

Project Administration Manual

Project Number: 47048-002
August 2015

People's Republic of China: Hubei Enshi Qing River
Upstream Environment Rehabilitation

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Project Administration Manual Purpose and Process

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

The Enshi Tujia and Miao Autonomous Prefectural Government (ETMAPG), the executing agency; the Enshi Urban Construction and Investment Co. Ltd (EUCIC) and Lichuan Liangli Urban Construction and Development Co. Ltd (LLUCDC), the implementing agency for Enshi and Lichuan respectively, are wholly responsible for the implementation of the ADB financed project, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance ETMAPG, of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

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

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

Abbreviations

ADB	-	Asian Development Bank
CESFMT	-	community environmental supervision and flood management team
C&P	-	communication and participation
DMF	-	design and monitoring framework
EIA	-	environment impact assessment
EMDP	-	ethnic minority development plan
EMP	-	environment management plan
EPB	-	environment protection bureau
EPDRC	-	Enshi Prefectural Development and Reform Commission
EPFB	-	Enshi Prefectural Finance Bureau
EPPMO	-	Enshi Prefectural Project Management Office
EPPLG	-	Enshi Prefectural Project Leading Group
ETMAP	-	Enshi Tujia and Miao Autonomous Prefecture
ETMAPG	-	Enshi Tujia and Miao Autonomous Prefectural Government
EUCIC	-	Enshi Urban Construction and Investment Company
FCUR	-	Foreign Capital Utilization Report
FSR	-	feasibility study report
FMA	-	financial management assessment
GAP	-	gender action plan
GIS	-	geographical information system
GRM	-	grievance redress mechanism
HDRC	-	Hubei Development and Reform Commission
HPFD	-	Hubei Provincial Finance Department
HPG	-	Hubei Provincial Government
ICB	-	international competitive bidding
ICS	-	individual consultant selection
LAR	-	land acquisition and resettlement
LIBOR	-	London interbank offered rate
LLUCDC	-	Lichuan Liangli Urban Construction and Development Company
M&E	-	monitoring and evaluation
MOF	-	Ministry of Finance
MOFA	-	Ministry of Foreign Affairs
NCB	-	national competitive bidding
NDRC	-	National Development and Reform Commission
O&M	-	operation and maintenance
PAM	-	project administration manual
PMO	-	project management office
PPTA	-	project preparatory technical assistance
SAP	-	social action plan
WWTP	-	wastewater treatment plant

I. PROJECT DESCRIPTION

A. Rationale

1. Located in the upper Qing River basin (a major tributary of the Yangtze River), the Enshi Tujia and Miao Autonomous Prefecture (ETMAP) has an ethnically diverse population of 4.01 million. Because of its mountainous terrain and lack of connectivity, ETMAP's per capita income in 2012 was only CNY10,327, which was about half of the provincial level; the poverty incidence is 40% in rural areas. The ETMAP includes two cities at district level—Enshi and Lichuan—and six counties, which are all designated as national poverty areas. In addition to poverty, water quality deterioration, riverbank erosion, and recurrent flooding are key factors undermining living standards and sustainable economic development in the ETMAP.

2. The Qing River is the primary water supply for Enshi and Lichuan and their surrounding rural populations. Since the 1990s, the water quality of the Qing River and its tributaries has deteriorated. Monitoring data show that water quality in 45% of all cross sections is class IV, V, or below, meaning it is unfit for human consumption.¹ Water pollution is most serious in Enshi and Lichuan, resulting in odor and eutrophication. Continuing deterioration of the water quality poses a public health threat for local residents, who rely on the river for their water use. In addition, the degraded water environment threatens Qing River riparian and aquatic ecosystems, and limits opportunities for ecological diversity and tourism-related recreation.

3. The major sources of pollution are untreated domestic wastewater, unregulated runoff, and inadequately treated industrial effluent. As a result of prolonged underinvestment, wastewater collection and treatment facilities in Enshi and Lichuan are seriously deficient. Less than 60% of wastewater from Enshi and Lichuan is collected and treated because of the lack of treatment capacity, aging pipelines, and incomplete coverage of wastewater collection systems. This problem will become increasingly serious with economic development and rapid urbanization, as projected in the master plans for Enshi and Lichuan. Further, there are no facilities for collection and treatment of domestic wastewater and solid waste in rural areas along the Qing River and its tributaries.

