer zone (13,200 m ²)
D2.4	(iv). Bio-shield at Pushun Town	Vegetation buffer zone (5,682 m ²)
C2	Changshou District	
C2.1	Dandu Town Flood Control and Water Resource Protection	
	(i). Bio-shield	Vegetation buffer zone (21,450 m ²)
	(ii). Wastewater Collection	Sewer network (6.4 km)
C2.2	Dayuxi Tributary Comprehensive Treatment	
C2.2.1	Haitang Town Wastewater Management and Pollution Control	
	(i). Wastewater collection	Sewer network (8.8 km)
	(ii). Bio-shield	Vegetation buffer zone (16,280 m ²)
C2.2.2	Yuntai Town Wastewater Management and Pollution Control	
	(i). Wastewater collection	Sewer network (6.9 km)

No.	Outputs/Components	Major Contents
	(ii). Bio-shield	Vegetation buffer zone (22,440 m ²)
C2.2.3	Shiyan Town Wastewater Management and Pollution Control	
	(i). Wastewater collection	Sewer network (2.75 km)
C2.3	Longxi River Tributary Comprehensive Treatment	
C2.3.1	Shuanglong Town Wastewater Management and Pollution Control	
	(i). Bio-shield	Vegetation buffer zone (24,200 m ²)
	(ii). Wastewater collection	Sewer network (7 km)
C2.3.2	Longhe Town Wastewater Management and Pollution Control	
	(i). Bio-shield	Vegetation buffer zone (128,700 m ²)
	(ii). Wastewater collection	Sewer network (7 km)
C2.3.3	Linfeng Town Wastewater Management and Pollution Control	
	(i). Wastewater collection at Jiaojia section	Sewer network (1.8 km)
	(ii). Wastewater collection at Linfeng section (NBF)	Sewer network (1.72 km)
	(iii). Bio-shield	Vegetation buffer zone (8,800 m ²)
Output 3: Ecological Conservation Facilities Improved		
L3	Liangping District	
L3.1	Longxi River and Tributary Improvement for Helin Town, Pingjin Town and Mingda Town	
	(i). Ecological conservation at Helin Town	Ecological restoration (95,778 m ²), river wetland (5,200 m ²)
	(ii). Ecological conservation at Mingda Town	Ecological restoration (58,445 m ²), river wetland (4,200 m ²)
	(iii). Ecological conservation at Pingjin Town	Ecological restoration (78,973 m ²), river wetland (3,800 m ²)
L3.2	Ecological and Environment Improvement of Longxi River Upstream at Liangping Urban and Surrounding Area (Shuanggui Lake Wetland Area)	
	(i). Ecological conservation at Dam Area	Ecological restoration (19,590 m ²)
	(ii). Ecological conservation at Northern Bank	Wetland (1,712 m ²), Ecological restoration (153,070 m ²)
	(iii). Ecological conservation at Zhangxingqiao Binhe Area	Ecological restoration (129,149 m ²)
L3.3	Jindai Town Longxi River and Tributary Comprehensive Treatment	
	(i). Ecological conservation at Longxi River	Ecological restoration (64,072 m ²), river wetland (2,000 m ²)
	(ii). Ecological conservation at Longdong Tributary	Ecological restoration (32,133 m ²), river wetland (1,800 m ²)
	(iii). Ecological conservation at Shizhu River Tributary	Ecological restoration (71,955 m ²), river wetland (3,780 m ²)
	(iv). Ecological conservation at Xiaojiagou Tributary	Ecological restoration (15,656 m ²), river wetland (860 m ²)
L3.4	Baisha River Ecological and Environmental Improvement	
	(i). Ecological conservation at Baisha River	Ecological restoration (41,303 m ²)

No.	Outputs/Components	Major Contents
D3	Dianjiang County - Longxi River Comprehensive Environmental Treatment and Ecological Conservation Demonstration Project	
D3.1	(i). Ecological conservation at Gaofan Town	Ecological restoration (53,333 m ²)
D3.2	(ii). Ecological conservation at Gaofeng Town	Ecological restoration (88,530 m ²)
D3.3	(iii). Ecological conservation at Guixi sub-district (NBF)	Sanhe wetland (300 mu) including barrage heightened and dike protected
D3.4	(iv). Ecological conservation at Pushun Town	Ecological restoration (31,758 m ²)
D3.5	(v). Ecological conservation at Xinmin Town	Ecological restoration (13,330 m ²)
C3	Changshou District	
C3.1	Dandu Town Flood Control and Water Resource Protection	
	(i). Ecological conservation	Ecological restoration (118,243 m ²)
C3.2	Dayuxi Tributary Comprehensive Treatment	
	(i). Ecological conservation at Haitang Town	Ecological restoration (60,460 m ²)
	(ii). Ecological conservation at Yuntai Town	Ecological restoration (74,826 m ²)
C3.3	Longxi River Tributary Comprehensive Treatment	
	(i). Ecological conservation at Shuanglong Town	Ecological restoration (69,575 m ²)
	(ii). Ecological conservation at Longhe Town	Ecological restoration (144,144 m ²)
	(iii). Ecological conservation at Linfeng Town	Ecological restoration (38,060 m ²)
Output 4: Flood and Environmental Risk Management Capacity Enhanced		
L4.1	FERM capacity development in Liangping District	Establishment of hydrological, water quality, and solid waste monitoring points and procurement of monitoring equipment in Liangping District
D4.1	FERM capacity development in Dianjiang County	Establishment of hydrological, water quality, and solid waste monitoring points and procurement of monitoring equipment in Dianjiang County
C4.1	FERM capacity development in Changshou District	Establishment of hydrological, water quality, and solid waste monitoring points and procurement of monitoring equipment in Changshou District
CS4.1	Consulting services to support the development of Longxi River FERM system	Development of FERM plan; development of a GIS-based quantitative hydraulic model in Longxi River; development of a GIS-based quantitative water quality model in Longxi River; set up early warning and forecasting system for flash flood and water quality; promotion of community-based FERM including household level solid waste management pilot works; purchase of equipment at Chongqing Flash Flood Monitoring Center and Water Quality Monitoring Center; and assessment for establishment of monitoring points and upgrade of monitoring equipment in Liangping District, Dianjiang County, and Changshou District; incorporating "footprint/accountability" and river chief system including the watershed flood defense scheme and emergency action plans
CS4.2	Consulting services to support project management	
	(i). Project management startup support	Project management startup support for project management, procurement, financial, environment, and social development
	(ii). Project management support	Project management support during project implementation

No.	Outputs/Components	Major Contents
	(iii). External resettlement M&E	Technical support for external resettlement M&E
	(iv). External environmental M&E	Technical support for external environmental M&E

FERM = flood and environmental risk management, GIS = geographic information system, km = kilometer, m = meter, m² = square meter, M&E = monitoring and evaluation.

Source: Asian Development Bank estimates.

Table 2: Summary of Project Components by County/Districts

Name of Sub-components in FSRs	Location	Descriptions
Liangping District		
1.	Longxi River and Tributary Improvement for Helin Town, Pingjin Town, and Mingda Town	Helin Town, Pingjin Town, Mingda Town
		<ul style="list-style-type: none"> • 12.18 km ecological embankment along Longxi River • 12.75 km ecological embankment along Longxi River tributaries • 3 barrages rebuilt to gate structure • 2.14 km dredging on tributaries • 9 small footbridges and one road bridge • 74,329 m² vegetation buffer zones • 233,196 m² ecological restorations • 13,200 m² river wetlands
2.	Ecological and Environment Improvement of Longxi River Upstream at Liangping Urban and Surrounding Area	Shuanggui Lake: Dam Area, Northern Bank, Zhangxingqiao Binhe Area
		<ul style="list-style-type: none"> • 0.39 km ecological embankment and associated facilities at Dam Area • 0.68 km ecological embankment, emergency road, footbridge, and associated facilities at northern bank • 60 refuse bins • 301,809 m² ecological restorations • 1,712 m² lake wetland
3.	Jindai Town Longxi River and Tributary Comprehensive Treatment	Jindai Town
		<ul style="list-style-type: none"> • 4.22 km ecological embankment along Longxi River • 14.13 km ecological embankment along Longxi River tributaries • 17 small footbridges rebuilt • 21 stepping-stones (10–20 meters) • 55,103 m² vegetation buffer zones • 183,816 m² ecological restorations • 8,440m² river wetlands
4.	Baisha River Ecological and Environmental Improvement	Shuanggui sub-district
		<ul style="list-style-type: none"> • 6.34 km ecological embankment • 3.3 km dredging • 2 gate-structures barrages (2 hydraulic flap-gates) • one small footbridge rebuilt • 41,303 m² ecological restorations
Dianjiang County – Longxi River Comprehensive Environmental Treatment and Ecological Conservation Demonstration Project		
1	Longxi River Comprehensive Environmental Treatment and Ecological Conservation Demonstration Project	Pushun Town
		Gao'an Town
		<ul style="list-style-type: none"> • 3.75 km ecological embankment along Longxi River • 5,682 m² vegetation buffer zone • 31,758 m² ecological restoration • 27.16 km ecological embankment along Longxi River • 4 emergency access bridges

Name of Sub-components in FSRs		Location	Descriptions
			<ul style="list-style-type: none"> • 99,829 m² vegetation buffer zone • 53,333 m² ecological restoration
		Gaofeng Town	<ul style="list-style-type: none"> • 4.0 km ecological embankment along Longxi River • 1 emergency access bridge • 3,000 m² emergency evacuation shelter • 36,146 m² vegetation buffer zone • 88,530 m² ecological restoration
		Zhoujia Town	<ul style="list-style-type: none"> • 3,000 m² emergency evacuation shelter
		Xinmin Town	<ul style="list-style-type: none"> • 1.69 km ecological embankment along Xinmin tributary • 13,200 m² vegetation buffer zone • 13,330 m² ecological restoration
		Guixi sub-district	<ul style="list-style-type: none"> • Sanhe wetland (300 mu) including barrage heightened • 7.5 km dike protected
Changshou District			
1.	Dandu Town Flood Control and Water Resource Protection	Dandu Town	<ul style="list-style-type: none"> • 4.45 km ecological embankment along Longxi River • one footbridge and 3.25 km emergency road • 21,450 m² vegetation buffer zone • 6.4 km sewer network • 118,243 m² ecological restoration
2.	Dayuxi Tributary Comprehensive Treatment	Haitang Town; Yuntai Town; Shiyang Town	<ul style="list-style-type: none"> • 17.6 km ecological embankment along Longxi River tributaries • 1.0 km ecological embankment along Tuqiao tributary • 3 km dredging in the tributaries • 5,000 m² emergency shelter • 6 emergency bridges rebuilt • One small footbridge and 1.8 km emergency access road • 18.45 km sewer network • 38,720 m² vegetation buffer zones • 135,286 m² ecological restorations
3.	Longxi River Tributary Comprehensive Treatment	Shuanglong Town; Longhe Town; Linfeng Town	<ul style="list-style-type: none"> • 42.85 km ecological embankment • 3.36 km embankment • 7 emergency bridges rebuilt • 7 small footbridges rebuilt • 4.3 km emergency access road • 2 km dredging on Longhe tributary • 518.86 m flood diversion channel at Shuanglong Town • 161,700 m² vegetation buffer zones • 15.72 km sewer network • 1.8 km sewer network at Linfeng town • 251,779 m² ecological restorations

FSR = feasibility study report, km = kilometer, m² = square meter.
Source: Asian Development Bank estimates.

II. IMPLEMENTATION PLAN

A. Project Readiness Activities

Indicative Activities	2018												Responsibility	
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Procurement agent recruited			■	■	■									CPMO
Advance contracting actions (design, LAR, procurement)								■	■	■	■	■	■	CPMO/IAs
Retroactive financing actions (design, LAR, procurement, construction)								■	■	■	■	■	■	CPMO/IAs
Domestic FSR approved			■	■										CDRC
Design institute recruited				■	■									
FCUP approved						■	■							NDRC
EIA and RPs approved			■	■										ADB
ADB management review						■	■							ADB
Loan negotiations							■	■						ADB, MOF, CMG
ADB Board consideration								■	■					ADB
Loan and project agreements signed										■	■	■		ADB, MOF, CMG
Government legal opinion provided										■	■	■		MOF, CMG
Government budget inclusion	■	■												CMG/IAs
Loan effectiveness													■	ADB, MOF

ADB = Asian Development Bank, CDRC = Chongqing Development and Reform Commission, CMG = Chongqing Municipal Government, CPMO = Chongqing Project Management Office, FCUP = foreign capital utilization plan, FSR = feasibility study report, IA = implementing agency, LAR = land acquisition and resettlement, MOF = Ministry of Finance, NDRC = National Development and Reform Commission.

Source: Asian Development Bank.

Item No.	Indicative Activities	2018				2019				2020				2021				2022				2023				2024			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	Implement the land acquisition and resettlement plan				■	■	■	■	■	■	■	■																	
	Award contracts				■	■	■	■	■	■	■	■																	
	Complete civil works				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
C3	Changshou District Ecological and Environmental Improvement																												
	Complete detailed engineering design and bidding documents			■	■	■	■	■	■	■	■	■																	
	Implement the land acquisition and resettlement plan				■	■	■	■	■	■	■	■																	
	Award contracts				■	■	■	■	■	■	■	■																	
	Complete civil works				■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Output 4: Flood and Environmental Risk Management Capacity Enhanced																												
4.1	Complete detailed planning and design, and bidding documents				■	■	■	■	■	■	■	■																	
4.2	Install hydrological monitoring stations and data management systems						■	■	■	■	■	■																	
4.3	Calibrate and install river basin models									■	■	■																	
4.4	Draft flood and environmental risk management plan for Longxi River watershed						■	■	■	■	■	■																	
4.5	Implement community-based flood and environmental risk management									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
4.6	Improve the flood forecasting and early warning system in selected counties									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
4.7	Organize training program on environmental risk management and climate change adaptation									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
	Project Management Activities																												
5.1	Recruit project management consultants			■	■																								
5.2	Recruit capacity development consulting services			■	■	■																							
5.3	Recruit an independent agency for external environmental and resettlement M&E			■	■																								
5.4	Implement the EMP and submit semiannual environmental monitoring reports to ADB					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
5.5	Monitor and evaluation project impact, outcome and outputs using PPMS					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
5.6	Submit quarterly project progress reports					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
5.7	Carry out training programs, policy dialogue, study tours and awareness raising campaigns					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
5.8	Submit the project completion reports																											■	

ADB = Asian Development Bank, EMP = environmental management plan, M&E = monitoring and evaluation.

Source: Asian Development Bank estimates.

III. PROJECT MANAGEMENT ARRANGEMENT

A. Project Implementation Organization – Roles and Responsibilities

20. The executing agency is the Chongqing Municipal Government and the Chongqing Municipal Project Leading Group has been established consisting of members from the Chongqing Development and Reform Commission and Chongqing Finance Bureau and other relevant agencies. The Chongqing Project Management Office has been established under the Chongqing Development and Reform Commission to provide overall guidance, supervision, coordination, and management of project preparation and implementation.

21. The implementing agencies are Liangping District Government, Dianjiang County Government, and Changshou District Government. A project leading group for each implementing agency has also been established consisting of members from the local development and reform commission, finance bureau, water resources bureau, environmental protection bureau, and construction bureau. A project management office for each of the implementing agency has been established under the local development and reform commission.

22. The project implementing units are the (i) Chongqing Rongyu Hydropower Engineering Construction Company Limited for Liangping District, (ii) Chongqing Xinliang Investment Development (Group) Company Limited also for Liangping District, (iii) Chongqing Xingdian Industrial Company for Dianjiang County, and (iv) Chongqing Changshou Rural Investment and Development Company for Changshou District. The project implementing units will undertake civil works procurement and provide construction supervision of the structural measures on behalf of the IAs. After completion of construction, appropriate agencies of the IAs will undertake operation and maintenance of project facilities, i.e., water resource bureau, in close coordination with the hydrological bureau, will implement localized flood forecasting and warning, disseminate warning to the residents, and operate and maintain flood control facilities constructed in and along the Longxi River; environment protection bureau will take the lead role in the implementation of water quality improvement measures; administration bureau will operate and maintain other facilities constructed in their respective district/county; and forestry bureau will be responsible for tree plantation or vegetation under the project. Other agencies that will be involved in the project are the house construction committee, planning bureau, meteorological bureau and land resources bureau.

Table 3: Project Implementation Organization and Roles and Responsibilities

Project implementation Organizations	Management Roles and Responsibilities
Chongqing Municipal Government	<ul style="list-style-type: none"> ➤ Project executing agency ➤ Take overall responsibility for project implementation ➤ Establish and maintain project advance account (administered by the Chongqing Finance Bureau)
Chongqing Municipality PLG	<ul style="list-style-type: none"> ➤ Headed by the Executive Vice Mayor and consists of members from CDRC and CFB ➤ Meet regularly, discuss and take actions, if necessary, to ensure smooth overall project implementation ➤ Provide municipal-level policy guidance
Chongqing Municipal Government PMO	<ul style="list-style-type: none"> ➤ Supervise day-to-day activities of the project and provide coordination support for the preparation and implementation of project components in each project district and county

Project implementation Organizations	Management Roles and Responsibilities
	<ul style="list-style-type: none"> ➤ Report the progress of project implementation and compliance monitoring to ADB ➤ Submit required annual audit reports and financial statements of project account of CMG, project district and county governments, and PIUs to ADB ➤ Engage project management consulting services ➤ Implement and monitor social and safeguard plans and submit monitoring reports ➤ Engage external environmental and resettlement monitors ➤ Submit bidding documents, bid evaluation reports, and other necessary documentation to ADB for necessary approval ➤ Submit withdrawal applications
Liangping District	
<ul style="list-style-type: none"> • Liangping District Government (IA) 	<ul style="list-style-type: none"> ➤ Take overall responsibility for the implementation of the Liangping District subproject, including provision of counterpart funding and repayment of the loan
<ul style="list-style-type: none"> • Liangping District Government PLG 	<ul style="list-style-type: none"> ➤ Enter into a project implementation agreement with the PIUs ➤ Headed by the Vice Magistrate and consists of DRC, FB, WRB, EPB, CB, and others ➤ Meet regularly, discuss and take action, if necessary, to ensure smooth implementation of the Liangping District subproject
<ul style="list-style-type: none"> • Liangping District Government PMO 	<ul style="list-style-type: none"> ➤ Supervise day-to-day activities and provide coordination support for preparation and implementation of the Liangping District subproject, including procurement under subprojects, management of separate project account in the PIU, and financial auditing of the Liangping District Government and Liangping PIUs ➤ Implement and monitor social and safeguard plans and submit monitoring reports
<ul style="list-style-type: none"> • PIU <ul style="list-style-type: none"> (i) Chongqing Xinliang Investment Development (Group) Co. Ltd. (ii) Chongqing Rongyu Hydropower Engineering Construction Co. Ltd. 	<ul style="list-style-type: none"> ➤ On behalf of Liangping District Government, carry out day-to-day implementation of Liangping District subproject including: (i) construction supervision and procurement of goods and works under the subproject; (ii) maintaining separate project accounts which are in line with the PRC's accounting standards; and (iii) retaining necessary financial information and evidences related to payment and claim ➤ Implement and monitor social and safeguard plans
Dianjiang County	
<ul style="list-style-type: none"> • Dianjiang County Government (IA) 	<ul style="list-style-type: none"> ➤ Take overall responsibility for implementation of the Dianjiang County subproject, including provision of counterpart funding and repayment of the loan
<ul style="list-style-type: none"> • Dianjiang County Government PLG 	<ul style="list-style-type: none"> ➤ Enter into a project implementation agreement with the PIU ➤ Headed by the Vice Magistrate and consists of DRC, FB, WRB, EPB, CB, and others ➤ Meet regularly, discuss and take action, if necessary, to ensure smooth implementation of the Dianjiang County subproject
<ul style="list-style-type: none"> • Dianjiang County Government PMO 	<ul style="list-style-type: none"> ➤ Supervise day-to-day activities and provide coordination support for preparation and implementation of the Dianjiang subproject including procurement under subprojects, management of separate project account in the PIU, and financial auditing of the Dianjiang County Government and Dianjiang PIU

Project implementation Organizations	Management Roles and Responsibilities
<ul style="list-style-type: none"> • PIU Chongqing Xingdian Industrial Co 	<ul style="list-style-type: none"> ➤ Implement and monitor social and safeguard plans and submit monitoring reports ➤ On behalf of Dianjiang County Government, carry out day-to-day implementation of the Dianjiang County subproject, including (i) construction supervision and procurement of goods and works under the subproject; (ii) maintaining separate project accounts which are in line with the PRC's accounting standards; and (iii) retaining necessary financial information and evidences related to payment and claim ➤ Implement and monitor social and safeguard plans
Changshou District	
<ul style="list-style-type: none"> • Changshou District Government (IA) 	<ul style="list-style-type: none"> ➤ Take overall responsibility for implementation of the Changshou District subproject, including provision of counterpart funding and repayment of the loan ➤ Enter into a project implementation agreement with the PIUs
<ul style="list-style-type: none"> • Changshou District Government PLG 	<ul style="list-style-type: none"> ➤ Headed by the Vice Magistrate and consists of DRC, FB, WRB, EPB, CB, and others ➤ Meet regularly, discuss and take action, if necessary, to ensure smooth implementation of the Changshou District subproject
<ul style="list-style-type: none"> • Changshou District Government PMO 	<ul style="list-style-type: none"> ➤ Supervise day-to-day activities and provide coordination support for the preparation and implementation of the Changshou District subproject, including procurement under subprojects, management of separate project account in the PIU, and financial auditing of the Changshou District Government and Changshou PIU ➤ Implement and monitor social and safeguard plans and submit monitoring reports
<ul style="list-style-type: none"> • PIU Chongqing Changshou Rural Investment and Development Co. 	<ul style="list-style-type: none"> ➤ On behalf of Changshou District Government, carry out day-to-day implementation of Changshou District subproject including: (i) construction supervision and procurement of goods and works under the subproject; (ii) maintaining separate project accounts which are in line with the PRC's accounting standards; and (iii) retaining necessary financial information and evidences related to payment and claim ➤ Implement and monitor social and safeguard plans
ADB	<ul style="list-style-type: none"> ➤ Support project implementation including CMG and participating district and county governments' compliance to obligation and responsibilities in accordance with ADB's policies and procedures

ADB = Asian Development Bank, CB = construction bureau, CDRC = Chongqing Development and Reform Commission, CFB = Chongqing Finance Bureau, CMG = Chongqing Municipal Government, DRC = development and reform commission, EPB = environmental protection bureau, FB = forest bureau, IA = implementing agency, PIU = project implementing unit, PLG = project leading group, PMO = project management office, PRC = People's Republic of China, WRB = water resource bureau.

Source: Asian Development Bank.