4. Upstream of Enshi and Lichuan, the Qing River watershed is mountainous with high seasonal rainfall and rapid runoff. This, combined with inadequate flood management facilities, results in regular flooding. Following national flood management standards, flood management facilities in Enshi and Lichuan should provide protection against 20-year floods in the short term and 50-year floods in the long term. The existing facilities only provide protection against a maximum of 4-year floods. There are some revetments along the banks within Enshi and a mid-sized multipurpose reservoir on the upper Qing River. However, there are virtually no revetments or other flood control measures along the Qing River and its tributaries flowing through Lichuan. Since the 1950s, at least nine major floods have occurred, resulting in significant loss of lives and property. There has also been severe riverbank erosion as a result of high-intensity rainfall, loss of vegetation, and lack of revetment works. This has caused heavy siltation of the river and blockage in urban sections of the Qing River and its tributaries, which further exacerbates flood risk and water pollution.

¹ Class IV is suitable for general industrial water supply and recreational use involving no direct human contact. Class V is suitable for agricultural water supply and general landscaping use. Below class V is unsuitable for any use (PRC Environmental Water Quality Standard GB3838-2002).

5. Lack of integrated water resource management in the Qing River basin hinders a coordinated and effective response by planning, pollution control, and flood management authorities to improve water quality and reduce flooding. Weak interagency coordination and lack of monitoring and enforcement capacity have resulted in ineffective management of nonpoint source pollution from rural and urban sources. Important rural sources include discharges of domestic waste from unsewered rural households, agricultural runoff, animal waste discharges, and erosion of riverbanks during high-flow conditions. In urban areas, unregulated runoff along the riverbanks also contributes to nonpoint pollution, including garbage dumped along the riverbanks and inflow of wastewater due to leaks, clogging, and misalignment of wastewater pipes. While the river embankment is a critical flood management facility, proper maintenance of the banks would also help reduce nonpoint pollution.

6. Guided by both the national western region development strategy and the Hubei provincial 12th Five-Year Plan (2011–2015), the Enshi Tujia and Miao Autonomous Prefecture Government (ETMAPG) is committed to reducing poverty, improving the water quality of Qing River, and advancing the ecological rehabilitation of the river and lakes. The ETMAP is covered under the Water Pollution Control Plan for the Three Gorges Reservoir Area and the Upper Reaches, which is one of the national priorities for water pollution control. The provincial government has formulated and approved the Qing River Basin Pollution Prevention and Control Master Plan (2010–2020) and the ETMAPG has prepared the Qing River Near-Term Flood Control Master Plan (2013–2015),² which was approved in 2012 by the Ministry of Water Resources. To implement and complement components of these plans, the ETMAPG requested that the Asian Development Bank (ADB) provide financial and technical support for water quality improvement and flood management in Enshi and Lichuan.

7. With support from the central and provincial governments, the ETMAPG has taken the following steps to implement the master plans: (i) incorporate water quality improvement goals in performance evaluation of local governments; and (ii) implement more than 30 projects with a total investment of CNY8 billion for sewage network improvement, solid-waste management, nonpoint source pollution reduction, river rehabilitation, and soil erosion control in 2014.

8. The project is consistent with the priorities of ADB's country partnership strategy, 2011–2015 for the PRC;³ the comprehensive reform agenda announced at the Third Plenary Session of the 18th Communist Party of China Central Committee;⁴ the strategic priorities of ADB's Midterm Review of Strategy 2020,⁵ and the Water Operational Plan.⁶ Environmental sustainability is one of the three strategic pillars of the country partnership strategy. The comprehensive reform agenda announced at the third plenum emphasized the need for better environmental infrastructure and the strengthening of institutional development and environmental services at the local level.

9. Past ADB interventions in water resources management in the PRC and other developing member countries include investment projects and technical assistance in flood

² The plan includes construction of the Yao Jia Ping Reservoir, which together with the existing Da Long Tan Reservoir will provide greater flood regulation capacity for the upper Qing River basin.

³ ADB. 2012. *Country Partnership Strategy: People's Republic of China, 2011–2015*. Manila.

⁴ Passed at the Third Plenum of the 18th Central Committee of the Chinese Communist Party on 12 November 2013.

⁵ ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific*. Manila. In developing the 2016 and 2017 lending and nonlending programs, the PRC and ADB jointly anticipate the strategic direction and priority areas under the PRC's 13th Five-Year Plan and the forthcoming country partnership strategy (ADB. Forthcoming. *Country Partnership Strategy: People's Republic of China, 2016–2020*. Manila.)