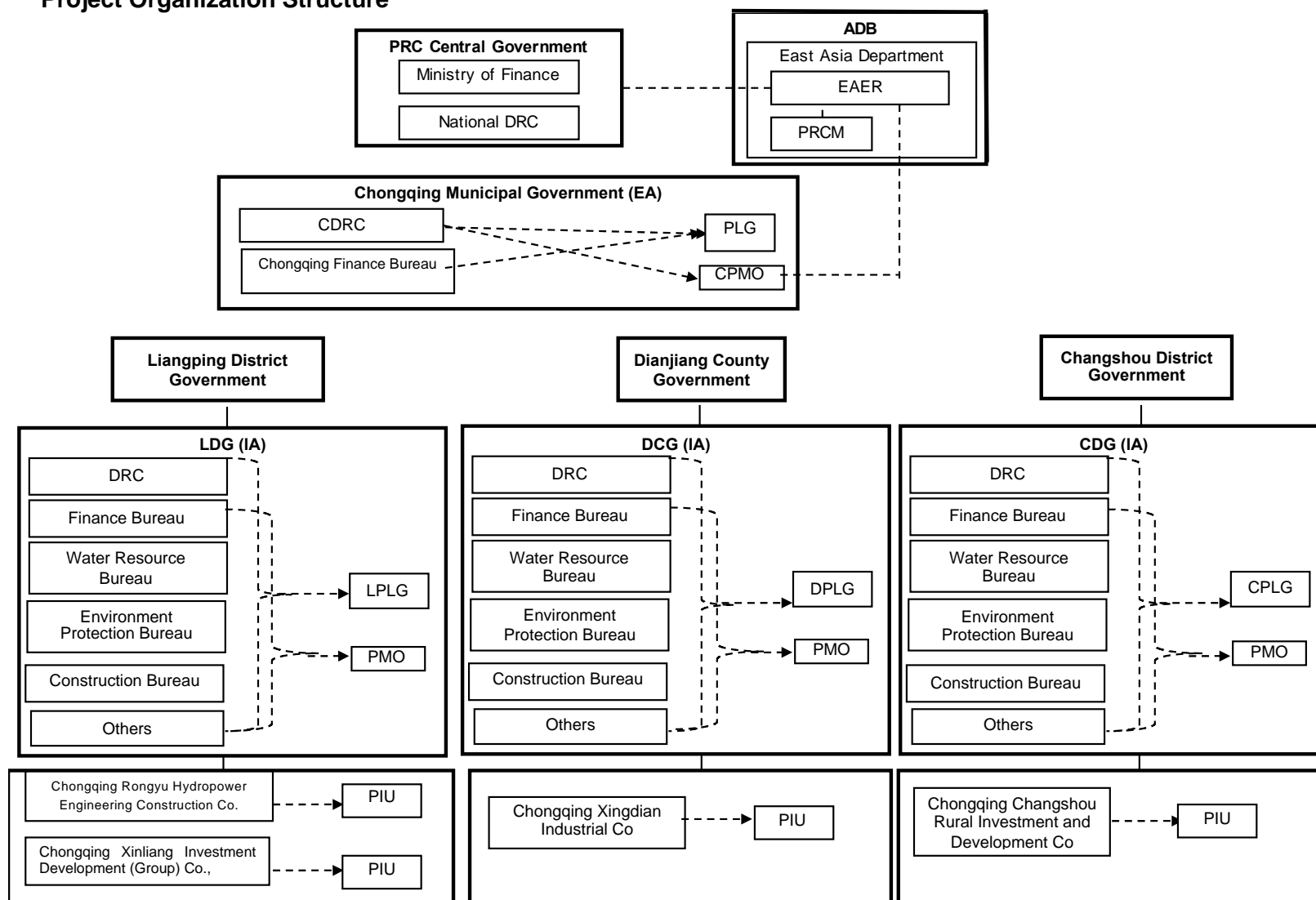
B. Key Persons Involved in Implementation

Organization	Contact Details
Executing Agency Chongqing Municipal Government	Officer's Name: Zhiqiang Wang Position: Deputy Director of Chongqing DRC Telephone: +86 023-67575809 Email address: cqhcyc@126.com Office Address: No 16 Honghuxi Road, Chongqing, PRC

Organization	Contact Details
Chongqing Development and Reform Commission	Officer's Name: Zhang Xinzhong Position: Director of Chongqing DRC Foreign Capital Division Telephone: +86 023 67575737 Email address: cqfgwwzc@163.com Office Address: No. 16 Honghuxi Road, Chongqing, PRC
CPMO	Officer's Name: Yue Xuejiao Position: Manager, Chongqing DRC Foreign Capital Division Telephone: +86 023 67399983 Email address: cqadbpmo4@163.com Office Address: No. 16 Honghuxi Road, Chongqing, PRC
Liangping IA Liangping District Government	Officer's Name: Chen Daobin Position: Vice Mayor Telephone: 023-53235378 Email address: Office Address: Government of Liangping Chongqing
Dianjiang IA Dianjiang County Government	Officer's Name: Zhong Piyu Position: Vice Director Telephone: 023-74606109 Email address: 695916670@qq.com Office Address: Room 510, Dianjiang Government
Chagnshou IA Changshou District Government	Officer's Name: Tang Xiaoqiang Position: Vice Mayor Telephone: 023-40244256 Email address: csgwnjk@163.com Office Address: Floor 5, Taohua Administration Center, Fengcheng Subdistrict, Changshou
Liangping IA PMO	Officer's Name: Hu Xiaozhong Position: Director of Liangping DRC Telephone: 15320762777 Email address: 1172875686@qq.com Office Address: 6 Guixi Road, Shuanggui Subdistrict, Liangping District, Chongqing
Dianjiang IA PMO	Officer's Name: Li Position: Director Telephone: 023-7469129 Email address: Office Address: Room 227, Dianjiang Government
Chagnshou IA PMO	Officer's Name: Peng Changlong Position: Vice Director of Changshou DRC Telephone: 023-40245096 Email address: cstpcl@126.com Office Address: Floor 9, Taohua Administration Center, Fengcheng Subdistrict, Changshou
ADB	Staff Name: Qingfeng Zhang Position: Director, EAER Telephone No: +63 2 6326967 Email address: qingfengzhang@adb.org
Mission Leader	Staff Name: Mr. Rabindra Osti Position: Project Manager/Water Resources Specialist, EAER Telephone No: +63 2 6324083 Email address: rosti@adb.org

ADB = Asian Development Bank, CPMO = Chongqing Municipal Government Project Management Office, DRC = development and reform commission, IA = implementing agency, PMO = project management office.

C. Project Organization Structure



ADB = Asian Development Bank, CDG = Changshou District Government, CDRC = Chongqing Development and Reform Commission, CPLG = Changshou Project Leading Group, CPMO = Chongqing Municipal Government Project Management Office, DCG = Dianjiang County Government, DPLG = Dianjiang Project Leading Group, DRC = development and reform commission, EAER = Environment, Natural Resources and Agriculture Division, IA = implementing agency, LDG = Liangping District Government, LPLG = Liangping Project Leading Group, PIU = project implementing unit, PLG = project leading group, PMO = project management office, PRC = People's Republic of China, PRCM = People's Republic of China Resident Mission.
 Source: Asian Development Bank.

IV. COST AND FINANCING

23. The project is estimated to cost \$378.67 million. The major expenditure items that constitute the project are civil works.

24. The government has requested a loan of \$150 million from the 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, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, and an interest rate spread of 0.5% per year, the interest rate and other charges during construction will not be capitalized in the loan, and such other terms and conditions set forth in the draft loan and project agreements. The government has requested that repayment will follow the straight-line commitment-linked repayment option. Based on the above loan terms and these repayment option and dates, the average loan maturity is 15.75 years and the maturity premium payable to ADB is 0.1% per annum.

25. ADB will finance the expenditures in relation to civil works, goods, consulting services, capacity development activities, and taxes and duties for eligible ADB-financed expenditures. The government will finance designing, procurement activities, and construction supervision; land acquisition and resettlement; civil works; environmental protection; taxes and duties; and contingencies.

26. Climate mitigation is estimated as \$4.65 million and climate adaptation is estimated as \$11.23 million. ADB will finance 100% of mitigation costs and 84% of adaptation costs.

A. Cost Estimates Preparation and Revisions

27. Cost estimates were prepared on behalf of the CPMO by the feasibility study report design institute, in consultation with the IAs and transaction technical consultants, and under the guidance of ADB project officer. Costing was completed using government costing standards, and costing information from site investigations, and project files of the design institute.

28. Responsibility for revising and updating the cost estimates during implementation rest with the CPMO and IAs. The CPMO and IAs, supported by design institute, a procurement agent, supervision companies and implementation consultants, are responsible for the design and procurement, and the administration and monitoring of contractors and suppliers. The revision of cost estimates will be undertaken during the execution of these responsibilities. Cost evaluations will occur, and revisions will be made as necessary at detailed design, during the review of tenders, and during the monitoring of contract execution.

B. Key Assumptions

29. The following key assumptions underpin the cost estimates and financing plan:
- (i) Exchange rate: CNY6.51 = USD1.00 (as of 2 January 2018).
 - (ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:²⁰

²⁰ A purchasing power parity model is used to account for international cost inflation.

Table 4: Escalation Rates for Price Contingency Calculation

Item	2019	2020	2021	2022	2023	2024
Domestic rate of price inflation ^a	2.30%	2.40%	2.50%	2.50%	2.50%	2.50%
Foreign rate of price inflation ^b	2.10%	2.00%	1.90%	1.80%	1.80%	1.80%

Sources: ^a Asian Development Bank. 2017. Domestic Cost Escalation Factors, 2017–2021. Manila.

^b World Bank Group. 2017. *Manufactures Unit Value Index*. Washington.

- (iii) The executing and implementing agencies have assured ADB that counterpart funding will be provided or secured in a timely manner, including any additional counterpart funding required for any shortfall of funds or cost overruns.

C. Detailed Cost Estimate by Expenditure Category

Table 5: Detailed Cost Estimate by Expenditure Category

	(CNY Million)			(\$ Million)			% of Total Base Cost
	Foreign Exchange	Local Currency		Foreign Exchange	Local Currency	Total Cost	
A. Investment Costs							
Civil works, loan-based	0.00	1,261.00	1,261.00	0.00	193.70	193.70	51.15%
Civil works, non-loan	0.00	172.96	172.96	0.00	26.57	26.57	7.02%
Equipment	0.00	23.44	23.44	0.00	3.60	3.60	0.95%
Land acquisition and resettlement	0.00	264.77	264.77	0.00	40.67	40.67	10.74%
Survey, design, supervision	0.00	371.82	371.82	0.00	57.12	57.12	15.08%
Consulting	22.79	0.00	22.79	3.50	0.00	3.50	0.92%
Safeguard Monitoring	0.00	1.95	1.95	0.00	0.30	0.30	0.08%
Sub-total (A)	22.79	2,095.94	2,118.72	3.50	321.96	325.46	85.95%
B. Contingencies							
Physical	1.14	104.80	105.94	0.18	16.10	16.27	4.30%
Price	1.12	152.76	153.87	0.17	23.46	23.64	6.24%
Sub-total (B)	2.26	257.55	259.81	0.35	39.56	39.91	10.54%
C. Financing Charges During Implementation							
Interest Charges	84.27	0.00	84.27	12.94	0.00	12.94	3.42%
Commitment fee	2.37	0.00	2.37	0.36	0.00	0.36	0.10%
Sub-total (C)	86.63	0.00	86.63	13.31	0.00	13.31	3.51%
Total Project Cost (A+B+C)	111.68	2,353.49	2,465.17	17.15	361.52	378.67	100.00%

Notes: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

D. Allocation and Withdrawal of Loan Proceeds

E. Table 6a: Allocation and Withdrawal of Loan Proceeds (Summary)

F.			
Number	Item	Total Amount Allocated for ADB Financing (\$) Category	Percentage and Basis for Withdrawal from the Loan Account
1	Civil Works	142,600,000	Up to 100% of total expenditures claimed ^a
2	Equipment	3,600,000	100% of total expenditures claimed
3	Consulting Services	3,800,000	100% of total expenditures claimed
Total		150,000,000	

ADB = Asian Development Bank.

^a Detailed categories and financing percentages to be used during disbursement are in Table 6b of the PAM.

Source: Asian Development Bank estimates.

Table 6b: Detailed Allocation and Withdrawal of Loan Proceeds

Number	Item	Total Amount Allocated for ADB Financing (\$)		Percentage and Basis for Withdrawal from the Loan Account
		Category	Subcategory	
1	Civil Works	142,600,000		
A	Changshou District		48,495,321	74% of total expenditures claimed
B	Dianjiang County		41,468,773	74% of total expenditures claimed
C	Liangping District		52,635,906	74% of total expenditures claimed
2	Equipment	3,600,000		
A	Changshou District		1,200,000	100% of total expenditures claimed
B	Dianjiang County		1,200,000	100% of total expenditures claimed
C	Liangping District		1,200,000	100% of total expenditures claimed
3	Consulting Services	3,800,000		100% of total expenditures claimed
Total		150,000,000		

ADB = Asian Development Bank.

Source: Asian Development Bank estimates.

G. Detailed Cost Estimate by Financier

Table 7: Detailed Cost Estimates by Financier
(\$ million)

Item	ADB		Changshou District		Dianjiang County		Liangping District		Total costs
	Amount	% Cost category	Amount	% Cost category	Amount	% Cost category	Amount	% Cost category	
A. Investment Costs									
Civil works, loan-based	142.60	73.6%							142.60
Changshou District	48.49	73.6%	17.38	26.4%					65.87
Dianjiang County	41.47	73.6%			14.86	26.4%			56.33
Liangping District	52.64	73.6%					18.86	26.4%	71.50
Civil works, non-loan	0.00	0.0%	10.44	39.3%	16.13	60.7%	0.00	0.0%	26.57
Equipment	3.60	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	3.60
Land acquisition and resettlement	0.00	0.0%	18.48	45.4%	7.75	19.1%	14.45	35.5%	40.67
Survey, design, supervision	0.00	0.0%	20.93	36.6%	15.93	27.9%	20.25	35.5%	57.12
Consulting	3.50	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	3.50
Safeguard Monitoring	0.30	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.30
Sub-total (A)	150.00	46.1%	67.23	20.7%	54.67	16.8%	53.56	16.5%	325.46
B. Contingencies									
Physical	0.00	0.0%	5.92	36.4%	4.92	30.3%	5.43	33.4%	16.27
Price	0.00	0.0%	8.45	35.7%	7.32	31.0%	7.86	33.3%	23.64
Sub-total (B)	0.00	0.0%	14.37	36.0%	12.25	30.7%	13.30	33.3%	39.91
C. Financing Charges During Implementation									
Commitment Fee	0.00	0.0%	0.14	0.0%	0.11	38.3%	0.11	31.2%	0.36
Interest Charges	0.00	0.0%	4.96	0.0%	4.03	38.3%	3.95	31.2%	12.94
Sub-total (C)	0.00	0.0%	5.10	0.0%	4.15	38.3%	4.06	31.2%	13.31
Total Project Cost (A+B+C)	150.00	39.6%	86.69	22.9%	71.07	18.8%	70.92	18.7%	378.67

Source: Asian Development Bank estimates.

H. Detailed Cost Estimate by Outputs

Table 8: Detailed Cost Estimate by Outputs
(\$ million)

Item	Total Cost	Flood risk management infrastructure constructed		Wastewater management and pollution control infrastructure developed		Ecological conservation facilities improved		Flood and environmental risk management capacity enhanced	
		Amount	% Cost category	Amount	% Cost category	Amount	% Cost category	Amount	% Cost category
A. Investment Costs									
Civil works, loan-based	193.70	145.17	74.9%	11.31	5.8%	23.72	12.2%	13.50	7.0%
Civil works, non-loan	26.57	4.13	15.5%	14.37	54.1%	8.06	30.4%	0.00	0.0%
Equipment	3.60	0.00	0.0%	0.00	0.0%	0.00	0.0%	3.60	100.0%
Land acquisition and resettlement	40.67	40.67	100.0%	0.00	0.0%	0.00	0.0%	0.00	0.0%
Survey, design, supervision	57.12	44.72	78.3%	2.53	4.4%	6.03	10.6%	3.84	6.7%
Consulting	3.50	0.00	0.0%	0.00	0.0%	0.00	0.0%	3.50	100.0%
Safeguard Monitoring	0.30	0.00	0.0%	0.00	0.0%	0.00	0.0%	0.30	100.0%
Sub-total (A)	325.46	234.69	72.1%	28.21	8.7%	37.82	11.6%	24.74	7.6%
B. Contingencies									
Physical	16.27	11.73	72.1%	1.41	8.7%	1.89	11.6%	1.24	7.6%
Price	23.64	16.63	70.4%	2.17	9.2%	2.93	12.4%	1.90	8.0%
Sub-total (B)	39.91	28.37	71.1%	3.58	9.0%	4.82	12.1%	3.14	7.9%
C. Financing Charges During Implementation									
Interest Charges	12.94	9.48	73.3%	0.68	5.3%	1.42	11.0%	1.36	10.5%
Commitment fee	0.36	0.26	72.1%	0.03	8.7%	0.04	11.6%	0.03	7.6%
Sub-total (C)	13.31	9.75	73.2%	0.71	5.4%	1.46	11.0%	1.38	10.4%
Total Project Cost (A+B+C)	378.67	272.81	72.0%	32.51	8.6%	44.10	11.6%	29.26	7.7%

Source: Asian Development Bank estimates.

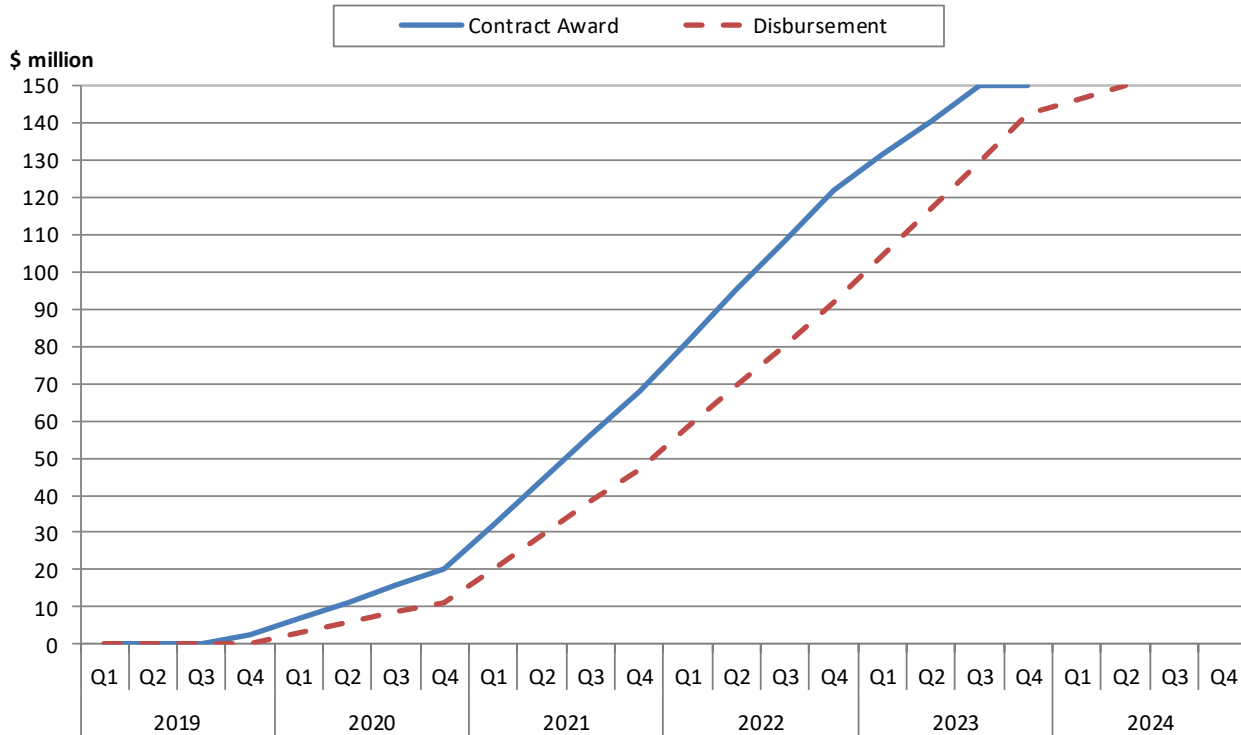
I. Detailed Cost Estimate by Year

Table 9: Detailed Cost Estimates by Year
(\$ million)

Item	Total costs	2019	2020	2021	2022	2023
A. Investment Costs						
Civil works, loan-based	193.70	38.74	58.11	38.74	38.74	19.37
Civil works, non-loan	26.57	5.31	7.97	5.31	5.31	2.66
Equipment	3.60	0.00	0.90	0.90	0.90	0.90
Land acquisition and resettlement	40.67	30.50	10.17	0.00	0.00	0.00
Survey, design, supervision	57.12	17.13	8.57	8.57	8.57	14.28
Consulting	3.50	1.05	1.05	0.53	0.53	0.35
Safeguard Monitoring	0.30	0.06	0.06	0.06	0.06	0.06
Sub-total (A)	325.46	92.80	86.83	54.11	54.11	37.62
B. Contingencies						
Physical	16.27	4.64	4.34	2.71	2.71	1.88
Price	23.64	2.88	4.90	4.52	6.05	5.30
Sub-total (B)	39.91	7.52	9.24	7.22	8.75	7.18
C. Financing Charges During Implementation						
Interest Charges	12.94	0.61	1.81	2.77	3.54	4.21
Commitment fee	0.36	0.16	0.10	0.07	0.03	0.00
Sub-total (C)	13.31	0.77	1.91	2.84	3.57	4.21
Total Project Cost (A+B+C)	378.67	101.09	97.98	64.17	66.43	49.00

Source: Asian Development Bank estimates.

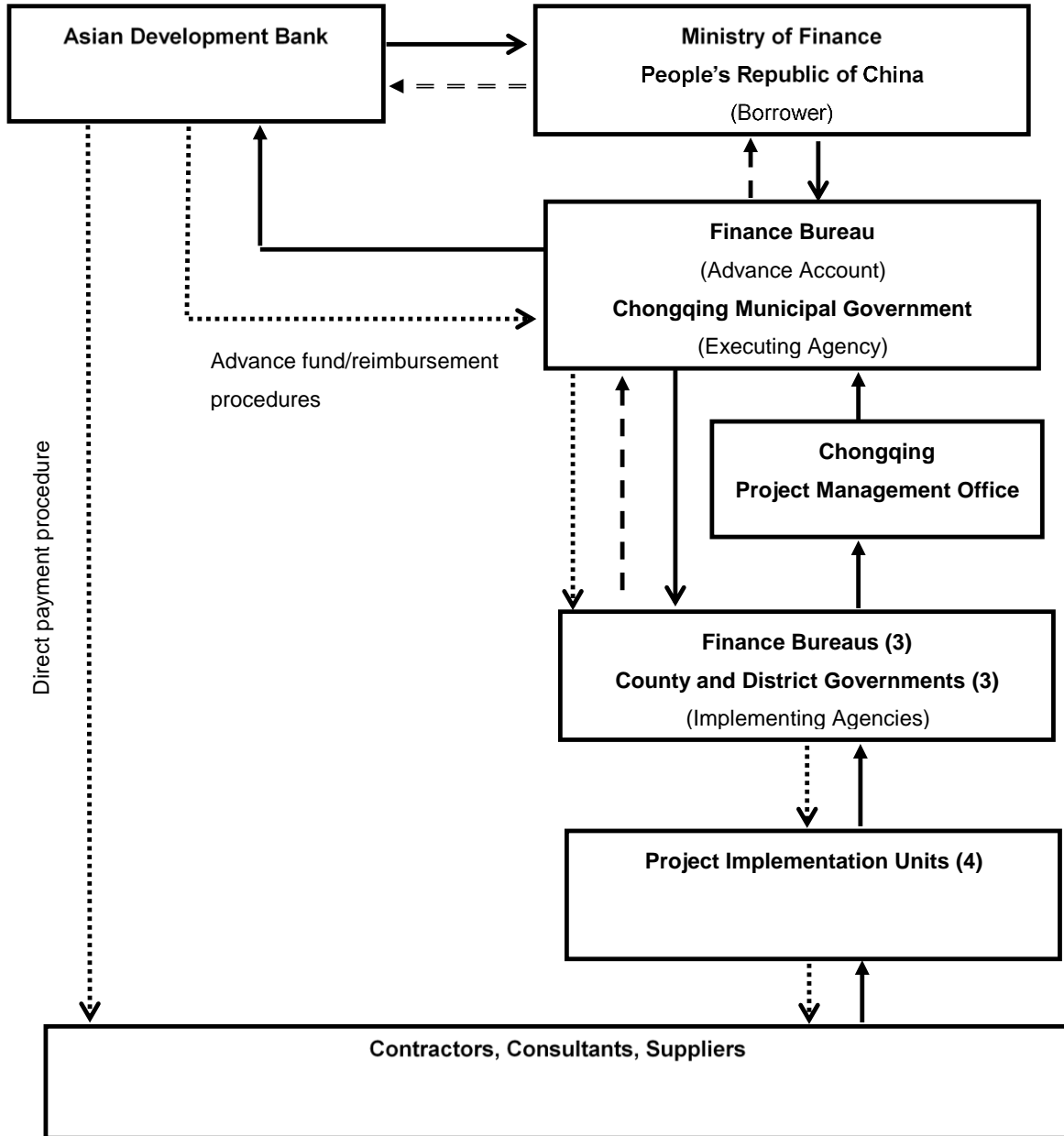
J. Contract Awards and Disbursement S-Curve



(\$ million)

Year	Contract Award					Disbursement				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2019	0.0	0.1	0.3	2.0	2.4	0.0	0.0	0.0	0.0	0.0
2020	4.5	4.5	4.5	4.5	18.0	2.8	2.8	2.8	2.8	11.4
2021	11.9	11.9	11.9	11.9	47.6	8.9	8.9	8.9	8.9	35.7
2022	13.5	13.5	13.5	13.5	53.9	11.1	11.1	11.1	11.1	44.5
2023	9.4	9.4	9.4	0.0	28.1	12.7	12.7	12.7	12.7	50.7
2024	0.0	0.0	0.0	0.0	0.0	4.0	3.8	0.0	0.0	7.8
Total					150.0					150.0

K. Fund Flow Mechanism



- > Loan, relending, and onlending
-> Indicative funds flow
- - - -> Repayment
- - - -> Flow of requests for payments, withdrawal applications, and other documents

Source: Asian Development Bank.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

30. The financial management capacities of the project county/district finance bureaus and implementing agencies were assessed focusing on funds-flow arrangements, staffing, accounting policies and procedures, internal and external auditing arrangements, reporting and monitoring, and financial information system.

31. The assessment determined that the main financial management risks arise because the implementing agencies and project implementing units (PIU) have not participated in the implementation of an ADB loan project. The overall financial management risk is rated as “moderate” after considering mitigating measures. The identified risks in financial management will be closely monitored during project implementation.

32. It was agreed that the implementing agencies will strengthen their capabilities by (i) setting up clear institutional arrangements and coordination mechanisms; (ii) completing staff deployment in appropriate financial management positions with English language support; (iii) developing methodologies for managing foreign exchange and interest rate risks; and (iv) undertaking more training, particularly on ADB policy and procedures. Table 10 demonstrates a financial risk mitigation plan to be adopted by the implementing agencies during the project implementation:

Table 10: Financial Management Action Plan

Action	Responsibility	Timing
Finalize appointment of staff as project financial officers in each IA	District/County governments	6 months before loan effectiveness and any other time as needed
Training of IA financial staff in ADB accounting requirements	CFB, CPMO, with support from ADB	3 months before loan effectiveness and any other time as needed
IAs establish accounting systems that maintain separate project accounts and records by funding source for all expenditures incurred on the project	IAs of District/County governments	3 months before loan effectiveness and any other time as needed
Establish budget management systems in each IA	CFB, CPMO, with support from ADB	3 months before loan effectiveness and any other time as needed
Training on ADB disbursement procedure and requirements	CFB, CPMO, with support from ADB	1 month before first disbursement and any other time as needed
Hire financial expert to provide financial management and training for the financial and related staff in the project entities	CFB, CPMO	Immediately after loan effectiveness
Training on ADB financial management requirements,	CFB, CPMO, implementation consultants	First year of implementation

Action	Responsibility	Timing
specifically accounting and reporting, and auditing		
Close monitoring to timely identify potential issues in counterpart funding.	CFB, CPMO, with support from ADB	At least once a quarter during project implementation

ADB = Asian Development Bank, CFB = Chongqing Finance Bureau, CPMO = Chongqing Municipal Project Management Office, IA = implementing agency.

Source: Asian Development Bank.

B. Disbursement

1. Disbursement Arrangements for ADB

33. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),²¹ and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available.²² Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

34. The implementing agencies, through the CPMO, will be responsible for all disbursement arrangements including (i) preparing disbursement projections; (ii) requesting budgetary allocations for counterpart funds, (iii) collecting supporting documents, and (iv) preparing and sending withdrawal applications through the Chongqing Finance Bureau (CFB) to ADB.

35. **Advance fund procedure.** To facilitate project implementation and funds flow, an advance account will be established upon loan effectiveness by CFB. The currency of the account will be US\$.²³ The advance account is to be used exclusively for ADB's share of eligible expenditures. CFB will be responsible for the management, monitoring, and reconciliation of the advance account.

36. The total outstanding advance to the advance account will not exceed the estimate of ADB's share of expenditures to be paid through the advance account for the forthcoming 6 months. The CFB may request for initial and additional advances to the advance account based on an estimate of expenditure sheet²⁴ setting out the estimated expenditures to be financed through the account for the forthcoming 6 months. Supporting documents will be submitted to ADB or retained by the IAs in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) when liquidating or replenishing the advance account.

37. **Statement of expenditure procedure.**²⁵ The statement of expenditure (SOE) may be used for reimbursement and liquidation of the advance account. Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.

²¹ Available at: <http://www.adb.org/documents/loan-disbursement-handbook>.

²² Disbursement eLearning. http://wpqr4.adb.org/disbursement_elearning

²³ The bank charges on the advance account will be financed from the proceeds of the loan.

²⁴ Estimate of Expenditure sheet is available in Appendix 8A of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

²⁵ SOE forms are available in Appendix 7B and 7D of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

38. Before the submission of the first withdrawal application, CMG, through CFB, should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below such amount should be paid (i) by the executing agency and/or implementing agency and subsequently claimed to ADB through reimbursement, or (ii) through the advance fund procedure, unless otherwise accepted by ADB. The borrower should ensure sufficient category and contract balances before requesting disbursements. Use of ADB's Client Portal for Disbursements (CPD) system is encouraged for submission of withdrawal applications to ADB.²⁶

39. The direct payment procedure can apply for large works contracts. If the government initially funds eligible expenditures from its own resources, the reimbursement procedure will be used.

2. Disbursement Arrangements for Counterpart Fund

40. The executing agency and the implementing agencies will timely provide counterpart funds for civil works; goods; design, procurement and supervision; land acquisition and resettlement; environmental protection; and contingencies as specified in the loan and project agreements. The executing and implementing agencies will disburse counterpart funds to contractors, suppliers, service providers, and people affected by land acquisition and resettlement.

C. Accounting

41. The executing agency and the implementing agencies, through the CPMO, will maintain separate books and records by funding source for all expenditures incurred on the project following accrual-based accounting following the Accounting Methods for Projects Financed by the World Bank (reference No. 2000 [13]).²⁷ The executing agency will prepare annual project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices.

D. Auditing and Public Disclosure

42. The executing agency and the implementing agencies will cause the project financial statements to be audited in accordance with International Standards on Auditing by an auditor acceptable to ADB. The audited project financial statements together with the auditor's opinion will be presented in the English language to ADB within 6 months from the end of the fiscal year by the CPMO.

43. The annual 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 a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether loan proceeds were used only for the purposes of the project; and (iii) whether the borrower of executing agency was in compliance with the financial covenants contained in the legal agreements (where applicable).

²⁶ The CPD facilitates online submission of withdrawal applications to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online at <https://www.adb.org/documents/client-portal-disbursements-guide>.

²⁷ Accounting regulations issued by the Ministry of Finance for all foreign-funded projects.

44. The financial management assessment suggested that the PIU does not have internal audit system in place therefore it is important to strengthen the internal audit mechanisms and improve the skills and capacities of the involved personnel for implementing the internal control through training provided by implementation consultants. Implementation consultants will take the internal check on the finance management risk and provide training on ADB financial management requirements. The financial specialist of the consultant team should be qualified and experienced in financial management. In addition, it is also to intensify some forms of government/external audit to recognize this control weakness.

45. 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.

46. The government, executing agency and 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.²⁸ 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's policies and procedures.

47. Public disclosure of the audited project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).²⁹ After review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements by posting them on ADB's website no later than 14 days of ADB's confirmation of their acceptability. The management letter and additional auditor's opinions will not be disclosed.³⁰

²⁸ 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.

²⁹ Public Communications Policy: <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>.

³⁰ 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

48. A project procurement risk assessment was conducted for the project, in accordance with the Guide on Assessing Procurement Risks and Determining Project Procurement Classification (ADB 2014). Overall project procurement risk is moderate.

49. The main weaknesses identified include: (i) lack of experience of the implementing agencies in internationally-financed projects; (ii) some discrepancies between domestic and ADB practices; and (iii) lack of procedures in place for procurement management and project implementation.

50. Proposed mitigation measures include training to be provided to relevant staff of the IAs and PIUs, and other stakeholder agencies. The procurement training was delivered by the ADB officials and TRTA consultants during the project preparation to the IAs and PIUs on topics in ADB procedures for procurement of goods, works and consulting services to ensure that the non-familiarity with ADB procurement framework has been addressed. The procurement training will be delivered on a well-defined interval by the loan implementation consultants during the project implementation to ensure that procurement activities are undertaken in full conformity with ADB procurement guidelines and regulations.

51. A procurement market assessment was undertaken to understand and assess the availability of potential qualified bidders to supply works, goods and services for each sector. It was concluded that no works and goods contracts would require international advertising to attract enough qualified bidders due to the following reasons: (i) the project components are all normal infrastructures requiring only mature technology which are widely available nationally; (ii) there are good number of national bidders who have adequate capacities and resources to meet the requirements; and (iii) the practices evidenced that all bidders were national though the contracts were advertised internationally.³¹

52. All works and goods contracts can therefore be advertised nationally following open competitive bidding (OCB) procedures.

A. Advance Contracting and Retroactive Financing

53. **Advance Contracting.** All advance contracting and retroactive financing will be undertaken in conformity with ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).³² The issuance of invitations for bid under advance contracting and retroactive financing will be subject to ADB approval. The borrower, CMG, and the implementing agencies have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project.

54. **Retroactive financing.** Under retroactive financing, the IAs would implement project activities using their own funds. The government was informed that as a general rule, retroactive financing is permitted only if (i) activities are required to be part of the detailed project description and have been fully appraised by ADB; (ii) goods and works, for which it is requested are on the basis of the approved procurement plan and are procured in accordance with ADB's Procurement Guidelines (2017, as amended from time to time) (iii) amount to be retroactively financed does not exceed 20% of the loan amount; (iv) due diligence on the proposed contracts for advance contracting

³¹ Wulong Wujing River Flood Management Contracts WU-C01-C03 in Chongqing Urban-Rural Infrastructure Development Demonstration II Project, ADB Loan 3022-PRC

³² Available at <https://www.adb.org/documents/adb-procurement-policy>

and retroactive financing on engineering, environmental, financial, social, and other safeguard requirements has been completed to satisfy project preparation requirements; and (v) expenditures must have been incurred before the loan effectiveness but, generally, no earlier than 12 months before signing of the loan agreement. In either instance, detailed assessments (due diligence) on each retroactive financing proposal must demonstrate that (i) the expenditures incurred are genuine, reasonable, and material to getting the project off the ground; and (ii) they were incurred for proper reasons, in a transparent manner over a reasonable period. The government has been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project.

B. Procurement of Goods, Works, and Consulting Services

55. All procurement of goods and works (including consulting services) will follow ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

56. Open competitive bidding (OCB) using national advertising will be used for all civil works and goods contracts. For the first civil works package and the first goods package, regardless of the estimated contract amount, the invitations for bids, bidding documents, bid evaluation reports, and draft negotiated contracts need ADB's prior review and approval. For the subsequent nationally advertised OCB packages, invitations for bids, bidding documents, bid evaluation reports, and signed contracts provided they are consistent with previously approved documents will not require ADB's prior review. However, such documents will be subject to post-review and must be submitted to ADB as soon as they are completed and issued, but no later than 1 month after their issuance. The relevant sections of ADB's Anticorruption Policy (1998, as amended from time to time) will be included in all procurement documents and contracts.³³

57. Before the start of any procurement, ADB and the government will review the public procurement laws of the central and local governments to ensure consistency with ADB's Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

58. All consultants will be recruited according to ADB Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).³⁴ An estimated 317 person-months (38 international, 279 national) of consulting services are required to (i) facilitate project management and implementation, (ii) strengthen the institutional and operational capacity of the CMG and participating district and county governments on flood risk management and environmental management; and (v) implement external monitoring for environment and resettlement issues. Consulting firms for project management and capacity development for flood and environmental risk management will be engaged using the quality- and cost-based selection (QCBS) method with a standard quality:cost ratio of 90:10 and using full technical proposal procedure. Qualified national institutes/firms will be engaged through consultants' qualifications selection method (CQS) to provide external environmental monitoring services and external resettlement monitoring services. Four project management start-up support packages will engage four individual consultants through individual consultant's selection (ICS) method.

³³ Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/default.asp>

³⁴ 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/>

C. Procurement Plan

Basic Data	
Project Name: Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project	
Project Number: 51005	Approval Number: XXXX
Country: People's Republic of China	Executing Agency: Chongqing Municipal Government
Project Procurement Classification: Category B	Implementing Agency: <ul style="list-style-type: none"> • Liangping District Government • Dianjiang County Government • Changshou District Government Project Implementation Units: <ul style="list-style-type: none"> • Chongqing Rongyu Hydropower Engineering Construction Co. • Chongqing Xinliang Investment Development (Group) Co. • Chongqing Xingdian Industrial Co. • Chongqing Changshou Rural Investment and Development Co.
Procurement Risk: Moderate	
Project Financing Amount: US\$ 378.67 million ADB Financing: US\$ 150 million Cofinancing (ADB Administered): Cofinancing (subject to APA): Non-ADB Financing:	Project Closing Date: 30 June 2024
Date of First Procurement Plan: 28 May 2018	Date of this Procurement Plan: 17 July 2018
Procurement Plan Duration: 18 months	Advance contracting: Yes

1. Methods, Review, and Procurement Plan

59. Except as the ADB may otherwise agree, the following methods shall apply to procurement of goods, works and consulting services.

Procurement of Goods, Works, and Non-Consulting Services		
Method	Applicability	Comments
Open Competitive Bidding (OCB)		The procurement assessment examined potential for attracting enough qualified bidders to ensure contract is delivered on time, to requisite quality and exhibit value for money. It was concluded that no works and goods contracts would require international advertising to attract enough qualified bidders. All works and goods contracts can therefore be advertised nationally following OCB procedures.

Consulting Services	
Method	Comments
Quality and Cost Based Selection (QCBS)	Quality and Cost Ratio = 90:10
Consultants Qualification Selection (CQS)	
Individual Consultants Selection (ICS)	

Source: Asian Development Bank.

2. List of Active Procurement Packages (Contracts)

60. The following table lists goods, works, non-consulting services and consulting services contracts for which the procurement activity is either ongoing or expected to commence within the procurement plan duration (September 2018—March 2020).

Goods and Works							
Package No.	General Description	Estimated Value (US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (Quarter/Year)	Comments
Civil Works							
Liangping Subcomponent							
LP-C01	Helin Town Longxi River Comprehensive Treatment – construction of 6.62 km ecological embankment, ecological restoration, vegetation buffer zone, river wetland, and barrage renovation at Aiguo Station	\$11,695,250.38	OCB Advertised Nationally	Prior	1S1E	Q3/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
LP-C02	Mingda Town Longxi River and Tributary Comprehensive Treatment - construction of 5.56 km ecological embankment at Longxi river and 3.99 km ecological embankment at Sandengpo tributary, ecological restoration, vegetation buffer zone, river wetland and barrage renovation	\$9,527,727.66	OCB Advertised Nationally	Post	1S1E	Q3/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
LP-C03	Pingjin Town Longxi River Tributary Comprehensive Treatment - construction of 8.76 km ecological embankment at	\$7,405,915.97	OCB Advertised Nationally	Post	1S1E	Q2/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works

Goods and Works							
Package No.	General Description	Estimated Value (US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (Quarter/Year)	Comments
	Huilong river tributary, ecological restoration, vegetation buffer zone, river wetland dredging, and bridges						
LP-C04	Northern Bank Ecological and Environmental Improvement - construction of lake wetland and 0.68 km ecological embankment, ecological restoration, footbridges and related facilities	\$12,234,757.40	OCB Advertised Nationally	Prior	1S1E	Q4/2018	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works • AC
LP-C05	Dam Area and Zhangxingqiao Binhe Area Ecological and Environmental Improvement – construction of 0.39 km ecological embankment, refuse bins and ecological restoration	\$6,198,069.01	OCB Advertised Nationally	Post	1S1E	Q2/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
LP-C06	Longxi and Longdong River Environmental Comprehensive Treatment – construction of 4.22 km ecological embankment at Longxi river and 2.29 km at Longdong River downstream, ecological restoration, bridges and stepping-stone paths	\$6,787,712.26	OCB Advertised Nationally	Post	1S1E	Q3/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works

Goods and Works							
Package No.	General Description	Estimated Value (US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (Quarter/Year)	Comments
LP-C07	Shizhu an Huashigou River Environmental Comprehensive Treatment – construction of 4.53 km ecological embankment at Shizhu River and 0.82 km at Huashigou River, ecological restoration, vegetation buffer zone, river wetland, bridges and stepping-stone paths	\$5,991,923.59	OCB Advertised Nationally	Post	1S1E	Q3/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
LP-C08	Longdong and Xiaojiagou River Environmental Comprehensive Treatment – construction of 4.09 km ecological embankment at Longdong River upstream and 2.40 km at Xiaojiagou River, ecological restoration, vegetation buffer zone, river wetland, bridges and stepping-stone paths	\$6,508,413.31	OCB Advertised Nationally	Post	1S1E	Q2/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
LP-C09	Baisa River Ecological and Environmental Improvement – construction of 6.34 km ecological embankment and gate-type barrage, dredging and ecological restoration	\$5,148,970.82	OCB Advertised Nationally	Post	1S1E	Q1/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
Dianjiang Subcomponent							

Goods and Works							
Package No.	General Description	Estimated Value (US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (Quarter/Year)	Comments
DJ-C01	Pushun and Zhoujian Towns - Longxi River Environmental Comprehensive Treatment – construction of 3.75 km ecological embankment, emergency shelter (3,000 m ²), vegetation buffer zone and ecological restoration	\$7,342,905.47	OCB Advertised Nationally	Post	1S1E	Q4/2018	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
DJ-C02	Xinmin Town - Longxi River Environmental Comprehensive Treatment – construction of 1.69 km ecological embankment, vegetation buffer zone and ecological restoration	\$2,838,894.24	OCB Advertised Nationally	Post	1S1E	Q4/2018	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
DJ-C03	Gao'an Town - Longxi River Environmental Comprehensive Treatment (Huatan Bridge Upstream) – construction of 5.563 km ecological embankment, 1 emergency bridge, vegetation buffer zone and ecological restoration	\$13,325,735.73	OCB Advertised Nationally	Prior	1S1E	Q4/2018	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works • AC
DJ-C04	Gao'an Town - Longxi River Environmental Comprehensive Treatment (Huantan Bridge Downstream) – construction of 21.6 km	\$25,432,912.50	OCB Advertised Nationally	Prior	1S1E	Q1/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works

Goods and Works							
Package No.	General Description	Estimated Value (US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (Quarter/Year)	Comments
	ecological embankment, 3 emergency bridge, vegetation buffer zone and ecological restoration						
DJ-C05	Gaofeng Town - Longxi River Environmental Comprehensive Treatment - construction of 4.0 km ecological embankment, 1 emergency bridge and emergency shelter (3,000 m ²), vegetation buffer zone and ecological restoration	\$7,389,256.76	OCB Advertised Nationally	Post	1S1E	Q4/2018	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
Changshou Subcomponent							
CS-C01	Dandu Town Flood Control and Water Resource Protection - construction of 4.45 km ecological embankment, emergency road and footbridge, sewer networks, vegetation buffer zone, and ecological restoration	\$13,053,430.77	OCB Advertised Nationally	Prior	1S1E	Q1/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works • AC
CS-C02	Haitang and Shiyang Towns - Dayuxi Tributary Environmental Comprehensive Treatment - construction of 7.4 km ecological embankment, emergency road and bridges, dredging,	\$7,977,815.38	OCB Advertised Nationally	Post	1S1E	Q2/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works

Goods and Works							
Package No.	General Description	Estimated Value (US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (Quarter/Year)	Comments
	vegetation buffer zone, and ecological restoration						
CS-C03	Yuntai Town - Dayuxi Tributary Environmental Comprehensive Treatment - construction of 10.2 km ecological embankment, emergency bridges, dredging, vegetation buffer zone, and ecological restoration	\$8,963,200.00	OCB Advertised Nationally	Post	1S1E	Q3/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
CS-C05	Shuanglong Town - River Environmental Comprehensive Treatment - construction of 11.45 km ecological embankment, emergency bridges, vegetation buffer zone, ecological restoration and flood diversion works	\$10,598,892.31	OCB Advertised Nationally	Prior	1S1E	Q2/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works
CS-C06	Longhe Town - River Environmental Comprehensive Treatment - construction of 23.4 km ecological embankment, emergency road and bridges, vegetation buffer zone, and ecological restoration	\$21,517,169.23	OCB Advertised Nationally	Prior	1S1E	Q2/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works

Goods and Works							
Package No.	General Description	Estimated Value (US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (Quarter/Year)	Comments
CS-C07	Linfeng Town – River Environmental Comprehensive Treatment - construction of 8 km ecological embankment, emergency bridges, vegetation buffer zone, ecological restoration, dredging, and sewer networks	\$3,747,749.26	OCB Advertised Nationally	Post	1S1E	Q3/2019	<ul style="list-style-type: none"> • National advertisement • PQ not required • Small works

OCB = open competitive bidding, PQ = prequalification.
Source: Asian Development Bank.