⁶ ADB. 2011. *Water Operational Plan*. Manila.

management, water supply, and wastewater collection and treatment.⁷ The following are among the major lessons learned: (i) the benefits of (a) adopting an integrated approach in the watershed, (b) incorporating nonstructural measures, and (c) incorporating stakeholder and community participation and public awareness raising; and (ii) the need for (a) capacity development for project management, (b) effective project monitoring and evaluation, and (c) sustainable financing of facilities based on a realistic and enforceable tariff structure. The project incorporates these lessons and includes a number of innovative design features in structural and nonstructural components.

B. Impact and Outcome

10. The impact will be improved environmental ecological sustainability in the upper Qing River basin (Qing River Basin Pollution Prevention and Control Master Plan, 2010–2020). The outcome will be improved river health and water resource management in the upper Qing River basin.

11. **Output 1: Wastewater management improved.** The output will include improvement of wastewater collection systems, expansion of two existing wastewater treatment plants (WWTPs), and construction of one new WWTP. In Enshi, about 154 kilometers (km) of interceptors and new branch sewer pipes will be installed; an existing WWTP will be expanded to provide an additional capacity of 30,000 cubic meters per day (m³/d); and a new WWTP of 50,000 m³/d will be constructed and will meet class 1A effluent standards, including advanced sludge treatment and disposal capacity of 102 tons/day. In Lichuan, about 77 km of interceptors and new branch sewer pipes will be installed; pump stations will be constructed or improved; an existing WWTP will be expanded to provide an additional capacity of 50,000 m³/d and meet class 1A effluent standards, with advanced sludge treatment capacity of 688 tons/day; and an existing wastewater treatment facility will be upgraded to improve the effluent standard from class 1B to class 1A.⁸ Energy saving and greenhouse gas reduction measures will be incorporated into the operation of the WWTPs.

12. **Output 2: Flood management enhanced.** This output will include (i) construction of a total of 66 km of river embankments with riverside amenities in Enshi, and a total of 49 km in Lichuan; (ii) dredging of silted sections of the Qing River and tributaries to increase the flood carrying capacity in Enshi (51 km) and Lichuan (30 km); and (iii) construction of ecological buffer zones, including wetlands and amenity facilities, in Enshi and Lichuan. Pollution-intercept buffer zone functions will be incorporated in embankment designs including vegetated embankments and constructed wetlands. Public amenity areas will be constructed along the rivers to (i) intercept runoff and reduce nonpoint source pollutants, (ii) renew habitats and restore riparian ecosystems, and (iii) provide recreational space for residents and tourists.

13. **Output 3: Water and environmental management integrated.** This output will include development of (i) a 2-year pilot participatory program in Xinjie village in Enshi to reduce nonpoint source pollution by improving farming practices, training farm service providers, providing subsidies for purchasing formula fertilizers and organic fertilizers, improving solid-

⁷ ADB. 2002. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Songhua River Flood Management Sector Project*. Manila; ADB. 2003. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Wuhan Wastewater and Storm Management Project*. Manila; ADB. 2012. *Reviving Lakes and Wetlands: Lessons Learned from the People's Republic of China*. Manila.

⁸ PRC standard Class 1A: Class 1A Standard of the Discharge Standard of Pollutants for Municipal Wastewater Treatment Plant (GB18918-2002).

waste collection, and installing biogas tanks to treat animal waste; (ii) a riverbank maintenance program, including community-based environmental supervision and public education and awareness-raising initiatives in Enshi and Lichuan; (iii) a sewerage infrastructure geographic information system and asset management systems; and (iv) a flood forecasting and warning system and introduction of water-sensitive land use planning in Enshi and Lichuan.

14. **Output 4: Inclusive capacity development strengthened.** The project will strengthen capacity and institutions for project management. It will include training, capacity building, and consultant engagement for (i) effective monitoring and evaluation of project using the project performance management system; (ii) institutional and capacity strengthening for operation and maintenance (O&M) of the structural works; and (iii) resettlement and social monitoring.