Consulting Services							
Package No.	General Description	Estimated Value (US\$)	Selection Method	Review	Type of Proposal	Advertisement Date (quarter/ year)	Comments
TA-01	Consulting services to support development of Longxi River flood and environment risk management (FERM) system	\$1,400,000	QCBS	Prior	FTP	Q1/2019	<ul style="list-style-type: none"> • Quality-Cost ratio 90:10 • International advertisement • AC
TA-02-a	Project management startup support (Project Management and Procurement)	\$47,200	ICS	Prior	-	Q3/2018	<ul style="list-style-type: none"> • Individual • Expertise: Project Management and Procurement • National assignment • National advertisement • AC/RF
TA-02-b	Project management startup support (Financial)	\$12,500	ICS	Prior	-	Q3/2018	<ul style="list-style-type: none"> • Individual • Expertise: Financial Management • National assignment • National advertisement • AC/RF
TA-02-c	Project management startup support (Environment)	\$20,150	ICS	Prior	-	Q3/2018	<ul style="list-style-type: none"> • Individual • Expertise: Environmental Management • National assignment

Consulting Services							
Package No.	General Description	Estimated Value (US\$)	Selection Method	Review	Type of Proposal	Advertisement Date (quarter/ year)	Comments
							<ul style="list-style-type: none"> • National advertisement • AC/RF
TA-02-d	Project management startup support (Land Acquisition and Resettlement)	\$20,150	ICS	Prior	-	Q3/2018	<ul style="list-style-type: none"> • Individual • Expertise: LAR expert • National assignment • National advertisement • AC/RF
TA-03	Project management and capacity building	\$2,000,000	QCBS	Prior	FTP	Q4/2018	<ul style="list-style-type: none"> • Quality-Cost ratio 90:10 • International advertisement • AC
TA-04	External resettlement M&E	\$150,000	CQS	Prior	BTP	Q3/2018	<ul style="list-style-type: none"> • Firm • National assignment • National advertisement • AC/RF
TA-05	External environmental M&E	\$150,000	CQS	Prior	BTP	Q3/2018	<ul style="list-style-type: none"> • Firm • National assignment • National advertisement • AC/RF

AC = advanced contracting, BTP = biodata technical proposal, CQS = consultants qualification selection, FTP = full technical proposal, ICS = individual consultants selection, LAR = land acquisition and resettlement, M&E = monitoring and evaluation, QCBS = quality- and cost-based selection, RF = retroactive financing.

Source: Asian Development Bank.

3. List of Indicative Packages (Contracts) Required under the Project

61. The following table lists goods, works, non-consulting services, and consulting services contracts for which the procurement activity is expected to commence beyond the procurement plan duration and over the life of the project (i.e. those expected beyond the current procurement plan duration).

Package No.	General Description	Estimated Value (US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (Quarter/Year)	Comments
LP-E01	Procurement of hydrological and water quality monitoring equipment in Liangping District	\$1,200,000.00	OCB Advertised Nationally	Prior	1S1E	Q1/2020	<ul style="list-style-type: none"> National advertisement PQ not required
DJ-E01	Procurement of hydrological and water quality monitoring equipment in Dianjiang County	\$1,200,000.00	OCB Advertised Nationally	Post	1S1E	Q1/2020	<ul style="list-style-type: none"> National advertisement PQ not required
CS-E01	Procurement of hydrological and water quality monitoring equipment in Changshou District	\$1,200,000.00	OCB Advertised Nationally	Post	1S1E	Q1/2020	<ul style="list-style-type: none"> National advertisement PQ not required

OCB = open competitive bidding, PQ = prequalification.
Source: Asian Development Bank.

4. List of Awarded and Completed Contracts

62. The following table lists the awarded contracts and completed contracts for goods, works, non-consulting services, and consulting services.

Package No.	General Description	Estimated Value (US\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (Quarter/Year)	Comments
None							

5. Non-ADB Financing

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

Works	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Comments
Guixi Sub-district - Ecological and Environmental Improvement - construction of 7.5 km embankment and heightening of barrage at Sanhe wetland (300 mu)	\$16,129,032.26	1	National Competitive Bidding following national procurement regulation	Contract No. DJ-C06
Dayuxi Tributary Environment Improvement - construction of 1 km embankment at Tuqiao and related facilities, and ecological restoration	\$4,764,338.46	1	National Competitive Bidding following national procurement regulation	Contract No. CS-C04
Longxi River Tributary Environmental Comprehensive Treatment – construction of 3.36 km ecological embankment and sewer networks, and ecological restoration	\$5,690,384.62	1	National Competitive Bidding following national procurement regulation	Contract No. CS-C08

6. Open Competitive Bidding (Advertised Nationally)

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

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

D. Consultant's Terms of Reference

65. The terms of reference for all consulting services packages are detailed in Appendix 1– 5.

VII. SAFEGUARDS

A. Environment

66. **Environment due diligence.** The project is classified as Category A for environment. The Environmental Impact Assessment (EIA) Report, including an Environmental Management Plan (EMP), was prepared and disclosed on the ADB website. The EIA complies with ADB's policies and requirements including ADB's Safeguard Policy Statement (2009). The EIA concluded that full and effective implementation of the project EMP, together with the training and project assurances, will minimize the environmental risks of the project and achieve compliance with the policy and regulatory standards applied in this project EIA.

67. **Environmental management plan** A project environmental management plan (EMP) has been prepared (Appendix 1 of the EIA). The EMP is to be implemented in all phases of the project – design, pre-construction, construction, and operation. The EMP is to ensure project compliance with PRC environmental laws and ADB's Safeguard Policy Statement (SPS, 2009). The EMP describes: the roles and responsibilities of all project agencies to implement this EMP; anticipated impacts and mitigation measures; inspection, monitoring, and reporting arrangements; training and institutional strengthening; grievance redress mechanism (GRM); and future public consultation. In the engineering design stage CPMO will pass this EMP to the design institutes for incorporating mitigation measures into the detailed engineering designs. The EMP will be updated at the end of the detailed design, as needed. To ensure that bidders will respond to the EMP's provisions, the CPMO and the IA-PMOs will prepare and provide the specification clauses for incorporation into the bidding documents: (i) a list of environmental management requirements to be budgeted by the bidders in their bids; (ii) environmental clauses for contractual terms and conditions; and (iii) the project EIA and updated EMP.

68. **Capacity building.** The project county and two districts have no previous experience with ADB-funded projects or safeguard requirements. During the project design phase, two trainings on EMP implementation were conducted, including roles and responsibilities of contractors and construction supervision company (CSCs) for EMP implementation, the project impacts and mitigation measures. During implementation, a capacity building program will be implemented on: (i) the EMP, including the mitigation measures, monitoring, and reporting; (ii) ecological management of Longxi River and its tributaries, and the Shuanggui and Sanhe reservoirs; (iii) surface water quality protection and improvement; and (iv) sustainable integrated watershed management. Training will be provided by the Chongqing Municipal EPB, three county/districts EPBs, and loan implementation environment consultant (LIEC). Trainees will be the CPMO, IAs, IA-PMOs, contractors, CSCs, and local water resources bureaus (WRBs) and local agriculture and forestry bureaus (AFBs). The CPMO will arrange the training programs, supported by the loan implementation consultant (LIC) and LIEC.

69. **Grievance redress mechanism.** A grievance redress mechanism (GRMs) has been developed in the project districts and county in compliance with ADB's SPS (2009) requirement to address environmental, health, safety, and social concerns associated with project. The GRM is designed to achieve the following objectives: (i) provide channels of communication for local villages and communities to raise concerns about environmental and social-related grievances which might result from the project; (ii) prevent and mitigate adverse environmental and social impacts to villages and communities caused by project construction and operation, including those associated with resettlement; (iii) improve mutual trust and respect and promote productive relationships between the project agencies and local villages and communities; and (iv) build village and community acceptance of the project. The GRM is accessible to all members of the villages and communities, including women, youth, minorities and poverty-stricken villagers and residents. Multiple points of

entry are available, including face-to-face meetings, written complaints, telephone conversations, e-mail, and social media. The details of the GRM, including a time-bound flow chart of procedures, are included in the project EMP.

B. Resettlement

70. **Impact of land acquisition and resettlement:** The project is classified as category A for involuntary resettlement. Of an estimated total 4,193 mu land area used under the project, 1,773 is existing state-owned land, 1,585 mu collective land will be obtained by land acquisition and converted into state-owned land, 310 mu land will be arranged through the mode of rural infrastructure land use (RILU), and 525 mu will be used via land use right transfer (LURT).³⁵ In addition, 527 mu land will be temporally used. Houses with a total area of 8,707 m² will be demolished and 32 households with 123 persons will be physically relocated. Altogether, the project will affect a total of 5,412 households with 18,000 persons.

71. **Resettlement plans:** Three resettlement plans (RPs) have been prepared in accordance with ADB's Safeguard Policy Statement (2009) and relevant laws and regulations of the PRC and local governments. The RPs include adequate measures of compensation, resettlement and rehabilitation for affected people.

72. **Principles and policies of resettlement:** The preparation of the project RPs is in compliance with Land Administration Law of the People's Republic of China (2004); Urban Real Estate Management Law of the People's Republic of China (2007 Amendment); Rural Land Contract Law of the People's Republic of China (2002); Notice of the State Bureau of Land Management on Issues about "Several Provisions on Determining Land Ownership and Usufruct"; Measures for Management of Township People's "One Matter and One Discussion" on Handling Wages and Obtaining Labor Affairs (GBF [2007] No.4); and also in compliance with Measures for Management of Land Expropriation and other relevant laws and regulations in Chongqing City and the relevant policies and regulations in project counties (districts) as well as ADB Safeguard Policy Statement (June 2009). Based on consultation with local government departments and APs and the practical experience of the project, the implementing agency has established a set of resettlement principles and compensation entitlement matrix for the project. Land acquisition compensation and ground attachment compensation shall be paid to the owner or user according to the land acquisition area. The land acquisition compensation fee is calculated based on unified rates regardless types of the acquired land. The land acquisition fee includes the land compensation fee, resettlement compensation fee and comprehensive quota compensation (including young crops and general ground structures compensation without special facilities compensation).

73. **Public participation and grievance redress:** Public participation and consultation is a key part of the RPs. Since November 2017, a series of consultation activities were conducted with affected people, communities, units and other project relevant groups. At the same time, the survey of the physical quantity of land acquisition and demolition and the sampling survey of the socio-economic conditions of the affected households were completed. The project has carried out public consultation activities related to land acquisition and established grievance redress channels to solve the problems encountered by affected people in land acquisition and house demolition and resettlement. The grievance redress channels include several ways, including: (1) township resettlement office; (2) resettlement office of project districts or counties of subprojects; and (3) Chongqing PMO. The resettlement information booklet in the local language (Chinese) will be distributed to the APs before ADB management review meeting. Before the implementation of the

³⁵ A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 square meters or 0.067 hectares).

project resettlement, the RPs will be updated and distributed to affected households, affected villages / communities and towns / street office. In addition, the RPs will be uploaded to ADB's website.

74. **Resettlement and livelihood restoration:** To minimize impacts of the resettlement and to restore the living standards of affected persons, detailed income recovery programs are developed in RPs. Affected people can choose the right solution according to their needs. According to the social survey and AHS' analysis, as well as the resettlement experience of similar local projects, resettlement and income restoration programs have been tailor-made for this project. These programs include (1) transfer or readjust land to continue agricultural production; (2) endowment insurance for APs transformed from rural to urban resident status; (3) arranging for APs to work during construction and operation; (4) helping APs to work in other social jobs and enterprises; and (5) assisting APs in self-employment. Affected households can choose appropriate resettlement methods to restore their livelihoods.

75. **Institutional arrangement:** Chongqing PMO will be responsible for the overall supervision of implementation of land acquisition and resettlement, including updating RPs, implementation, financing and reporting. PMOs of Liangping District, Dianjiang County and Changshou District will take main responsibilities of implementation of RPs, including consultation, payment of compensation, etc. To ensure the smooth implementation of RPs, relevant staff responsible for the land acquisition will be trained by the Chongqing PMO with the help of consultants. According to the project construction schedule, the resettlement implementation plan has been prepared and included in the RPs. RPs will be updated based on the final design and detailed measurement surveys, and the updated RPs will be submitted to ADB for approval. Before awarding civil contracts, updated RPs shall be approved by ADB first and distributed to affected people using local language (Chinese).

76. **Monitoring and evaluation:** Detailed internal and external monitoring and evaluation measures have been included in RPs. Chongqing PMO will submit internal monitoring reports to ADB semi-annually as part of the project progress reports. In addition, Chongqing PMO will employ an external resettlement monitoring agency to externally monitor implementation of RPs and submit external monitoring report to ADB.

C. Indigenous Peoples

77. The project does not involve impacts to ethnic minority villages or communities that would trigger ADB's SPS requirements on IPs. Scattered population of ethnic minority individuals in the project area are not expected to have adverse impacts from the project.

VIII. GENDER AND SOCIAL DIMENSIONS

A. Poverty Reduction and Social Strategy

78. The project is classified as general intervention for poverty reduction. A total of 0.895 million residents in 19 project towns, including 4,450 urban poor and 16,268 rural poor people, will directly benefit from the project through strengthened flood risk management and better environment and ecological protection in the Longxi River watershed. Other residents of 1.909 million in the three project-county/districts will also benefit indirectly from the improved flood management and improved environment. The project will create 2,337 jobs during project implementation and 99 jobs during operation. A poverty and social analysis has been undertaken; and a social development action plan (SDAP) has been prepared. Key social design measures include: (i) avoiding or minimizing adverse social impacts; (ii) enhancing social benefits, including targeted employment for women and the poor; and (iii) strengthening public participation and consultation during preparation and implementation of the project. Several consultation and participation meetings with local residents and stakeholders have been undertaken during the project preparation, and additional consultation and participation measures have been included in SDAP and other relevant plans. The social development action plan matrix is presented in Table 11.

B. Gender

79. The project is classified as effective gender mainstreaming, following ADB's Guidelines for Gender Mainstreaming Categories of ADB Projects (2012). The project will benefit women, who constitute 48.7% of the direct beneficiary population. The project will empower women and improve their income, living environment and quality of life. A gender action plan (GAP) has been prepared based on gender analyses and local consultations to ensure gender mainstreaming under the project. The key measures in the GAP include: (i) fair and equitable participation of women in decision making during project design and implementation, with at least 40% women participants; (ii) training and capacity building of staff of the executing and implementing agencies to implement GAP and related measures; (iii) priority employment opportunities to women, with at least 30% during construction and 40% during operation; (iv) participation of women in awareness raising in flood and environment management and public hearing on tariff with 50% women participants; (v) participation of women in decision making for the pilot community-based solid waste management program, with at least 40% women members in community groups; and (vi) ensuring women employees' rights and equitable access to sanitation facilities and health education (e.g. HIV/AIDS awareness) during construction. Key gender indicators have also been included in the design and monitoring framework. The GAP is included in Table 12.

Table 11: Social Development Action Plan

Activity	Targets	Responsible Party	Budget Source	Timing
A. ENHANCEMENT MEASURES				
<p>1 Employment during Project Construction with a Total of 2,337 Part-time Jobs (1,053 skill, 1,284 unskilled)</p> <ul style="list-style-type: none"> ➤ Ensure employment priority to local people in construction works by contractors. ➤ Ensure contractors use local construction materials, e.g., rock, gravel, clay, cement produced from Chongqing. ➤ Ensure training on labor law, job skills, safety, sanitation, and others provided to construction workers. 	<p>Targets:</p> <ul style="list-style-type: none"> ➤ At least 30% jobs in civil works to women. ➤ At least 15% jobs in civil works to poor and low-income people. ➤ At least 60% materials locally produced. ➤ 100% construction workers get training. <p>Baseline: 0</p>	<p>County/district PMOs, IAs, contractors</p> <p>Assisting agencies: HRSSB, PADO, ACWF; PIC gender/social development specialist</p>	<p>project civil works contracts</p>	<p>2018–2023</p>
<p>2 Employment during Project Operation and Maintenance with a Total of 99 Full-time Jobs (29 skilled and 70 unskilled)</p> <ul style="list-style-type: none"> ➤ Ensure employment priority to local people during operation. ➤ Ensure training to workers on labor law, job skills, safety, sanitation, and others provided by POCs. 	<p>Targets:</p> <ul style="list-style-type: none"> ➤ At least 40% jobs to women during operation phase (in landscaping and sanitary maintenance of rivers and wetlands). ➤ At least 15% jobs during operation to poor and low-income people. <p>Baseline: 0</p>	<p>County/district PMOs, POCs</p> <p>Assisting agencies: HRSSB, PADO, ACWF</p>	<p>project operation cost</p>	<p>2020–2023 and onwards</p>
<p>1 Public Consultation and Participation</p> <ul style="list-style-type: none"> ➤ Conduct public consultation during the design of project components (river emergency roads, landscaping, gardening of wetland, early warning systems, others) to take into account local residents' needs. ➤ Organize community-based groups (2 in each district/county) for flood protection, emergency response, solid waste management, and maintaining cleanliness in neighborhoods, lakes/ponds and rivers. 	<p>Targets:</p> <ul style="list-style-type: none"> ➤ 100% project designs consulted with representatives of residents and villagers in project towns. ➤ At least 40% women and 15% poor and low-income people among consultation participants. ➤ At least 40% women in community-based groups. <p>Baseline: 0</p>	<p>County/district PMOs, DIs, IAs</p> <p>Assisting agencies: Town government and village committee, PIC gender/social development specialist</p>	<p>project costs</p>	<p>2018–2023</p>
<p>1. Public Awareness Raising</p> <ul style="list-style-type: none"> ➤ Conduct awareness raising activities for residents in the project area on project components, including: <ul style="list-style-type: none"> a) flood control, river management (including River Chief System) and environment protection; b) solid waste management. c) wastewater collection management; and. d) wetland and river environment protection 	<p>Targets:</p> <ul style="list-style-type: none"> ➤ All beneficiary communities in the project area take part in the public awareness raising activities. ➤ At least 50% women and 15% poor and low-income people among participants in the awareness raising activities. <p>Baseline: 0</p>	<p>County/district PMOs, IAs</p> <p>Assisting agencies: Town government and village committee, PIC gender/social development specialist</p>	<p>project costs</p>	<p>2018–2023</p>

Activity	Targets	Responsible Party	Budget Source	Timing
B. MITIGATION MEASURES				
<p>2. Protect Local Communities from Construction Disturbances (refer EMP for relevant social measures in details)</p> <ul style="list-style-type: none"> ➤ Prohibit night-time construction and adhere to applicable noise standards near residence areas. ➤ Ensure appropriate waste collection, transportation and disposal in all construction sites. ➤ Ensure public health, safety and environmental measures to protect nearby communicant during construction. 	<p>Targets:</p> <ul style="list-style-type: none"> ➤ 0% nighttime construction near residence area. ➤ 100% construction sites and nearby roads have safety warning signs. ➤ 0 unresolved local complaints at the end of construction period. <p>Baseline: 0</p>	<p>County/district PMOs, IAs, contractors</p> <p>Assisting agencies: PIC gender/social development specialist</p>	<p>project cost</p>	<p>2018–2023</p>
<p>3. Compensate and restore livelihood of affected people (refer RPs for relevant measures in details)</p> <ul style="list-style-type: none"> ➤ Disclose RPs to local communities and affected households AHs in local language. ➤ Provide timely compensation and livelihood restoration to AHs per RPs. ➤ Conduct participatory monitoring of implementation of RPs ➤ Assist women and vulnerable groups with priorities during livelihood restoration and resettlement implementation. 	<p>Targets:</p> <ul style="list-style-type: none"> ➤ 100% of AHs are fully compensated and rehabilitated. ➤ 100% RPs are monitored and reported. ➤ 0 unresolved local complaints at the end of RP implementation. <p>Baseline: 0</p>	<p>IAs, County/district PMOs, LRBs</p> <p>Assisting agencies: PIC resettlement specialist; external resettlement monitor</p>	<p>project cost</p>	<p>2018–2023</p>
<p>4. Control and Prevention of HIV/AIDS/STI</p> <ul style="list-style-type: none"> ➤ Provide training to all workers and contractors on HIV/AIDS/STI. ➤ Provide HIV/AIDS and STI counseling and voluntary testing for workers. ➤ Provide education materials (posters, others) on HIV/AIDS and STI prevention to workers. 	<p>Targets:</p> <ul style="list-style-type: none"> ➤ 100% contractors establish connection with local CDPC. ➤ 100% construction workers get HIV/AIDS and STI counseling. ➤ 100% communities in the project area get HIV/AIDS and STI knowledge campaign. <p>Baseline: 0</p>	<p>County/district PMOs, IAs, contractors, CDPC</p> <p>Assisting agencies: PIC gender/social development specialist</p>	<p>project cost local health bureau's budget</p>	<p>2018–2023</p>

Activity	Targets	Responsible Party	Budget Source	Timing
<p>5. Protecting Labors' Legal Right and Interests</p> <ul style="list-style-type: none"> ➤ Ensure implementation of core labor standards (i.e., equal pay for equal work, no child labor, etc.) and safety requirements as stated in the contracts. ➤ Ensure to sign labor contracts with workers. ➤ Ensure work environment and conditions (latrines and/or washing arrangements, and others) on construction sites are conducive to workers needs according to relevant standards. 	<p>Targets:</p> <ul style="list-style-type: none"> ➤ 100% contracts included core labor standards. ➤ 100% of workers signed labor contracts. ➤ 100% construction sites are conducive to workers' needs. <p>Baseline: 0</p>	<p>County/district PMOs, IAs, contractors</p> <p>Assisting agencies: HRSSB, PIC gender/social development specialist</p>	<p>civil works contracts costs</p>	<p>2018–2023</p>
C. PROJECT MANAGEMENT AND CAPACITY BUILDING (Responsibility of Participating County/district Governments)				
<p>6. Public Hearings on Wastewater Tariff</p> <p>(1) Conduct public hearings for wastewater tariff</p>	<p>Targets:</p> <ul style="list-style-type: none"> ➤ 100% public hearings for any changes of wastewater tariff. ➤ 50% women participants in public hearings. ➤ 30% poor and low-income people among participants in public hearings. <p>Baseline: 0</p>	<p>Changshou DRC, PB</p> <p>Assisting agencies: Changshou PMO, PIC gender/social development specialist</p>	<p>Project budget</p>	<p>2018–2023</p>
<p>7. Project Management and Capacity building</p> <p>(1) Ensure social and gender specialists are included in PIC to guide the implementation of social plans and provide training to the PMOs, IAs and town governments.</p> <p>(2) Ensure PMOs, IAs, town government each assign at least one social focal person to undertake social plans.</p> <p>(3) Collect data disaggregated by sex and poverty status.</p> <p>(4) Establish effective grievance redress mechanisms and inform stakeholders.</p>	<p>Targets:</p> <ul style="list-style-type: none"> ➤ At least one social and gender specialist is recruited in PIC team to guide and assist in implementing social plans. ➤ At least one focal person of each PMO, IA, and town government is appointed to undertake social plans. ➤ 100% of assigned staff participated in the training provided by the social and gender specialist. ➤ Disaggregated data by sex and poverty status collected during project implementation. ➤ All local residents, including women and the poor, know about the grievance redress mechanism. <p>Baseline: 0</p>	<p>County/district PMOs</p> <p>Assisting agencies: PIC gender/social development specialist, IAs</p>	<p>PIC and PMO management budgets</p>	<p>2018–2020</p>

ACWF = All China Women's Federation, AIDS = acquired immunodeficiency syndrome, AH = affected household, CDPC = center for disease prevention and control, DI = design institute, DRC = development and reform commission, EMP = environmental management plan, HIV = human immunodeficiency virus, HRSSB = human resource and social security bureau, IA = implementing agency, LRB = land resource bureau, PB = price bureau, PIC = project implementation consultant, PMO = project management office, PADO = poverty alleviation and development office, PIU = project implementing units, POC = project operation companies, RP = resettlement plan, STI = sexually transmitted infection. Source: Asian Development Bank.

Table 12: Gender Action Plan

Activity	Target and Indicators	Responsible Party	Timing	Budget Source
Output 1: Flood management infrastructure constructed				
<ul style="list-style-type: none"> Ensure participation of benefiting/affected women in decision making during the design of flood protection infrastructures (embankments, emergency roads, bridges) and incorporate their needs in the design and implementation of relevant infrastructure. Ensure participation of women in awareness raising on flood risk mitigation, river management (including the river chief system), and environment protection in the project area. 	<p>40% women participants in public consultation meetings to design and implement gender-responsive flood protection infrastructures (baseline: 0)</p> <p>50% women participate in awareness raising activities and increase their knowledge on flood risk management and environment (baseline: 0)</p>	PMO, PIU	2018–2023	Project
Output 2: Wastewater management and pollution control infrastructure developed				
<ul style="list-style-type: none"> Ensure participation of women in public consultation meetings during the design of pollution control infrastructure and incorporate their needs (methods and location for collection and disposal of solid waste, wastewater, and nonpoint pollution). Ensure participation of women in awareness raising and training activities on pollution control. Ensure participation of women in decision making roles of six pilot community-based solid waste management organizations. Ensure participation of women and vulnerable groups in public hearings on wastewater tariff. 	<p>40% women participants in public consultation meetings for the design and implementation of gender-responsive pollution control infrastructures (baseline: 0)</p> <p>50% women participants in awareness raising and training activities and increase their knowledge on pollution control (baseline: 0)</p> <p>40% women participate and play active leadership role in six pilot community-based solid waste management organizations (baseline: 0)</p> <p>50% women and vulnerable group participants in public hearings on wastewater tariff and assistance measures for vulnerable group (baseline: 0)</p>	PMO, PIU	2018–2023	Project
Output 3: Ecological conservation facilities improved				
<ul style="list-style-type: none"> Ensure participation of women in public consultation and decision making during the design of ecological facilities, including landscaping of wetland and rivers and incorporate their needs. Ensure participation of women in awareness raising activities on wetland and river environment protection. 	<p>40% women participants in consultation meetings for design and implementation of gender-responsive ecological facilities (baseline: 0)</p> <p>50% women participate in awareness raising activities and increase their knowledge on wetland and river environment protection (baseline: 0)</p>	PMO, PIU	2018–2023	Project
Output 4: Flood and environmental risk management capacity enhanced				
<ul style="list-style-type: none"> Ensure participation of women in public consultation on the design of the flood early warning system and incorporate their needs in the design and implementation. Ensure women participation in awareness raising activities on community-based flood and environment risk management program for residents in the project area. 	<p>40% women participants in consultation meetings to design and implement gender-responsive flood early warning system (baseline: 0)</p> <p>50% women participate in awareness raising and increase their knowledge on community-based flood and environment risk management program (baseline: 0)</p>	PMO, PIU	2018–2023	Project

Activity	Target and Indicators	Responsible Party	Timing	Budget Source
Outputs 1–3: Generating job opportunities				
<ul style="list-style-type: none"> Employ local people with priority opportunities to women during project construction. Employ local people with priority opportunities to women during project operation. Ensure that women workers have equitable access to toilet, shower, and washroom facilities at project work stations; and these facilities are separated for men and women workers. 	<p>2,337 temporary local jobs during construction, with at least 30% jobs to women (baseline: 0)</p> <p>99 full time local jobs during operations, such as maintenance of facilities and landscaping of rivers and wetlands, with at least 40% jobs to women (baseline: 0)</p> <p>All project work stations have relevant separate facilities for women workers (baseline: 0)</p>	PMO, PIU	2018–2023	Project
Outputs 1–3: Measures to reduce potential risks				
<ul style="list-style-type: none"> Comply with labor law and core labor standards, including ensuring the absence of child labor, providing minimum wage and equal pay for equal work, and ensuring occupational health and safety. Contractors and workers participate in awareness and trainings on prevention and control of HIV/AIDS, STI, and other communicable diseases. Conduct public awareness activities including distributing publicity materials (e.g. posters and brochures) on prevention of HIV/AIDS and STI. 	<p>All workers, including women, receive training on their rights (baseline: 0).</p> <p>Ensure 100% compliance of all labor requirements included in construction contracts</p> <p>100% of contractors and workers provided with awareness training on HIV/AIDS/STI (baseline: 0)</p> <p>50% women participants in HIV/AIDS/STI prevention awareness (baseline: 0)</p>	PMO, PIU	2018–2023	Project
Project management and capacity building				
<ul style="list-style-type: none"> Ensure social and gender specialists are included in the consultants' team to support implementation and monitoring of GAP and provide training to staff of the PMO, PIU, town governments and community groups. Appoint one social focal person within each PMO, IA, and project town government to ensure effective implementation of GAP. Provide training for staff of the EA, IAs and other relevant organizations (e.g. community groups) on: (i) ADB's gender policy; (ii) how to implement and monitor GAP; and (iii) gender issues on flood control, wastewater, and solid waste and importance of gender mainstreaming in all project components. Collect sex-disaggregated data. Undertake monitoring of GAP implementation and gender related impacts under relevant components (e.g. flood control, solid waste management, pollution control, etc.). 	<p>Two social and gender specialists are recruited to assist in implementing and monitoring GAP activities (baseline: 0)</p> <p>At least one social focal person of each PMO, IA, and town government is appointed (baseline: 0)</p> <p>All relevant staff in the EA and IAs receive training on GAP and gender issues (baseline: 0)</p> <p>Women staff in the training account for at least 30% (baseline: 0)</p> <p>Sex-disaggregated data collected during project implementation</p>	PMO, PIU	2018–2023	Project

ADB = Asian Development Bank, AIDS = acquired immunodeficiency syndrome, EA = executing agency, GAP = gender action plan, HIV = human immunodeficiency virus, IA = implementing agency, PIU = project implementation unit, PMO = project management office, STI = sexually-transmitted infection.

Source: Asian Development Bank.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

Impact the Project is Aligned with Environmental protection, rehabilitation, and management of the Yangtze River improved (Yangtze River Economic Belt Development Plan, 2016–2030) ^a			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
<p>Outcome Flood and environmental risk in the Longxi River watershed mitigated</p>	<p>By end of 2024 within the project counties:</p> <p>a. Land in the Longxi River watershed protected from 10-year flood^b increased to 600 ha, benefitting 895,000 people (2018 baseline: 0 ha)</p> <p>b. Water quality at outlet of the DaYu River meets class III standard^c (2018 baseline: classes III–IV)</p> <p>c. 895,000 residents have used new public river-, lake-, and canal-greenways and recreational wetland park created (2018 baseline: 0)</p>	<p>a. CMG report, records, annual statistics, and periodic flood disaster surveys</p> <p>b. Municipal environmental protection bureau's annual monitoring reports</p> <p>c. CMG statistical yearbooks</p>	<p>Population projection in project area exceeds forecasts and exerts more pressure, such as a heavy pollution load, on the Longxi River</p>
<p>Outputs</p> <p>1. Flood risk management infrastructure constructed</p> <p>2. Wastewater management and pollution control infrastructure developed</p>	<p>By end of 2023 within the project counties:</p> <p>1a. 6 towns in Liangping County, 6 in Dianjiang County, and 7 in Changshou District are protected by 50 km, 44 km, and 69 km dikes from a 5-year to 20-year return period of flood (2018 baseline: 0)</p> <p>1b. Soil erosion countermeasures implemented for 50 km long riverbank in Changshou District, 44 km long in Dianjiang County, and 60 km long in Liangping County (2018 baseline: 0)</p> <p>1c. 1,457 positions for employment during construction and 56 positions for employment during operation created, with at least 30% of positions during construction and 40% during operations filled by women (2018 baseline: 0)</p> <p>1d. At least six local communities are engaged to mitigate flood risks through their participation in the design and implementation of flood management infrastructure, including at least 40% women participants (2018 baseline: 0)</p> <p>2a. New 42.37 km sewer networks constructed in Changshou District benefitting 251,000 people (2018 baseline: 0)</p> <p>2b. 51 ha greenbelt for nonpoint pollution constructed (2018 baseline: 0)</p> <p>2c. 231 positions for employment during construction and 14 positions for employment during operation created, with at least</p>	<p>1a.–1d. ADB mission reports, quarterly project progress reports, and project completion report</p> <p>2a.–2d. ADB mission reports, quarterly project progress reports, and project completion report</p>	<p>Implementation delays caused by simultaneous implementation of many other projects by the executing agency</p> <p>The sewer connection to individual households is not completed on time</p>

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
<p>3. Ecological conservation facilities improved</p> <p>4. FERM capacity enhanced</p>	<p>30% during construction and 40% during operations filled by women (2018 baseline: 0)</p> <p>2d. At least six local communities are engaged to mitigate pollution through their participation in solid waste and environmental management, including at least 40% women participants (2018 baseline: 0)</p> <p>3a. Landscaping of 145 ha constructed in Longxi River watershed^d (2018 baseline: 0)</p> <p>3b. Wetland of 2.5 ha constructed in Longxi River watershed (2018 baseline: 0)</p> <p>3c. 649 positions for employment during construction and 29 positions of employment during operation created, with at least 30% during construction and 40% during operations filled by women (2018 baseline: 0)</p> <p>4a. Localized flood warning systems with more than 2 hours of lead time in 50 villages along the Longxi River installed (2018 baseline: 0)</p> <p>4b. FERM plan of Longxi River watershed issued by CMG (2018 baseline: Not applicable)</p> <p>4c. Six communities conducted two evacuation drills in each based on the drafted contingency plans, with at least 40% women members (2018 baseline: 0)</p> <p>4d. 400 participants from CMG and implementing agencies with 30% women have improved knowledge and understanding of climate change adaptation and environmental management through training workshops (2018 baseline: 0)</p>	<p>3a.–3c. ADB mission reports, quarterly project progress reports, and project completion report</p> <p>4a.–4d. ADB mission reports, quarterly project progress reports, and project completion report</p> <p>4d. Survey of training participants</p>	

Key Activities with Milestones

1. Flood risk management infrastructure constructed

- 1.1 Complete detailed engineering design and bidding documents by Q4 2019.
- 1.2 Implement the land acquisition and resettlement plan by Q3 2019.
- 1.3 Award contracts by Q4 2020.
- 1.4 Complete civil works, including (i) dikes, (ii) ecological protection of riverbanks including erosion control, and (iii) dredging of silted section of the rivers by Q2 2023.

2. Wastewater management and pollution control infrastructure developed

- 2.1 Complete detailed engineering design and bidding documents by Q2 2019.
- 2.2 Implement the land acquisition and resettlement plan by Q3 2019.
- 2.3 Award contracts by Q4 2019.
- 2.4 Complete civil works for sewer pipe installation by Q2 2023.

3. Ecological conservation facilities improved

- 3.1 Complete detailed engineering design and bidding documents by Q2 2019.
- 3.2 Implement the land acquisition and resettlement plan by Q1 2020.

<p>3.3 Award contracts by Q4 2020.</p> <p>3.4 Complete civil works for sewer pipe installation by Q2 2023.</p> <p>4. Flood and environmental risk management capacity enhanced</p> <p>4.1 Complete detailed planning and design, and bidding documents by Q4 2020.</p> <p>4.2 Install hydrological monitoring stations and data management systems by Q1 2020.</p> <p>4.3 Calibrate and install river basin models by Q3 2020.</p> <p>4.4 Draft FERM plan for Longxi River watershed by Q2 2020.</p> <p>4.5 Implement community-based FERM by Q1 2022.</p> <p>4.6 Improve the flood forecasting and early warning system in selected counties by Q2 2022.</p> <p>4.7 Organize training programs on environmental risk management and climate change adaptation by Q2 2023.</p>
<p>Project Management Activities</p> <p>Recruit project management consultants by Q4 2018.</p> <p>Recruit capacity development consulting services by Q1 2019.</p> <p>Recruit an independent agency for external environmental and resettlement monitoring and evaluation by Q4 2018.</p> <p>Implement the environmental management plan and submit semiannual environmental monitoring reports to ADB from 2019 to Q1 2024.</p> <p>Monitor and evaluate project impact, outcome, and outputs using the project performance management system from 2019 to Q1 2024.</p> <p>Submit quarterly project progress reports from 2019 until Q1 2024.</p> <p>Carry out training programs, policy dialogue, study tours, and awareness raising campaigns from 2019 to Q1 2024.</p> <p>Submit the project completion report by Q1 2024.</p>
<p>Inputs</p> <p>ADB: \$150.00 million (ordinary capital resources loan)</p> <p>District and county governments: \$228.67 million</p>
<p>Assumptions for Partner Financing</p> <p>Not applicable</p>

ADB = Asian Development Bank, CMG = Chongqing Municipal Government, FERM = flood and environmental risk management, ha = hectare, km = kilometer, Q = quarter.

^a National Development and Reform Commission. 2016. *Yangtze River Economic Belt Development Plan, 2016–2030*. Beijing.

^b Flood that statistically has a 10% chance of occurring in any given year.

^c According to the GB 3838-2002 environmental quality standards for surface water in the People's Republic of China, water rated class III is suitable for drinking and swimming, class IV for general industrial and recreational use, and class V for agriculture and landscaping. Class V+ means that the water is unsuitable for any purpose.

^d The proposed landscaping in the project includes planting trees, shrubs, or grass and altering the contours of the ground to provide flood protection as well as to improve the terrestrial ecology and promote ecotourism.

Source: Asian Development Bank.

B. Monitoring

1. Project Performance Monitoring

80. The project performance management system (PPMS) indicators, their relevance, and monitoring practicalities will be discussed with the executing and 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 through the quarterly progress reports of the CPMO and after each ADB review mission. The quarterly progress reports will provide information necessary to update ADB's project performance reporting systems.³⁶ At the start of project implementation, the CPMO and IAs, 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 CPMO will be responsible for monitoring

³⁶ ADB's project performance reporting system is available at:
<http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

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, outcome, and outputs of the project. By collecting data from the sources identified in the DMF, the CPMO will be able to report on an annual basis the performance of the project. Specific reporting requirements will be set out in the loan and project agreements between ADB and the Government. The CPMO 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. The relevance and practicability of data collection for indicators will be confirmed with the CPMO and IAs. Meanwhile, the agreed socioeconomic and environmental indicators to be used will be further enhanced to measure project impacts. The CPMO and IAs 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 six months after project inception.

2. Compliance Monitoring

81. The executing and 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 agency's 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 within 6 months of physical completion of the project. The compliance status of loan and project covenants will be reported and assessed through quarterly progress report. ADB review missions will verify the status of compliance.

3. Safeguards Monitoring

a. Environment

82. Three types of project monitoring will be conducted under the EMP: (i) internal monitoring – to be conducted by the implementing agencies and the construction supervision companies (CSCs); (ii) external monitoring – of air, water, noise and soil standards – to be conducted by the certificated EMA in each project county/district; and (iii) compliance monitoring – to be conducted by both the EMA and LIEC, to ensure the EMP is being implemented. The monitoring shall comply with the methodology provided in the relevant national environmental monitoring standards. Other associated standards to be followed are the national environmental quality standards of ambient air, surface water, sediment and noise, and the pollutant discharge standards. ADB will oversee project compliance based on the semi-annual environmental monitoring reports provided by the CPMO.

83. **Environmental acceptance reporting.** Within three months after each subproject completion, or no later than a half year with permission of the local EPBs, environmental acceptance monitoring and audit reports of each subproject completion shall be (i) prepared by a licensed environmental monitoring institute³⁷ in accordance with the PRC Guideline on Project Completion Environmental Audit (2001), (ii) reviewed for approval of the official commencement of individual subproject operation by environmental authorities, and (iii) finally reported to ADB through the semi-annual EMP monitoring and progress reporting process.

³⁷ Mostly, the institute is the municipal or district/county environmental monitoring station under the municipal or district/county EPB.

b. Resettlement

84. A detailed plan for both the internal and external monitoring is included in the resettlement plans. CPMO will include a summary of internal monitoring in the quarterly project progress reports to ADB. Furthermore, CPMO will employ an external resettlement monitoring agency to monitor and evaluate resettlement progress and results. A baseline survey for a sample of affected persons will be completed before the LAR begins. Semi-annual external monitoring reports will be prepared and submitted for ADB's review during resettlement implementation.

c. Social Development and Gender Action Plan

85. Monitoring of the social development action plan (SDAP) and gender action plan (GAP) will be incorporated into the PPMS. Clear targets and indicators have been established and are included in the SDAP and GAP and in the DMF. A social and gender specialist will be hired by the executing agency to assist the CPMO and IAs in monitoring, and preparation of monitoring reports on SDAP and GAP which will be included in the quarterly project progress reports.

C. Evaluation

86. ADB, executing agency and implementing agencies will undertake a semi-annual review mission to evaluate the progress of project implementation. ADB, executing agency and implementing agencies will undertake comprehensive midterm review two 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 6 months of physical completion of the project, the CPMO will submit a project completion report to ADB.³⁸

D. Reporting

87. The CPMO will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) 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 6 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 audited financial statement together with the associated auditor's report, should be adequately reviewed.

88. The executing agency and implementing agencies have the following reporting commitments: (i) submission of quarterly progress reports during project implementation including internal monitoring reports on safeguards (environmental and resettlement), and social monitoring progress reports, i.e. SDAP and GAP; (ii) submission of semi-annual external monitoring reports on safeguards, i.e., resettlement activities and environment plan implementation; (iii) submission of project completion report within 6 months of physical completion of the project; and (iv) submission of audited project accounts and financial statements six months after the end of fiscal year. PPMS data will be incorporated in the quarterly progress reports.

³⁸ Project completion report format available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

89. The following table summarizes the key reporting requirements during project implementation.

Table 13: Key Reporting Requirements

Report	Reference	Timing of Reporting
Project performance management system Develop comprehensive project performance management system procedures Reporting of baseline and progress data	Project Agreement, Schedule, paragraphs	No later than 6 months after loan effectiveness Semiannual, included in the quarterly project progress reports
Quarterly project progress reports including social monitoring	Project Agreement, Schedule, Article	Quarterly, within one month after the end of each quarter
Audited project accounts and financial statements, auditor's report	Project Agreement, Schedule, Article	Not later than six months after the closure of fiscal year (end of June), Annual
Resettlement monitoring Internal monitoring progress reports for the construction phase	Project Agreement, Schedule, paragraphs	Include summary in the quarterly project progress reports
External monitoring & evaluation reports		Semiannual
Environmental Monitoring Internal monitoring progress reports for the construction phase	Project Agreement, Schedule, paragraphs	Include summary in the quarterly project progress reports
Operations Phase–External Monitoring report		Semiannual
Project completion report	Project Agreement, Schedule, Article	Not later than six months after the physical completion of the project

Source: Asian Development Bank.

E. Stakeholder Communication and Participation

90. 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.

91. **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 address community concerns, reduce risks, and assist the project in maximizing environmental and social benefits

92. **Involuntary resettlement.** All the affected households and towns/townships, leaders and town and township governments have been or will be involved in the project impact and social-economic survey while preparing/updating the RPs. Through meetings, interviews, focus group discussions, public consultation workshops, and community consultation meetings, local representatives have participated in the planning and their concerns have been integrated into the RPs. Before implementation, the CPMO and implementing agencies will further discuss and consult with the affected persons' representatives the impacts on every town/township and the detailed compensation plan to ensure affected persons' interests are protected and to provide employment opportunities for the affected persons' livelihoods restoration. The CPMO and implementing agencies will disclose the RPs in their websites and disseminate information from the RPs to affected people. The resettlement plans will also be posted on the ADB website. Resettlement information booklets will be 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. The implementing agencies will establish a project resettlement unit for supervision of implementation, continued public consultation, monitoring of progress, and response to grievances. The grievance redress procedures will be established, and explanations have been included in the resettlement information booklets.

93. Public disclosure of all project documents will be undertaken through the implementing agencies and on the ADB website including the project data sheet, DMF, EIA, resettlement plans, and the report and recommendation of the President. Disclosure of social and safeguards monitoring reports will be undertaken during project implementation.

94. **Social Development and Gender** Consultations with communities and other stakeholders have taken place and will continue at different points in the preparation of the detailed design and implementation of the SDAP and GAP, 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 know about the project and how they could maximize benefits from the project, ask questions, make suggestions, state preferences, and express concerns. Special attention will be paid to the participation of women and other vulnerable groups, such as the poor. Consultations will also be conducted with other stakeholders such as the contractors, project implementers, and labour force including women to inform them about the SDAP and GAP and provide them the necessary training on social safeguards, gender and core labour standards.

95. A matrix on stakeholder communication, consultation and participation is in Table 14.

Table 14: Stakeholder Communication, Consultation, and Participation Plan

Stakeholders	Objectives	Types of Participation and Communication	Methods and Responsibility		Timeline	
			Methods	Who will be responsible	Start	End
EA/CPMO/IAs/PIUs Chongqing Municipal Government Liangping District Government Dianjiang County Government Changshou District Government Other relevant agencies/organizations (including contractors and NGO)	Key officers and staff directly responsible for the implementation and monitoring of the project: are informed about the project, outputs/components and activities, implementation arrangements/ schedule, budget, and specific functions of agencies in project implementation and monitoring ✓ increase their knowledge of the ADB safeguard policy statement, policy on gender and development (including gender mainstreaming and SDAP and GAP implementation and monitoring). ✓ are informed on other relevant policies such as procurement, preparation of progress monitoring reports to be submitted to ADB, and other relevant policies.	<ul style="list-style-type: none"> ✓ Information sharing, regular meetings; ✓ Consultation; ✓ Training-workshop, ✓ Shared decision making, and sharing responsibility 	Meeting Training - workshop	EA through CPMO (social and gender staff) in coordination with the IAs and PIUs staff. Assisted by the CPMO hired consultant team including social and gender specialist, and other consultants	2018	2023
Agencies/ Bureaus/ responsible for implementing specific project outputs/components and activities (including the safeguard plans, GAP, and SDAP)	Representatives of government bodies in CMG, districts, townships and village leaders responsible for decision-making during project implementation ✓ understand their roles during project implementation and support during project implementation and operation. ✓ harmonize the project with the existing programs/plans of the government agencies/bureaus.	<ul style="list-style-type: none"> • Regular meetings; • Consultation and shared decision making/ responsibility sharing; • Training/workshop 	Meeting Workshop Public consultation	EA through the CPMO social staff in coordination with the IAs and PIUs staff; LIC social and gender specialist; Other consultants	2018	2023

Stakeholders	Objectives	Types of Participation and Communication	Methods and Responsibility		Timeline	
			Methods	Who will be responsible	Start	End
	<ul style="list-style-type: none"> ✓ express their needs/concerns and/or clarify matters to ensure that the project outputs/ components are implemented in a timely manner and in accordance with the ADB approved plans 					
Contractors for civil works, etc.	<p>The contractors are informed about the ADB safeguard policy statement (focused on environment, and resettlement); gender and development, core labor standards, etc. Specifically, they are:</p> <ul style="list-style-type: none"> ✓ informed about the ADB policy on social safeguards and core labor standards (i.e. providing equal opportunities for men and women in hiring, wages for the same type of jobs, no child labor, occupational safety, etc.). ✓ informed about ADB policy on gender and development, gender mainstreaming, and gender-specific indicators as stated in the SDAP and GAP monitoring/preparation of reports. ✓ encouraged to hire local people including women, low- income households and other vulnerable persons in civil works and operation. 	<ul style="list-style-type: none"> • Information sharing • Consultation • Training/ workshop 	Meeting, FGDs	EA through the CPMO social safeguards staff in coordination with the IAs and PIUs staff; LIC social and gender specialist	2018	2023
APs and AHs (affected by LAR)	Affected persons/ households know the compensation package/ entitlement and other assistance for their land/houses and other assets	Information generation/ sharing; Consultation and	Meeting FGD Public consultation	EA through the CPMO social safeguards staff in coordination with the	2018	2023

Stakeholders	Objectives	Types of Participation and Communication	Methods and Responsibility		Timeline	
			Methods	Who will be responsible	Start	End
	<p>affected by the project. Specifically, they are:</p> <ul style="list-style-type: none"> provided information about when the project will start, and the extent of land area/ assets affected by the project (as part of project information disclosure). explained about entitlement/ compensation as part of the consultation and decision- making process prior to start of project implementation. assisted how they could better utilize the compensation to ensure a sustainable investment of compensation received. informed on how they will be benefited by the project. informed of the GRM and implementation arrangements 	shared decision making/ responsibility	Detailed measurement survey	<p>IAs and PIUs staff;</p> <p>LIC social and gender specialist</p> <p>Other agencies involved in LAR (including local govt. units).</p>		
Project beneficiaries (local people) and other stakeholders in the project area	<p>Local people/ beneficiaries/households know about the project, project implementation, project impacts, GRM process, and how they could access project benefits (i.e. jobs for local people including women, public awareness campaign, training, and other activities) during the design, implementation and operation. Specifically, the are:</p> <ul style="list-style-type: none"> informed about the project, implementation arrangements, etc. informed of the potential / unintended negative impacts that may arise during project 	<ul style="list-style-type: none"> Information generation/ sharing; Consultation and shared decision making/ responsibility 	<p>Public consultation (community assembly meetings);</p> <p>FGDs workshop</p>	<p>EA through the CPMO social safeguards staff in coordination with the IAs and PIUs staff</p> <p>LIC social and gender specialist</p> <p>Village leader</p>	2018	2023

Stakeholders	Objectives	Types of Participation and Communication	Methods and Responsibility		Timeline	
			Methods	Who will be responsible	Start	End
	<p>implementation (i.e., land acquisition/ resettlement, temporary or permanent loss of income, etc.) and mitigation measures.</p> <ul style="list-style-type: none"> • informed about the project, GRM process, etc. • explained about the positive impacts or potential benefits that the local people could have during project implementation and operation (i.e. job opportunities, training, etc.). • informed about job opportunities, training, awareness campaign activities, consultation meetings that will be implemented during the design, implementation, and operation/maintenance stages. 					
Other stakeholders in the project areas (farmers, youth, schools, other agencies/organizations, etc.	<p>Some local people, representatives of schools (students and teachers), youth, women, farmers and other groups) are trained as community volunteers for flood management/ emergency response, and environmental and solid waste management. Specifically, they are:</p> <ul style="list-style-type: none"> • informed about the project, outputs/components and activities. • provided information and required basic knowledge and skills for flood control/management and environmental and solid waste management. 	<ul style="list-style-type: none"> • Information sharing, • Consultation, and shared decision making, and shared responsibility 	<p>Meeting FGD Public consultation workshop</p>	<p>EA through the CPMO social safeguards staff in coordination with the IAs and PIUs staff; LIC social and gender specialist Village leaders</p>	2018	2023
Women	Support gender mainstreaming and	<ul style="list-style-type: none"> • Information 	Meeting FGD	EA/IAs through the	2018	2023

Stakeholders	Objectives	Types of Participation and Communication	Methods and Responsibility		Timeline	
			Methods	Who will be responsible	Start	End
	<p>ensure that women get maximum benefits from the project. Specifically, women are:</p> <ul style="list-style-type: none"> informed about the project, outputs/components and activities. are able to benefit from the project by participating in consultations; job opportunities, awareness campaign and training, and other activities. 	<p>sharing;</p> <ul style="list-style-type: none"> Consultation, and shared decision making 	<p>Workshop Public consultation</p>	<p>CPMO social safeguards staff in coordination with the IAs and PIUs staff;</p> <p>LIC social and gender specialist</p> <p>Village leaders</p>		

ADB = Asian Development Bank, AP = affected person, AH = affected household, CMG = Chongqing Municipal Government, CPMO = Chongqing project management office, EA = executing agency, FGD = focused group discussion, GAP = gender action plan, GRM = grievance redress mechanism, IA = implementing agency, LIC = loan implementation consultant, LAR = land acquisition and resettlement, NGO = nongovernment organization, PIU = project implementing unit, RP = resettlement plan, SDAP = social development action plan.

Source: Asian Development Bank estimates.

X. ANTICORRUPTION POLICY

96. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.³⁹ 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.⁴⁰

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

XI. ACCOUNTABILITY MECHANISM

98. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, they should approach the Accountability Mechanism.⁴¹

XII. RECORD OF PAM CHANGES

99. 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 the PAM, including revision to contract awards and disbursement s-curves.

³⁹ Available at: <http://www.adb.org/sites/default/files/pub/1998/anticorruption.pdf>.

⁴⁰ ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>.

⁴¹ For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

**INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR
PACKAGE TA-01: CONSULTING SERVICES TO SUPPORT DEVELOPMENT OF FLOOD AND
ENVIRONMENTAL RISK MANAGEMENT SYSTEM IN LONGXI RIVER**

A. Introduction

1. This document sets out indicative terms of reference for consulting services to support development of Flood and Environmental Risk Management (FERM) system in Longxi River and to disseminate initiatives of the Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project to other river watersheds. The direct client of the consulting services is the Chongqing Project Management Office (CPMO), which is under the Chongqing Development and Reform Commission (CDRC). The selected consultant team will work closely with CPMO, Chongqing Water Resource Bureau (CWRB), and other relevant bureaus. The project also needs to be coordinated with national initiatives those already exist or arise during the project implementation. The consulting services will be also provided to the three project-implementing agencies (IAs), which are based in each DRC of Liangping District Government (LDG), Dianjiang County Government (DCG), and Changshou District Government (CDG).

B. Implementation Arrangements

2. The consulting services to support development of flood and risk management system in Longxi River will be carried out by a team of consultants through a firm. A total of 10 person-months of international and 80 person-months of national consultants will be required. The consulting services will be financed under the loan and the consultants will be recruited by the CPMO according to ADB's Procurement Regulations (2017, as amended from time to time). The consulting firm will be selected by (i) inviting full technical proposals; and (ii) using the quality- and cost-based selection (QCBS) method, with a quality–cost ratio of 90:10. The consulting services are expected to start in June 2019 until December 2023.

C. Progress Reporting Requirements

3. The consultant team will produce (i) an inception report within 4 weeks of the start of the consulting services, (ii) quarterly progress report, (iii) an annual report by the end of each year during 2019~2023, (iv) draft final report 3 months before the completion of the consulting services, and (v) a final report by December 2023. The inception, quarterly, annual, and draft final reports will be subject to tripartite reviews by ADB, the CPMO, and the consultants. All reports are to be written in English and translated into Chinese. One soft and three scanned copies of each report are to be submitted to ADB (English version only) and the CPMO (both Chinese and English versions).

4. The inception report will present an approach for the consulting services, including a work plan and an implementation schedule. The quarterly, annual, draft final, and final reports will present the activities conducted by the consultants, effects of the consulting services, issues encountered, and recommendations.

D. Other Requirements

5. The consultant team will provide a fully qualified interpreter to work with the consultants on a full-time basis and support the ADB missions.

E. Scope of Services and Consultants' Inputs

6. Tasks and responsibilities of the consultant team for development of FERM system are described but not limited to the following:

Hydro-meteorological services for river health monitoring system

- (i) Establish locally calibrated rainfall-runoff model in Longxi River watershed utilizing state of the art technologies including the uses of Geographic Information System (GIS) and telemetric hydrological observation system to be established under the project;
- (ii) Establish quantitative water quality model in Longxi River watershed using GIS and real time water quality monitoring system to be established under the project;
- (iii) Perform flood risk mappings in Longxi River watershed utilizing numerical simulations, and ground validation including community-based approach in the watershed in combination with existing flood risk maps (if any);
- (iv) Propose additional hydrological observation stations, water level observation stations and rainfall observation stations in the watershed; promote telemetric (automatic) observation system; and develop data server and data transmission system in a real time basis;
- (v) Propose automatic water quality monitoring stations and help project implementing agencies (IAs) procure and install such stations in the watershed in close collaboration with relevant bureaus. The focus should be given to monitor the chemical oxygen demand, ammonia nitrogen, total phosphorus, chlorophyll, and suspended solids; heavy metal pollutants, toxic and other harmful elements as needed;
- (vi) Help design, procure and install a surveillance system (video monitoring) on flood, and solid waste collection/disposal.
- (vii) Support in upgrading/rehabilitation of the existing hydrological stations, water level observation stations, rainfall observation stations and water quality monitoring stations;
- (viii) Develop and install flood and water quality forecasting and early warning system providing sufficient lead time and different stages (e.g. blue, yellow, orange and red) of preparation aided by model simulation, real-time observation, and contingency plans at different levels;
- (ix) Help improve existing flood forecast and early warning action plan, including the upstream and downstream coordination, real-time warning provisions, and uses of media in early warning information dissemination such as SMS, radio, proclamation, etc.;
- (x) Synergize the established hydrological and water quality monitoring system with river chief system, which is being applied in all river basins in the PRC;

Development planning

- (xi) Further development of the river basin model to facilitate the river basin development planning with special focus on spatial planning and formulation and implementation of FERM plan;
- (xii) Under the River Chief System, help develop the flood footprint and accountability system in order to strengthen the FERM in the Longxi River watershed;

- (xiii) Develop FERM plan in the Longxi River watershed including preparation of FERM investment roadmap and formulation of medium- and long-term comprehensive FERM investment plans, and draft recommendation for land-use planning and regulations.
- (xiv) Review and provide recommendations for improvement of existing development plans in the FERM plan. Proposed FERM plan is a prerequisite for the implementation of all existing and future development plans in the watershed, promoting environment first in the basin;
- (xv) Prioritize two important sources of water pollution mainly (i) integrated pest management (IPM) and the use of agricultural chemicals; and (ii) the management of industrial wastewater;

Capacity development

- (xvi) Provide technical training to relevant EA and IA staff on (a) flood and storm water control, including operation and maintenance of the facilities; (b) flood forecasting and early warning; (c) river basin management and planning using the river basin model; (d) solid waste collection and transfer systems; (e) maintenance and monitoring of the constructed wetlands, etc.;
- (xvii) Capacity development of CMG, local governments, and communities in piloting the flash-flood early warning system; promotion of community-based FERM including household level solid waste management pilot; establishment of Longxi River coordination unit in CMG to aid the application of river chief system, drafting recommendation for land-use planning and regulation, and updating reservoir operational guidelines;
- (xviii) Plan and prepare study tours for flood and environmental management; and
- (xix) Disseminate project's initiatives (integrated river basin management planning, river basin model, flood and environmental management planning combined with urban planning, etc.) to other similar river basins, through (a) workshops inviting other cities; (b) training, not only for the EA and IA staff but also for other city staff; (c) publications including knowledge products; (d) disclosure of project information on website; and (e) submission of papers to academic societies
- (xx) Provide training to farmers in the efficient use and application of pesticides and fertilizers as well as in modern farming and irrigation practices.
- (xxi) Conduct training for relevant CMG staff on (a) flood control, water quality monitoring, including operation and maintenance of the facilities; (b) flood forecasting and warning (including data management); (c) river management and planning using the river basin model; (d) solid waste collection and transfer; (e) maintenance and monitoring of the constructed wetlands; etc.
- (xxii) Help local governments strengthen and enforce regulation for on-site treatment and affluent discharge of individual companies. Coordinate among different initiatives including industrial park management, which is also being supported under another ADB-funded project.
- (xxiii) Mobilize local non-governmental organizations to promote community based FERM including solid waste management in selected pilot communities, promoting organization development, grass root capital formation, skill development, local FERM infrastructures, gender equity, cultural norms, appropriate technologies, and

environment first approach.

- (xxiv) Take into account gender and social target indicators in GAP and SDAP while undertaking above tasks.

7. **Qualifications.** Each consultant's input is shown in the table below. For each of the international consultant positions, (i) possession of a related degree, qualification, and/or memberships of related academic societies; and/or past participation in related training courses; (ii) experience in similar positions for projects or technical assistances; and (iii) experience in projects in the People's Republic of China will be highly evaluated. For each of the national consultant positions, (i) possession of a related degree, qualification, memberships of related academic societies, and/or participation in related training courses, (ii) experience in similar positions for projects or technical assistances, and (iii) experience in working with international organizations and consultants, will be highly evaluated.

Tentative Consultants' Inputs		
Position	International	National
Flood and environmental risk management specialist/Team Leader	10.0	14.5
GIS/remote sensing specialist		7.0
Land use planning specialist		5.5
Hydrologist		10.5
Water quality management specialist		8.0
Solid waste management specialist		5.0
River monitoring specialist		4.5
Capacity development specialist (IWRM)		6.5
Social development specialist		8.5
Civil engineer		4.5
Environment specialist		5.5
Total	10.0	80.0

Source: Asian Development Bank estimates

Tentative Consultants' Inputs by Activities

Activities	Consultants Inputs (person-months)														
	FERM specialist		GIS and remote Sensing Specialist		Land use planning specialist		Hydrologist		Water quality management	Solid waste management specialist	River monitoring specialist	Capacity development specialist (IWRM)	Social development specialist	Civil Engineer	Environment specialist
	Int	Na	Int	Na	Int	Na	Int	Na	Na	Na	Na	Na	Na	Na	Na
Establishing locally calibrated rainfall-runoff model for Longxi River watershed	1.0	2.0		0.5		0.5		2.0			0.5				
Establish water quality simulation model and install it in CMG				0.5				0.5	3.0	2.0	0.5				0.5
Flood and environmental risk mapping for different scenarios	0.5	1.0		1.5		0.5		0.5	1.0		0.5		0.5		0.5
Strengthening river monitoring including surveillance camera installation for FERM		0.5		0.5				0.5			1.5	0.5			
Develop flood and water quality forecast and early warning system including development of contingency plans at local levels	1.0	1.5						1.5	0.5		0.5	0.5	1.5		
Harmonized install river monitoring with river chief system in CMG		0.5		0.5		0.5		0.5	0.5	0.5	0.5	0.5			0.5
Develop river basin model in GIS platform for planning purpose	1.0	1.0		0.5		1.5		1.0	0.5			0.5			0.5
Develop flood footprint and accountability system	1.0	1.0		0.5		0.5		2.5				0.5		2.0	

Activities	Consultants Inputs (person-months)														
	FERM specialist		GIS and remote Sensing Specialist		Land use planning specialist		Hydrologist		Water quality management	Solid waste management specialist	River monitoring specialist	Capacity development specialist (IWRM)	Social development specialist	Civil Engineer	Environment specialist
	Int	Na	Int	Na	Int	Na	Int	Na	Na	Na	Na	Na	Na	Na	Na
in close coordination with municipal and Yangtze river commission															
Develop FERM plan as a prerequisite for other development plans in the Longxi River watershed	2.5	3.0		1.5		1.5		1.0	1.5	0.5		1.5	1.5	1.5	2.5
Formulate FERM investment plans	-	-		-		-			-	-		-	-		
Training for relevant CMG staff	0.5	0.5		0.5		0.5		0.5	0.5	0.5	0.5	0.5			0.5
Training for farmers									0.5			0.5	1.0		
Mobilize local NGOs and promote community based FERM under CBFERM basic principles										1.5		0.5	4.0	1.0	0.5
Planning and preparation of overseas and domestic study tours												1.0			
Disseminate project's initiatives	0.5	0.5													
Project management	2.0	3.0		0.5											
Total	10	14.5		7		5.5		10.5	8	5	4.5	6.5	8.5	4.5	5.5

F. Cost Estimate

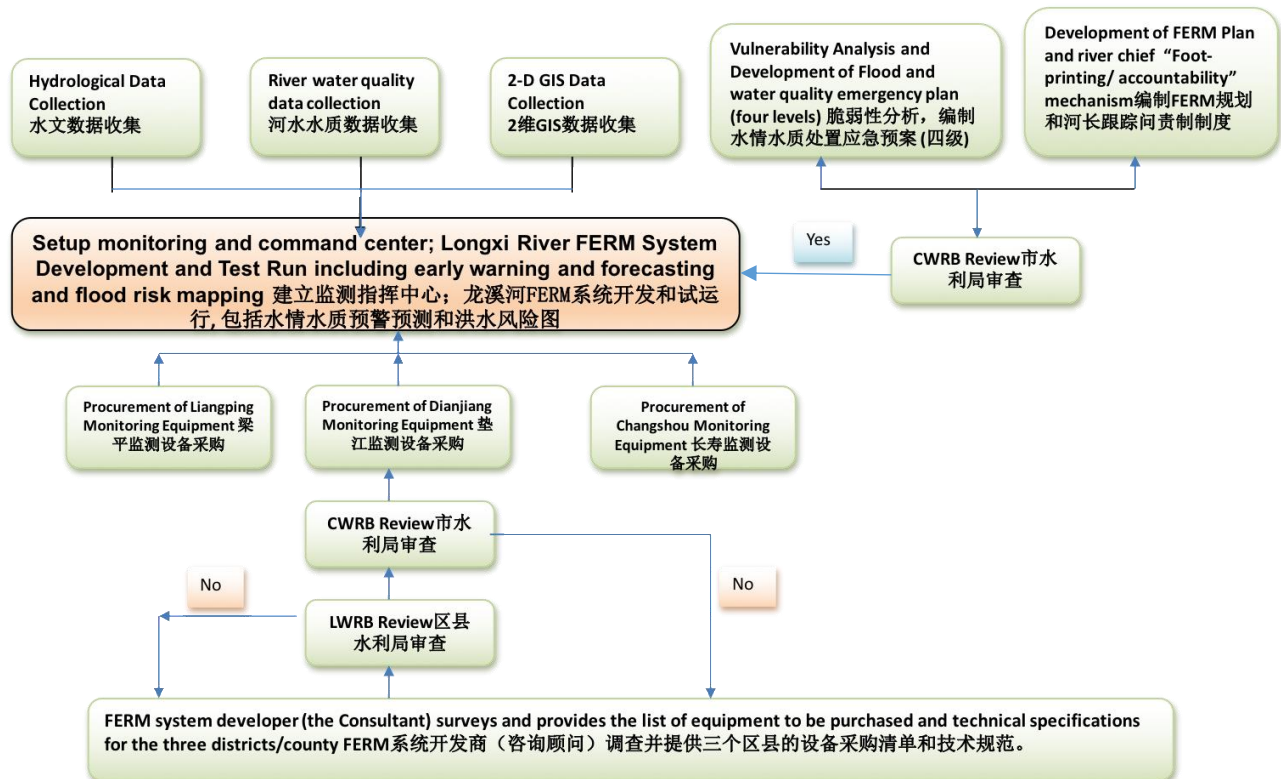
Cost Estimate	
Description	Total Cost (\$'000)
1. Consultants	
a. Remuneration and per diem	
(i) International consultants	250.0
(ii) National consultants	705.0
b. International and local travel	75.0
c. Reports and communications	30.0
2. Equipment ^a	150.0
3. Study tour, Workshops, training, seminars, and conferences ^b	120.0
Surveys	40.0
Miscellaneous administration and support costs	10.0
Contingencies	20.0
Total	1,400.0

^a For the monitoring centers.

^b Including transportation, accommodation, venue rental, documentation fee, and resource persons invited.

Source: Asian Development Bank estimates.

G. Flow Diagram of FERM System Development



H. Specific Outputs Reports

8. The consultant shall prepare and submit various outputs reports to the Clients in accordance with the scope of services and terms and conditions of the contract. The basic requirements and formats for the study reports shall be described in the technical proposal submitted by the consultant and finalized in the preliminary report agreed by the CPMO and IAs. Except for preparing the required progress reports as stated above in Section C Progress Reporting Requirements, the consultant shall also prepare the following study reports for review and approval by CPMO and CWRB:

Reports	Date of Submission	Review and Approval
Detailed proposal and preliminary design of FERM System	Two (2) months after work starts	CPMO, CWRB, IAs; expert review meeting is needed
Proposal of new monitoring stations to be setup and upgrading of existing monitoring instrument, which will be integrated in the FERM system	Four (4) months after work starts	CWRB, IAs
Technical Specifications and list of equipment to be purchased	Four (4) months after work starts	CWRB, IAs
Four-level emergency plans of flood and water quality along Longxi river basins, which will be integrated in the FERM system	Six (6) months after work starts	CPMO, CWRB, IAs; expert review meeting is needed
Foot-printing/accountability mechanism associated the river chief system, which will be integrated in the FERM system in different level of emergency situation	Six (6) months after work starts	CPMO, CWRB, IAs; expert review meeting is needed
Planning and programming including preparation of FERM investment roadmap and formulation of medium- and long-term comprehensive FERM plans, and draft recommendation for land-use planning and regulations,	Eight (8) months after works starts	CPMO, CWRB, IAs; expert review meeting is needed

Reports	Date of Submission	Review and Approval
which will support to the FERM system.		
Capacity development plan of CMG, local governments, and communities including training programs;	Eight (8) months after works starts, and training is conducted	CPMO, CWRB, IAs
Proposal of the monitoring centers to be equipped.	Six (6) months after work starts	CPMO, CWRB
Flood Risk Mappings to be integrated in the FERM system	Ten (10) months after work starts	CPMO, CWRB, IAs; expert review meeting is needed.
Hydraulic model and water quality model to be setup	Eleven (11) months after starts	CPMO, CWRB, IAs; expert review meeting is needed
Integrated FERM System	Fourteen (14) months after starts	CPMO, CWRB, IAs; expert review meeting is needed
Test running and upgrading of FERM System	Twelve (12) months after the integrated FERM system is accepted.	CPMO, CWRB, IAs

CMG = Chongqing Municipal Government, CPMO = Chongqing Project Management Office, CWRB = Chongqing Water Resource Bureau, FERM = flood and environmental risk management, IA = implementing agency.

9. Unless otherwise required by the clients, all reports shall be prepared with ten (10) copies in Chinese and 10 copies in English. Both the Chinese and English versions of the reports are to be prepared. If the report only uses one language, the abstract shall be translated into another language.

10. The consultant shall be in charge for the Expert Review Meeting as requested in the Section G, including selection of experts to be agreed by CPMO and CWRB, conference room for the review, consulting fee of review, expert travel cost and accommodation, etc.

APPENDIX 2-1
INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR
PACKAGE TA-02-a: PROJECT IMPLEMENTATION STARTUP SUPPORT
(PROJECT MANAGEMENT AND PROCUREMENT)

A. Introduction

1. This document sets out indicative terms of reference for consulting services needed to ensure the smooth implementation startup of the Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project. The direct client of the consulting services is the Chongqing project management office (CPMO) which is under the Chongqing Development and Reform Commission (CDRC). The consulting services will be also provided to the three project implementing agencies (IAs) which are based in the DRC, including Liangping District Government (LDG), Dianjiang County Government (DCG), and Changshou District Government (CDG).

B. Implementation Arrangements

2. The consulting services will be carried out by individual consultants (national project management and procurement specialist). The consulting services will be financed by Asian Development Bank (ADB) and the consultant will be recruited by the CPMO according to ADB's Procurement Regulations (2017, as amended from time to time). The consultant will be selected using the individual consultant selection (ICS) method. The consulting services are expected to start in October 2018 until May 2019.

C. Reporting Requirements

3. By the end of the assignment, the consultant will submit a report on his/her activities to ADB and the CPMO (a soft copy of the English version to ADB and soft copies of the English and Chinese versions to the CPMO).

D. Detailed Scope of Services and Consultants' Inputs

4. The individual national project management and procurement specialist will provide a total of 7.0 person-months of consulting services to support project management and procurement related activities. The consultants shall have a university degree or higher in project management, procurement, administration or related field. He/she shall be proficient in English and has at least 5 years of experience in project management and procurement for projects funded by ADB or other international funding agencies. Knowledge on ADB's Procurement Regulations (2017, as amended from time to time) and other ADB procedures are required.

5. The specialist will undertake the following major tasks: (i) understand the format of quarterly project progress reports provided by ADB, and provide the CPMO with guidance on how to fill-in the format by assisting them in preparing the first report; (ii) improve internal procedures of routine data collection and filling and information exchange among the CPMO, IAs and PIUs and other agencies of the Chongqing Municipal Government, LDG, DCG and CDG for smooth project implementation and quarterly project progress reporting; (iii) assist the CPMO in recruiting and a consultant team to support development of Longxi River flood and environmental risk management (FERM) system (package number TA-01), a consultant team for project management and capacity building support (package number TA-03), a competent independent external monitoring agency for external monitoring and evaluation of land acquisition and resettlement (package number TA-04), and for external monitoring and evaluation of environment (package number TA-05); (iv) provide any

supports to the CPMO, IAs and PIUs and a procurement agency engaged by the CPMO for procurement of works and goods, including guidance on preparation of bidding documents, review of bidding document including Technical Specifications, Bill of Quantities as well as commercial sections; (v) develop capacities of CPMO, IAs and PIUs and involved agencies under each IA for project management and procurement; and (vi) perform any other tasks for project management and procurement, and consultant recruitment during the start-up phase of the project.

E. Cost Estimate

Cost Estimate	
Description	Total Cost (\$'000)
1. Consultants	
a. Remuneration and per diem	
National consultant (7.0 person-months)	40.6
b. Local travel	3.0
2. Reports and communications	0.6
3. Miscellaneous administration and support costs	2.0
4. Contingencies	1.0
Total	47.2

Source: Asian Development Bank estimates.

APPENDIX 2-2
INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR
PACKAGE TA-02-b: PROJECT IMPLEMENTATION STARTUP SUPPORT
(FINANCIAL)

A. Introduction

6. This document sets out indicative terms of reference for consulting services needed to ensure the smooth implementation startup of the Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project. The direct client of the consulting services is the Chongqing project management office (CPMO) which is under the Chongqing Development and Reform Commission (CDRC). The consulting services will be also provided to the three project implementing agencies (IAs) which are based in the DRC, including Liangping District Government (LDG), Dianjiang County Government (DCG), and Changshou District Government (CDG).

B. Implementation Arrangements

7. The consulting services will be carried out by individual consultants (national financial specialist). The consulting services will be financed by Asian Development Bank (ADB) and the consultant will be recruited by the CPMO according to ADB's Procurement Regulations (2017, as amended from time to time). The consultant will be selected using the individual consultant selection (ICS) method. The consulting services are expected to start in October 2018 until May 2019.

C. Reporting Requirements

8. By the end of the assignment, the consultant will submit a report on his/her activities to ADB and the CPMO (a soft copy of the English version to ADB and soft copies of the English and Chinese versions to the CPMO).

D. Detailed Scope of Services and Consultants' Inputs

9. The individual national financial specialist will provide a total of **2.0** person-months of consulting services to support financial management including ABD loan withdrawal application procedures and related activities. The consultant shall have a university degree or higher in financial management or related field. He/she shall be proficient in English and has at least 5 years of experience in financial management for projects funded by ADB or other international funding agencies. Knowledge on ADB's financial management requirements and other ADB procedures are required.

10. The specialist will undertake the following major tasks: (i) provide consulting supports in financial management particularly ADB loan withdrawal application and disbursement procedures; (ii) understand the format of the relevant financial management reports provided by ADB, and provide the CPMO with guidance on how to fill-in the format by assisting them in preparing the first loan withdrawal application and disbursement report; (iii) improve internal procedures of routine data collection and filling and information exchange among the CPMO, IAs and PIUs and other agencies of the Chongqing Municipal Government, LDG, DCG and CDG for reporting; (iv) review the existing financial management and accounting procedures of the IAs and PIUs and provide suggestions for improvement; (v) develop capacities of CPMO, IAs, PIUs and involved agencies under each IA through training on ADB financial management procedural requirements particularly loan withdrawal application and disbursement procedures; (vi) assist the CPMO, IAs and PIUs in handing over relevant documents and files to the project management and capacity development support

consultant team engaged in package number TA-03 and brief the team, particularly the financial specialist in the team, status and outstanding issues; and (vii) perform any other tasks for financial management during the start-up phase of the project.

E. Cost Estimate

Cost Estimate	
Description	Total Cost (\$'000)
1. Consultants	
a. Remuneration and per diem	
National consultant (2.0 person-months)	11.60
b. Local travel	0.35
2. Reports and communications	0.20
3. Miscellaneous administration and support costs	0.25
4. Contingencies	0.10
Total	12.50

Source: Asian Development Bank estimates.

APPENDIX 2-3
INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR
PACKAGE TA-02-c: PROJECT IMPLEMENTATION STARTUP SUPPORT
(ENVIRONMENT)

A. Introduction

11. This document sets out indicative terms of reference for consulting services needed to ensure the smooth implementation startup of the Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project. The direct client of the consulting services is the Chongqing project management office (CPMO) which is under the Chongqing Development and Reform Commission (CDRC). The consulting services will be also provided to the three project implementing agencies (IAs) which are based in the DRC, including Liangping District Government (LDG), Dianjiang County Government (DCG), and Changshou District Government (CDG).

B. Implementation Arrangements

12. The consulting services will be carried out by individual consultants (national environment specialist). The consulting services will be financed by Asian Development Bank (ADB) and the consultant will be recruited by the CPMO according to ADB's Procurement Regulations (2017, as amended from time to time). The consultant will be selected using the individual consultant selection (ICS) method. The consulting services are expected to start in October 2018 until May 2019.

C. Reporting Requirements

13. By the end of the assignment, the consultant will submit a report on his/her activities to ADB and the CPMO (a soft copy of the English version to ADB and soft copies of the English and Chinese versions to the CPMO).

D. Detailed Scope of Services and Consultants' Inputs

14. The individual national environment specialist will provide a total of **3.0** person-months of consulting services to support environmental related activities. The consultants shall have a university degree or higher in environment or related field. He/she shall be proficient in English and has at least 5 years of experience in environment management for projects funded by ADB or other international funding agencies. Knowledge on ADB's Safeguards Policies and Guidelines and other ADB procedures are required.

15. The specialist will undertake the following tasks: (i) assist the CPMO and IAs in updating the environmental impact assessment (EIA) report and environmental management plan (EMP) approved by ADB for the project, in ADB format and based on the detailed designs; and obtain ADB's approval of them;⁴²; (ii) assist the CPMO, IAs and PIUs in ensuring adequate environmental management readiness; (iii) assist the CPMO, IAs and PIUs in establishing effective grievance redress mechanisms, including mechanisms to ensure reporting of complaints, follow-up actions, and results; (iv) provide training to relevant staff of the CPMO, IAs and PIUs so they will understand ADB's policies and compliance requirements for environmental management; (v) assist the CPMO, IAs and PIUs in establishing an internal environmental monitoring and reporting system; (vi) assist the CPMO, IAs, and PIUs in constructing, operating, maintaining, and monitoring the project facilities in strict conformity with all applicable laws and regulations, including national and local regulations

⁴² The EMP is included in the EIA report.

and standards for environmental protection, health, labor, and occupational safety; and ADB's Safeguard Policy Statement (2009),⁴³ and the EIA report and EMP; (vii) assist the CPMO, IAs and PIUs in handing over relevant documents and files to the project management and capacity development support consultant team engaged in package number TA-03 and brief the team, particularly the environment specialist in the team, status and outstanding issues; and (viii) perform any other environmental management related tasks during the start-up phase of the project.

E. Cost Estimate

Cost Estimate	
Description	Total Cost (\$'000)
1. Consultants	
a. Remuneration and per diem	
National consultant (3.0 person-months)	17.40
b. Local travel	0.85
2. Reports and communications	0.25
3. Miscellaneous administration and support costs	0.65
4. Contingencies	1.00
Total	20.15

Source: Asian Development Bank estimates.

⁴³ Available at: <http://www.adb.org/documents/safeguard-policy-statement>

APPENDIX 2-4
INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR
PACKAGE TA-02-d: PROJECT IMPLEMENTATION STARTUP SUPPORT
(LAND ACQUISITION AND RESETTLEMENT)

A. Introduction

16. This document sets out indicative terms of reference for consulting services needed to ensure the smooth implementation startup of the Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project. The direct client of the consulting services is the Chongqing project management office (CPMO) which is under the Chongqing Development and Reform Commission (CDRC). The consulting services will be also provided to the three project implementing agencies (IAs) which are based in the DRC, including Liangping District Government (LDG), Dianjiang County Government (DCG), and Changshou District Government (CDG).

B. Implementation Arrangements

17. The consulting services will be carried out by individual consultants (national resettlement specialist). The consulting services will be financed by Asian Development Bank (ADB) and the consultant will be recruited by the CPMO according to ADB's Procurement Regulations (2017, as amended from time to time). The consultant will be selected using the individual consultant selection (ICS) method. The consulting services are expected to start in October 2018 until May 2019.

C. Reporting Requirements

18. By the end of the assignment, the consultant will submit a report on his/her activities to ADB and the CPMO (a soft copy of the English version to ADB and soft copies of the English and Chinese versions to the CPMO).

D. Detailed Scope of Services and Consultants' Inputs

19. The individual national resettlement specialist will provide a total of **3.0** person-months of consulting services. The consultant shall have a university degree or above in resettlement, social or related field. He/she shall be proficient in English and have at least 10 years of experience in land acquisition and resettlement (LAR) in the People's Republic of China on projects funded by ADB or other international funding agencies. Knowledge on ADB's Safeguard Policy Statement (2009) and ADB's or other international funding agencies' procedures for LAR are required.

20. The specialist will undertake the following tasks: (i) assist the CPMO, IAs, PIUs and design institute in updating the resettlement plans approved by ADB, in ADB format and based on the detailed designs, disclosing them to the affected persons prior to ADB's approval, and obtaining ADB's approval of them; (ii) assist the CPMO, IAs and PIUs in ensuring adequate resettlement readiness prior to LAR; (iii) assist the CPMO, IAs and PIUs in establishing effective grievance redress mechanisms, including mechanisms to ensure reporting of complaints, follow-up actions, and results; (iv) provide training to relevant staff of the CPMO, IAs and PIUs so they will understand ADB's policies and compliance requirements for LAR; (v) assist the CPMO, IAs and PIUs in establishing an internal LAR monitoring and reporting system; (vi) assist the CPMO and PIUs in handing over relevant documents and files to the project management and capacity development support consultant team engaged in package number TA-03 and brief the team, particularly the resettlement specialist in the team, status and outstanding issues; and (vii) perform any other LAR related tasks during the start-up phase of the project.

E. Cost Estimate

		Cost Estimate
Description		Total Cost (\$'000)
1.	Consultants	
	a. Remuneration and per diem	
	National consultant (3.0 person-months)	17.40
	b. Local travel	0.85
2.	Reports and communications	0.25
3.	Miscellaneous administration and support costs	0.65
4.	Contingencies	1.00
	Total	20.15

Source: Asian Development Bank estimates.

APPENDIX 3
INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR
PACKAGE TA-03: PROJECT MANAGEMENT AND CAPACITY DEVELOPMENT

A. Introduction

1. This document sets out indicative terms of reference for consulting services needed to ensure the smooth implementation of the Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project. The direct client of the consulting services is the Chongqing project management office (CPMO), which is under the Chongqing Development and Reform Commission (CDRC). The consulting services will be also provided to the three project implementing agencies (IAs) which are based in the DRC, including Liangping District Government (LDG), Dianjiang County Government (DCG), and Changshou District Government (CDG).

B. Implementation Arrangements

2. The consulting services for project management and capacity development will be carried out by a team of consultants through a firm. A total of 128 person-months of national consultants will be required. The consulting services will be financed by Asian Development Bank (ADB) and the consultants will be recruited by the CPMO according to ADB's Procurement Regulations (2017, as amended from time to time). The consulting firm will be selected by (i) inviting full technical proposals; and (ii) using the quality- and cost-based selection (QCBS) method, with a quality–cost ratio of 90:10. The consulting services are expected to start in June 2019 until 31 December 2023.

C. Reporting Requirements

3. The consultant team will produce (i) an inception report within 4 weeks of the start of the consulting services, (ii) an semiannual report by the end of each year during 2019–2024, (iii) draft project completion report (PCR) by 31 October 2025, and (iv) a final PCR by 31 December 2025. The inception and semiannual reports and draft PCR will be subject to tripartite reviews by ADB, CPMO, and consultants. All reports are to be written in English and translated into Chinese. One soft and three hard copies of each report are to be submitted to ADB (English version only) and the CPMO (both Chinese and English versions).

4. The inception report will present an approach for the consulting services, including a work plan and an implementation schedule. The semiannual reports will present activities conducted by the consultants, effects of the consulting services, issues encountered, and recommendations to improve project management. The draft and final PCRs will include summary and evaluation of project implementation; environmental management; land acquisition and resettlement; ethnic minority development; implementation of ethnic minority and social development action plans (EMSDAP), and gender action plan (GAP); compliance to the loan and project covenants; and achievements of the project impact, outcome, and outputs; as well as lesson learned from the project implementation and follow-up actions recommended.

D. Other Requirements

5. The consultant team will provide a fully qualified interpreter to work with the consultants on a full-time basis and support the ADB missions.

E. Scope of Services and Consultants' Inputs

6. For each of the international and national consultant positions, (i) possession of a related degree, qualification, memberships of related academic societies, and/or participation in related training courses, (ii) experience in similar positions for projects or technical assistances, and (iii) experience in working with international organizations and consultants, will be highly evaluated.

1. Project Management Specialist/Team Leader (national, 24.0 person-months)

7. The specialist will (i) coordinate all project management support activities as team leader; (ii) finalize approaches for project management support; (iii) prepare the inception report, interim reports, semiannual reports, draft PCR, and final PCR; (iv) assist the CPMO in implementing, monitoring, and evaluating the overall project and subprojects; (v) assist the CPMO in preparing quarterly project progress reports in a format provided by ADB; (vi) assess needs for capacity development for staff of the CPMO, IAs, and others, and plan, design, organize, and implement seminars, workshops, and/or training for project management; financial management; disbursement arrangements, implementation, monitoring; and evaluation of resettlement, gender development, and environmental management, and project monitoring and evaluation [M&E], if necessary;⁴⁴ (vii) monitor compliance with the loan covenants, assess key implementation issues, and make recommendations for improvement; and (viii) conduct any other necessary work for smooth and appropriate implementation of the project.

2. Procurement and contract Management Specialist/Deputy Team Leader (national, 24.0 person-months)

8. The specialist will (i) monitor procurement activities under the project and assist the CPMO in updating and implementing the procurement plan; (ii) assist the CPMO in conducting management of contracts for civil works, goods, and consulting services, including, but not limited to, supervision and inspection of activities under contracts; payments to contractors, suppliers, and consultants; preparation of withdrawal applications; improvement of fund flow efficiency by streamlining the preparation of withdrawal applications; and contract variations; (iii) assist the project management specialist/team leader in monitoring compliance with the loan covenants, assess key implementation issues, and make recommendations for improvement, from procurement and contract management viewpoint; (iv) provide the CPMO with support for the preparation of procurement and contract management aspects of quarterly progress reports; (v) provide support to the project management specialist/team leader for assessing needs for capacity development, and planning, designing, organizing, and implementing seminars, workshops, and/or training for procurement and contract management; (vi) provide support to the project management specialist/team leader for preparing the inception report, semiannual reports, draft PCR, and final PCR; and (vii) conduct any other necessary work for procurement and contract management assigned by the project management specialist/team leader.

3. Civil Engineer - Flood infrastructure (national, 20.0 person-months)

9. The civil engineer will conduct technical review focusing on flood management, and provide expert comments on engineering detailed design in accordance with the applicable national design codes and standards; work with other members of the consulting team to review consistency between proposed technical specifications and proposed bills of quantity (BOQ); conduct periodic site inspections and provide technical inputs to construction planning, supervision and monitoring for

⁴⁴ Costs for seminars, workshops, and training excluding consulting services (costs for venues, printing, accommodation and transport for participants, etc.) will be funded from ADB loan under the project separately from the contract for the consulting services.

quality control of construction; collect necessary information and analyze technical justification in case of change in project scope and contract variations; prepare O&M manuals for the flood risk management subprojects; provide technical inputs to the required reports; and participate in capacity building training.

4. Environment Specialist (national, 15.0 person-months)

10. The specialist will (i) assist the CPMO and design institute in updating the environmental impact assessment (EIA) report and environmental management plan (EMP) approved by ADB for the project, in ADB format and based on the detailed designs; and obtain ADB's approval of them;⁴⁵ (ii) assist the CPMO and IAs in constructing, operating, maintaining, and monitoring the project facilities in strict conformity with all applicable laws and regulations, including national and local regulations and standards for environmental protection, health, labor, and occupational safety; and ADB's Safeguard Policy Statement (2009),⁴⁶ and the EIA report and EMP; (iii) assist the CPMO in preparing and submitting to ADB semiannual environmental monitoring reports in a format acceptable to ADB during construction and implementation of the project; (iv) monitor compliance with the EIA report and EMP, assess the degree of impacts and key implementation issues, explain key issues to the CPMO and IAs, and assist them in conducting follow-up actions to address the key issues; (v) provide the CPMO with support for the preparation of environmental aspects of semiannual progress reports; (vi) provide supports to the project management specialist/team leader for assessing needs for capacity development, and planning, designing, organizing, and implementing seminars, workshops, and/or training for environmental management; (vii) provide support to the project management specialist/team leader for preparing the inception report, semiannual reports, draft PCR, and final PCR; and (viii) undertake any other necessary work assigned by the project management specialist/ team leader.

5. Resettlement and Social Specialist (national, 15.0 person-months)

11. The specialist will (i) assist the CPMO, IAs, and design institute in updating the resettlement plans approved by ADB, in ADB format and based on the detailed designs; disclose them to the affected persons prior to ADB's approval; and obtain ADB's approval of them; as necessary; (ii) assist the CPMO and IAs in implementing land acquisition and resettlement in accordance with the resettlement plans, (iii) assist the IAs in supervising contractors to ensure compliance with requirements of the resettlement plans, applicable laws and regulations, and ADB's Safeguard Policy Statement; (iv) assist the PMO and IAs in supervising the processes of resettlement by collecting and updating basic data, and closely coordinating between the CPMO and IAs, and an external resettlement monitor; (v) follow up with the districts and county governments for post resettlement subsidies to be provided to households displaced by the Project components; (vi) review external M&E reports prepared by the external resettlement monitor and ADB's comments on the reports, monitor compliance with the resettlement plans, assess the degree of impacts and key implementation issues, explain key issues to the CPMO and IAs and assist them in conducting follow-up actions to address the key issues; (vii) assist the CPMO to monitor compliance with the resettlement plans, assess key implementation issues, formulate remedial measures, and assist them in conducting follow-up actions; (viii) provide the CPMO with support for the preparation of resettlement aspects, including semiannual internal resettlement monitoring of semiannual progress reports; (ix) provide support to the project management specialist/team leader for assessing needs for capacity development, and planning, designing, organizing, and implementing seminars, workshops, and/or training for implementation and M&E of land acquisition and resettlement; (x)

⁴⁵ The EMP is included in the EIA report.

⁴⁶ Available at: <http://www.adb.org/documents/safeguard-policy-statement>

provide support to the project management specialist/team leader for preparing the inception report, semiannual reports, draft PCR, and final PCR; and (xi) undertake any other necessary work assigned by the project management specialist/team leader.

12. The social specialist will (i) if there is a change in the project scope, assist the CPMO, IAs, and design institute in updating the SDAP approved by ADB, in ADB format and based on the change; and obtain ADB's approval of it; (ii) assist the CPMO and IAs in implementing the SDAP and GAP prepared during project preparation; (iii) assist the CPMO and IAs in supervising contractors to ensure compliance with requirements of the SDAP and GAP, and applicable laws and regulations; (iv) monitor compliance with the SDAP and GAP; assess the degree of impacts and key implementation issues; explain key issues to the CPMO and IAs; and assist them in conducting follow-up actions to address the key issues; (v) provide the CPMO with support for the preparation of social aspects of semiannual progress reports, including semiannual internal social monitoring reports; (vi) provide support to the project management specialist/team leader for assessing needs for capacity development, and planning, designing, organizing, and implementing seminars, workshops, and/or training for implementation and M&E of the SDAP and GAP; (vii) provide support to the project management specialist/team leader for preparing the inception report, semiannual reports, draft PCR, and final PCR; and (viii) undertake any other necessary work assigned by the project management specialist/team leader.

6. Economist (national, 15.0 person-months)

13. The specialist will (i) review background documents, including the economic analysis of the project undertaken during project preparation; (ii) conduct economic analyses of the overall project and each subproject to determine economic internal rate of return of the overall project and each subproject at the midterm of project implementation, and at physical completion of the project; (iii) provide support to the project management specialist/team leader for assessing needs for capacity development; and planning, designing, organizing, and implementing seminars, workshops, and/or training for economic analysis, as necessary; (iv) provide support to the project management specialist/team leader for preparing the inception report, semiannual reports, draft PCR, and final PCR; and (v) undertake any other necessary work assigned by the project management specialist/team leader.

7. Financial Specialist (national, 15.0 person-months)

14. The specialist will (i) review background documents, including the financial analysis of the project undertaken during project preparation; (ii) conduct financial analysis at the midterm of project implementation, and at physical completion of the project, including (a) financial sustainability analysis to assess the fiscal sustainability debt repayment capacity; and (b) an assessment of the financial viability of the revenue-generating components; (iii) assist CPMO and IAs in establishing and implementing a financial management system; (iv) assist the Chongqing Municipal Government, CPMO and IAs in preparing withdrawal applications and streamlining the preparation of withdrawal applications; (v) assist the Chongqing Finance Bureau, CPMO and IAs in meeting requirements of the financial management action plan (Table xx, project administration manual); (vi) provide support to the project management specialist/team leader for assessing needs for capacity development; and planning, designing, organizing, and implementing seminars, workshops, and/or training for financial analysis, as necessary; (vii) provide support to the project management specialist/team leader for preparing the inception report, semiannual reports, draft PCR, and final PCR; and (ix) undertake any other necessary work assigned by the project management specialist/team leader.

15. **Qualifications.** Each consultant's input is shown in the Table below. For each of the

international consultant position, (i) possession of a related university degree; (ii) at least 8 years of experience in similar positions for projects or technical assistances funded by ADB or other multi-lateral development banks; and (iii) experience in projects in the People's Republic of China will be highly evaluated. For each of the national consultant positions, (i) possession of a related university degree; (ii) experience in similar positions for projects or technical assistances funded by ADB or World Bank, and (iii) experience in working with other international organizations and consultants, will be highly evaluated.

Tentative Consultants' Inputs

Position	National
Project Management Specialist/Team Leader	24.0
Procurement and Contract Management Specialist/Deputy Team Leader	24.0
Civil Engineer- Flood Risk Management	20.0
Environment Specialist	15.0
Resettlement and Social Specialist	15.0
Economist	15.0
Financial Specialist	15.0
Total	128.0

Source: Asian Development Bank estimates.

F. Cost Estimate

Cost Estimate

Description	Total Cost (\$'000)
1. Consultants	
a. Remuneration and per diem	
National consultants (128 person-months)	1,265.0
b. Local travel	230.0
c. Reports and communications	30.0
2. Equipment	15.0
3. Study tour, Workshops, training, seminars, and conferences ^a	200.0
4. Surveys	30.0
5. Miscellaneous administration and support costs	30.0
6. Contingencies	200.0
Total	2,000.0

^a Including transportation, accommodation, venue rental, documentation fee, resource persons invited.

Source: Asian Development Bank estimates.

APPENDIX 4
INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR
PACKAGE TA-04: EXTERNAL MONITORING AND EVALUATION OF LAND ACQUISITION
AND RESETTLEMENT

A. Introduction

1. This document sets out the indicative terms of reference for independent external monitoring and evaluation (M&E) of land acquisition and resettlement (LAR) needed to ensure that the Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project will be implemented in conformity with the People's Republic of China (PRC) laws and regulations and the Asian Development Bank's (ADB's) Safeguard Policy Statement (2009), including involuntary resettlement. The direct client of the consulting services is the Chongqing project management office (CPMO) which is under the Chongqing Development and Reform Commission (CDRC). The consulting services will be also provided to the three project implementing agencies (IAs) which are based in the DRC, including Liangping District Government (LDG), Dianjiang County Government (DCG), and Changshou District Government (CDG).

B. Implementation Arrangements

2. The external resettlement M&E will be carried out by a team of specialists through a competent independent external monitoring agency (EMA). The M&E will be financed by ADB, and the team of specialists will be recruited by the CPMO according to ADB's Procurement Regulations (2017, as amended from time to time) through consultants' qualifications selection. The CPMO and IAs will provide assistance to the EMA, particularly in the aspects of field survey, staffing, and logistics. The consulting services are expected to start in November 2018 until December 2023.

D. Reporting Requirements

3. The EMA will submit to ADB and CPMO semiannual external resettlement M&E reports during the implementation of LAR for the project, and annual external resettlement M&E reports for 2 years after the completion of the LAR for the whole project (for each report, a soft copy of the English version to ADB and soft copies of the English and Chinese versions to each of the PMO and IAs), not later than 30 days after the completion of the field investigations.

4. The EMA will take full responsibility on the content and quality of the reports; and if necessary, must revise reports based on the comments of ADB. Format of the reports will be proposed by the EMA in the technical proposal. The EMA may seek guidance from ADB's Involuntary Resettlement Safeguards: A Planning and Implementation Good Practice Sourcebook (Draft Working Document) and from examples of reports on ADB website.

E. Scope of Services and Consultants' Inputs

5. According to ADB's requirements, the implementation of the resettlement plans should - besides internal monitoring undertaken by the CPMO and IAs—be monitored by the EMA. The EMA to be selected will monitor the implementation of the resettlement plans; and report progress semiannually during the implementation of LAR for the project, and annually for two years after the completion of the LAR for the whole project. The EMA will establish an M&E team. The main duties of the team are to (i) carry out the M&E on the implementation of the resettlement plans to ensure it is in compliance with the resettlement plans; (ii) advise CPMO and IAs on the implementation of the resettlement plans to ensure policies and procedures are complied with; and (iii) provide information

and data, monitoring results, and observations that the team leader will aggregate into the external M&E reports. The tasks to be undertaken by key experts are described but not limited to the following:

6. The general objective of the external resettlement M&E is to assess the compliance with principles, policies, and requirements mentioned in the resettlement plans, including (i) determining and assessing whether or not the compensation payment, support, and resettlement for the affected persons, as well as the process of community consultation, information disclosure, and resolution of complaints and grievances are being carried out in compliance with principles, requirements, and procedures according to the resettlement plans; (ii) reviewing whether or not the resettlement plans' objectives, especially those that improve or at least restore affected persons' living standards are adequately implemented and achieved; and (iii) reviewing shortcomings in the implementation of the resettlement plans and developing recommended solutions for discussion with the CPMO and IAs.

7. To carry out the M&E, the EMA will address the following tasks.

- (i) **Periodic M&E.** For each subproject, during the implementation of LAR, the EMA will semiannually monitor and evaluate the implementation of the resettlement plan.
- (ii) **Post resettlement M&E.** For each subproject, for two years after the completion of the implementation of the resettlement plan, the EMA will annually carry out post resettlement M&E to evaluate the results of the LAR implementation and impact of the LAR on the affected persons.
- (iii) Participate with the CPMO in ADB's review missions, as required.

8. **Monitoring indicators.** There are various monitoring indicators on the implementation of the resettlement plans. Once selected, the EMA will have to present in detail the monitoring indicators to the CPMO and ADB for approval. Below are main monitoring indicators:

- (i) For compliance of compensation payment and support provision
 - (a) In case of land-for-land compensation, whether the replaced land is equal in area and location as well as production, living conditions compared with the affected land; in case of cash-for-affected land, whether the replacement cost principle is ensured.
 - (b) Whether compensation for affected structures is equal to materials and labor replacement cost according to standards and specification of the work; whether reused materials are not deducted or discounted; and whether assets are depreciated based on age.
 - (c) Whether compensation for trees and/or crops takes into account market rates.
 - (d) Whether compensation is fully paid to affected persons; either through single installment or multiple installments.
 - (e) Whether other assistance as specified in the resettlement plans is provided to affected persons, as required.
- (ii) For compliance of information disclosure and community consultation
 - (a) Whether project documents (resettlement information booklet and relevant documents) are disseminated to communities.
 - (b) Whether information (results of detailed measurement survey, prices application, disbursement of payment) is promulgated at public places, and whether the process was effective.
 - (c) Whether the affected persons are fully consulted about issues of land recovery, policies on compensation, resettlement, livelihood restoration, and access to a grievance redress mechanism.

- (d) Whether the concerns and recommendations of the affected persons are resolved during the implementation of the resettlement plans; as well as the manner by which they have been addressed.
- (iii) For relocation plan and implementation
 - (a) Resettlement methods, participation in relocation planning, announcement of relocation plan, and support to relocated households.
- (iv) For compliance of LAR implementation for the relocated affected persons
 - (a) Housing and living conditions in resettlement sites (such as road, domestic power, water distribution and/or drainage system); and restoration of community, education, and health services.
 - (b) Whether replacement housing was provided in a complete and timely manner.
 - (c) Any issues related to transitional housing and/or period.
 - (d) Whether the new location has had any impact on the affected persons' livelihoods.
- (v) For compliance of income restoration and support to livelihood stabilization
 - (a) Whether support to income restoration is adequately provided, and efficiency of the income restoration support (e.g., training, credit assistance).
 - (b) Post resettlement life and production stabilization. How affected persons stabilize their life and production.
 - (c) Problems that affected persons are facing during the income restoration and life stabilization.
 - (d) Compensation and restoration of temporary land occupation.
- (vi) For compliance of the satisfaction of the affected persons
 - (a) Satisfaction of the determination of losses and compensation valuation.
 - (b) Satisfaction of compensation payment and other assistance.
 - (c) Satisfaction of information disclosure and consultation.
 - (d) Satisfaction on life stabilization and income restoration support activities.
 - (e) Satisfaction of resettlement site, relocation site, and completeness of facilities.
- (vii) For compliance of grievance redress mechanism of the affected persons
 - (a) Degree of efficiency of the grievance redress mechanism (time, efficiency of resolution).
 - (b) Results of complaint resolution at various levels.
 - (c) Satisfaction of the grievance redress mechanism.

9. **Methodology of M&E.** The EMA will apply both qualitative and quantitative methods during monitoring, including the following.

- (i) Quantitative methods
 - (a) Conduct baseline survey (prior to start of LAR) covering a representative sample of affected persons, focusing more on those seriously affected and vulnerable affected persons.
 - (b) Conduct semiannual and annual questionnaire survey during project implementation for 50% of severely affected households and 20% of all other affected households.
 - (c) Use the existing statistical data at local levels, and data from district and/or county resettlement bureaus.

- (d) Survey affected businesses and workers.
 - (e) Conduct final M&E of LAR implementation (prior to project completion) by conducting a sample survey on 50% of severely affected households and 20% of all other affected households.
- (ii) Qualitative methods
- (a) Review project documents (feasibility study reports and resettlement plans), ADB relevant policies, laws and regulations of the PRC, Chongqing Municipality, Liangping District, Dianjiang County, and Changshou District.
 - (b) Consult and discuss with different stakeholders, including Chongqing Municipal Government, Liangping District Government, Dianjiang County Government and Changshou District Government, and social organizations through consultation meetings, in-depth interviews, and group discussions.
 - (c) Undertake focused group discussions, in-depth interviews with the target affected persons; and/or groups such as severely affected households, relocated households, vulnerable households, and women's groups.
- (iii) Site visits
- (a) Conduct site visits to original housing areas and resettlement sites, as well as project construction sites to check whether resettlement sites are constructed with complete infrastructure and identify potential impacts on local people during civil works construction.

10. All information and data collected will be processed, analyzed, and included in the baseline or subsequent M&E reports. The EMA must store the processed data to be used for the next M&E. These data will belong to (and will be the asset of) the CPMO and will be made available to ADB and the CPMO on request. All documentation will be transferred to the CPMO at the completion of the contract.

11. **Qualification.** The EMA should be a registered social organization (research institution, design institute, consulting institution and/or firm, university or nongovernment organizations) without direct administrative subordination relations with the Chongqing Municipal Government, Liangping District Government, Dianjiang County Government and Changshou District Government. The EMA should have 5 or more qualified technical staff members. Professional staff members of the EMA should have degree in economics, sociology and/or anthropology, or relevant field of social sciences; are familiar with ADB's or World Bank's resettlement policies and procedures; and have previous experience in M&E of LAR for projects funded by ADB or World Bank. The EMA should also have experience in undertaking similar projects in the PRC. Three (3) national specialist positions will provide a total of 33 person-months of consulting services to support extremal resettlement M&E. The key responsibilities are proposed but not limited to the following:

1. Resettlement Specialist and Team Leader (national, 13.0 person-months)

12. The specialist will undertake the following tasks: (i) lead all the activities of the team; (ii) lead and set up the monitoring methodology, including design of baseline and tracer surveys; (iii) work and coordinate with relevant agencies and/or bodies within the project to implement the task of M&E activities; (iv) lead and conduct the M&E activities and required surveys to collect data and information at office and project sites, and then analyze the findings; (v) prepare external resettlement M&E reports which include conclusions and recommendations; (vi) discuss findings with the CPMO and IAs to reach agreement on follow-up actions; and (vii) participate in ADB review missions.

2. Social Evaluation Specialist (national, 13.0 person-months)

13. The specialist will undertake the following tasks: (i) monitor the LAR activities mentioned in the resettlement plans to ensure LAR is being carried out in compliance with principles, requirements, and procedures according to the resettlement plans and the governments' laws and/or regulations; and monitor the compensation payments and livelihood restoration of the affected persons; (ii) provide inputs to the external resettlement M&E reports, which would include progress, challenges and/or bottlenecks during implementation; and propose solutions and/or recommendations to address these issues; (iii) participate in ADB review missions, if required; and (iv) conduct any other duties assigned by the resettlement specialist/team leader.

3. Field Surveyors (national, two positions, 3.5 person-months each)

14. The surveyors will (i) assist the resettlement and social evaluation specialists in carrying out the monitoring on the implementation of the resettlement plans to ensure that the LAR implementation is in compliance with the resettlement plans; (ii) under the guidance of the resettlement and social evaluation specialists, carry out field surveys; (iii) analyze the data collected from the field surveys; (iv) provide assistance to the resettlement and social evaluation specialists for the preparation of the external resettlement M&E reports; and (v) conduct any other duties assigned by the resettlement specialist/team leader.

Tentative Consultants' Inputs

Position	National
Resettlement Specialist/Team Leader	13.0
Social evaluation Specialist	13.0
Field Surveyors	7.0
Total	33.0

Source: Asian Development Bank estimates.

F. Cost Estimate

Cost Estimate

No.	Description	Total Cost (\$'000)
1	Consultants	
	a. Remuneration and per diem	
	National consultants (33.0 person-months)	132.0
	b. Local travel	6.2
2	Reports and communications	2.8
3	Surveys	3.4
4	Miscellaneous administration and support costs	2.0
5	Contingencies	3.6
	Total	150.0

Source: Asian Development Bank estimates.

APPENDIX 5
INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR
PACKAGE TA-05: EXTERNAL ENVIRONMENTAL MONITORING AND EVALUATION

A. Introduction

1. This document sets out the indicative terms of reference for independent external environmental monitoring and evaluation (M&E) to ensure that the Chongqing Longxi River Basin Integrated Flood and Environmental Risk Management Project will be implemented in conformity with the People's Republic of China (PRC) laws and regulations and the Asian Development Bank's (ADB's) Safeguard Policy Statement (2009). The direct client of the consulting services is the Chongqing project management office (CPMO) which is under the Chongqing Development and Reform Commission (CDRC). The consulting services will be also provided to the three project implementing agencies (IAs) which are based in the DRC, including Liangping District Government (LDG), Dianjiang County Government (DCG), and Changshou District Government (CDG).

B. Implementation Arrangements

2. The external environmental M&E will be carried out by a team of specialists through a competent independent external monitoring agency (EMA). The M&E will be financed by ADB, and the team of specialists will be recruited by the CPMO according to ADB's Procurement Regulations (2017, as amended from time to time) through consultants' qualifications selection. The CPMO and IAs will provide assistance to the EMA, particularly in the aspects of field survey, staffing, and logistics. The consulting services are expected to start in January 2019 until December 2023

C. Reporting Requirements

3. The EMA will submit to ADB and CPMO the M&E reports regularly twice a year during the implementation of the project. For each report, a soft copy of the English version to ADB and soft copies of the English and Chinese versions to each of the PMO and IAs. The EMA will submit the consolidated M&E report in both English and Chinese within two months after completion of the project.

4. The EMA will take full responsibility on the content and quality of the reports; and if necessary, must revise reports based on the comments of ADB. Format of the reports will be proposed by the EMA in the technical proposal. The EMA may seek guidance from examples of reports on ADB website.

E. Applicable Standards and Regulations

5. The following applicable national standards and regulations shall be complied with in undertaking the external environmental monitoring and evaluation:

- (i) National Environmental Laws and Acts
 - (a) Environmental Protection Law (1 Jan 2015)
 - (b) EIA Method (1 Sep 2003)
 - (c) Air Pollution Control Act (1 Jan 2016 Revision)
 - (d) Water Pollution Control Act (1 Jun 2008)
 - (e) Solid Waste Pollution Control Act (1 Apr 2005)

- (f) Noise Control Act (1 March 1997)
 - (g) Water Act (1 Oct 2002)
 - (h) Water and Soil Conservation Law (1 March 2011)
 - (i) Flood Control Law (24 Apr 2015 Revision)
- (ii) Relevant Rules and Regulations in Environmental Protection
 - (a) Rules on Environmental Protection Management for Project Construction (No. 253 Decree of State Council)
 - (b) Rules on Soil and Water Conservation (No.120 Decree of State Council)
 - (c) Rules on River Works Management (No.167 Decree of State Council)
 - (d) Comments on Strengthening Environmental Protection Works (No.35 GuoFa 2011)
 - (e) Notice on Effective Control of Flowing Dust in Urban Cities) (No.35 MOEP/MOHURD)
 - (f) Air Pollution Control Action Plan (No.37 2013)
 - (iii) Environmental Protection Standards
 - (a) Air Quality Standards (GB 3095-2012)
 - (b) Air Pollutants Emission Standards (GB 16297-1996)
 - (c) Surface Water Quality Standards (GB 3838-2002)
 - (d) Sewage Discharge Standards (GB 8978-1996)
 - (e) Sonic Environment Quality Standards (GB 3096-2008)
 - (f) Noise Standards in Construction Site (GB 12523-2011)
 - (g) Hazardous Wastes Identification Standards (GB 5085-2007)
 - (h) Hazardous Wastes Storage Pollution Control Standards (GB 18597-2001)
 - (iv) Relevant Project Documents
 - (a) EMPs of Project Components
 - (b) EIAs of Project Components
 - (c) Official EIA Approval Documents

E. Scope of Services

6. Tasks and responsibilities of the consultant team are described but not limited to the following:

- (i) Collect relevant information from the implementing agencies and relevant local government agencies on environment impact.
- (ii) Assist CPMO in updating the environmental management plan (EMP) including environmental monitoring plan as necessary to revise or incorporate additional environmental mitigation and monitoring measures, budget and institutional arrangements, based on the detailed design; submit the revised EMP to ADB for approval and disclosure;
- (iii) Develop and provide training to staff from CPMO, IAs, Construction Supervision Companies (CSCs) prior to the commencement of each construction package on the following topics: ADB's Safeguard Policy Statement (2009), monitoring and reporting requirements of the EIA and EMP, GRM, preparation and implementation of contractor's EMP, implementation plan, and method statements;
- (iv) Assist CPMO and IAs to establish a GRM; assist CPMO and IAs in conducting consultation meetings with relevant stakeholders as required, informing them of imminent construction works, updating them on the latest project development

- activities and GRM.
- (v) Prepare a monthly environmental supervision report template and review the reports provided by the IAs and CSCs to identify progress with implementation of EMP, key issues and actions and environmental performance;
 - (vi) Assist the CPMO in selecting an external environment monitoring organization; provide guidance to the organization to conduct environmental impact monitoring according to the environmental monitoring plan in the EMP; and coordinate with this organization on all monitoring activities; review external environment monitoring reports (both construction and operation periods) prepared by the organization;
 - (vii) Prepare environmental and safety provisions for the bidding document and contract;
 - (viii) Undertake site visits to assess the implementation of the EMP; verify the implementation of the environmental protection measures specified in the EMP; identify environment-related non-compliance issues, highlight areas of good practice, and oversee implementation of necessary corrective actions;
 - (ix) Identify any environment-related implementation issues and suggest necessary corrective actions, and reflect these in a corrective action plan;
 - (x) Assist CPMO to prepare annual environmental monitoring reports in accordance with ADB requirements; and
 - (xi) Work closely with and provide support to the environmental management specialist during the process of establishing the environmental monitoring station (EMS)

7. **Qualification.** The EMA should be a registered social organization (research institution, design institute, consulting institution and/or firm, university or nongovernment organizations) without direct administrative subordination relations with the EA and IAs. The EMA should have 5 or more qualified technical staff members. Professional staff members of the EMA should have degree in environment, social sciences or relevant fields; are familiar with ADB's or World Bank's environmental policies and procedures; and have previous experience in M&E for projects funded by ADB or World Bank. The EMA should also have experience in undertaking similar projects in the PRC. Two (2) national specialist positions will provide a total of 22 person-months of consulting services to support extremal environmental M&E. The key responsibilities are proposed but not limited to the following:

1. Environmental Specialist/Team Leader (national, 11.0 person-months)

8. The specialist will undertake the following tasks: (i) lead all the activities of the team; (ii) lead and set up the monitoring methodology, including design of baseline and tracer surveys; (iii) work and coordinate with relevant agencies and/or bodies within the project to implement the task of M&E activities; (iv) lead and conduct the M&E activities and required surveys to collect data and information at office and project sites, and then analyze the findings; (v) prepare external environmental M&E reports which include conclusions and recommendations; (vi) discuss findings with the CPMO and IAs to reach agreement on follow-up actions; and (vii) participate in ADB review missions. Specifically, the specialist will:

- (i) coordinate overall M&E activities in compliance with contract requirements;
- (ii) develop detailed work plan and procedures;
- (iii) conduct regular site visits for guidance of local site workers;
- (iv) held regular meeting to review work progress and propose actions for improvement;

- (v) review M&E work plan and training programs;
- (vi) review and approve M&E reports and consolidated M&E report at completion;
- (vii) propose suggestions based on the progress and participate in handling pollution accidents;
- (viii) review variations in relation to environmental components and provide advices;
- (ix) review environmental sections contained in the construction management plan, and to review compliance of environmental protection systems developed by contractors

2. Field Surveyors (national, two surveyors, 5.5 person-months each)

9. The surveyors will (i) assist the environmental specialists in carrying out the monitoring on the implementation of the projects to ensure that the environmental implementation is in compliance with the environmental management plans; (ii) under the guidance of the environmental specialists, carry out field surveys; (iii) analyze the data collected from the field surveys; (iv) provide assistance to the environmental specialists for the preparation of the external environmental M&E reports; and (v) conduct any other duties assigned by the environmental specialist/team leader. Specifically, the surveyors will:

- (i) undertake field survey and inspection under the guidance of Team Leader;
- (ii) participate in preparation of environmental M&E procedures;
- (iii) conduct environmental monitoring at project sites, and evaluate control of pollutants for compliance with relevant environmental standards and regulations;
- (iv) identify issues and report in a timely manner and propose mitigation measures;
- (v) arrange site meetings for effective coordination with clients and contractors and deliver training on a needed basis;
- (vi) participate in handling pollution accidents under the guidance of Team Leader
- (vii) assist Team Leader in review of variations in relation to environmental components;
- (viii) prepare external environmental M&E reports and consolidated M&E report;
- (ix) undertake other tasks assigned by Team Leader

Tentative Consultants' Inputs

Position	National
Environment Specialist/Team Leader	11.0
Field Surveyors	11.0
Total	22.0

Source: Asian Development Bank estimates.

F. Inputs and Cost Estimate

Indicative Cost Estimate	
Description	Total Cost (\$'000)
1. Consultants	
a. Remuneration and per diem	
National consultants (22.0 person-months)	132.0
b. Local travel	6.2
2. Reports and communications	2.8

	Description	Total Cost (\$'000)
3.	Surveys	3.4
4.	Miscellaneous administration and support costs	2.0
5.	Contingencies	3.6
	Total	150.0

Source: Asian Development Bank estimates.