15. A summary of the project outputs and construction components is given in Table 1 below:

Table 1: Summary of Project Outputs and Construction Components

Output	Component	Location	Content
1. Wastewater management improved	1.1 Pipe network	Enshi City	i. Construction of 37.4 km trunk sewers ii. Construction of 116.7 km branch sewers iii. Construction of Gaoqiao River pumping station
		Lichuan City	i. Construction of 28.9 km trunk sewers ii. Construction of 48.2 km branch sewers iii. Replacing pumps at No.1 pumping station iv. Upgrading of the existing No.3 pumping station v. Construction of No. 5 pumping station
	1.2 WWTPs	Enshi City	i. Construction of a new Dashaba WWTP with a capacity of 50,000 m ³ /d. ii. Extension of the Hongmiao WWTP (Stage 2) for an additional capacity of 30,000 m ³ /d. iii. Construction of sludge treatment system, located in Dashaba WWTP.
		Lichuan City	i. Extension of the existing Lichuan WWTP for an additional capacity of 50,000 m ³ /d. ii. Construction of sludge treatment system, located in Lichuan WWTP.
	1.3 Non-structural measures		i. Pollution characterization and management iii. Energy saving and GHG reduction measures
2. Flood management enhanced	2.1 Flooding control and riverbank remediation	Enshi City	i. River embankment and landscaping. The total length of both sides is 66 km
		Lichuan City	i. River embankment and landscaping. The total length of both sides is 49.4 km
	2.2 River dredging	Enshi City	i. Total volume of river dredging is about 610,000 m ³
		Lichuan City	i. Total volume of river dredging is about 360,000 m ³
	2.3 River restoration and ecological buffer zones including wetlands and amenity facilities	Enshi City	i. Construction of 4 ecological buffer zones including wetlands and amenity facilities: (i) Longjiawan – riverside park and amenity facilities, with an area of 6,019 m ² (ii) Sha River – wetland and amenity facilities, with an area of 36,287 m ² (iii) Daishui River – wetland and amenity facilities, with an area of 6,569 m ² (iv) Upstream of the confluence of Sha River and Longjiawan, with an area of 2,707 m ² The amenity facilities comprise open paved areas

Output	Component	Location	Content
			for community events and waterside plaza, open grassed areas for passive recreation, piers and waterfront viewing platforms, wetlands and pedestrian bridges.
		Lichuan City	<p>i. Construction of 4 ecological buffer zones including amenity facilities:</p> <ul style="list-style-type: none"> (i) Central Island wetland at convergence of Yuanbao River and Qing River – wetland and amenity facilities, with an area of 8,752 m² (ii) Huangshi Bridge – wetland and amenity facilities, with an area of 23,320 m² (iii) Huilong River – wetland and amenity facilities, with an area of 2,986 m² (iv) Sandao River with an area of 2,231 m² <p>The amenity facilities comprise open paved areas for community events and waterside plaza, open grassed areas for passive recreation, piers and waterfront viewing platforms, wetlands and pedestrian bridges.</p> <p>ii. Construction of water source protection zone of No. 1 Water Treatment Plant to protect the water intake. The work includes protection of the riverbanks from unauthorized use and disturbance as well as closing current untreated sewage drains which discharge into the river. The water source protection zone will be extended to 3,000 m upstream and to 700 m downstream from the intake.</p>
3. Water and environmental management integrated			<p>i. Pilot participatory program to reduce non-point source pollution through improving farming practices for Xinjie Village in Enshi</p> <p>ii. Public education and participation</p> <p>iii. Institutional strengthening through training to improve environmental monitoring and enforcement</p> <p>iv. Flood forecasting and warning system</p> <p>v. Community environmental supervision and flood management</p> <p>vi. River maintenance program</p> <p>vii. Sewer infrastructure GIS and Asset Management System</p> <p>viii. Water sensitive land use planning</p>
4. Inclusive capacity development strengthened			<p>i. Consultants' support for project management and supporting equipment</p> <p>ii. Institutional and capacity strengthening for project management and operation and maintenance of the infrastructure</p> <p>iii. Resettlement and social monitoring</p> <p>iv. Provision of equipment for project management.</p>

d = day, GHG = greenhouse gas, GIS = geographic information system, km = kilometer, m² = square meter, m³ = cubic meter, WWTP = wastewater treatment plant.

Source: Asian Development Bank estimates.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Indicative Activities	2014		2015												Who is responsible
	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
Advance contracting actions (if any)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	EA, IAs, PMO
Retroactive financing (if any)		■	■	■	■	■	■	■	■	■	■	■	■	■	EA, IAs, PMO
RP and EIA approval		■	■	■	■	■	■	■	■	■	■	■	■	■	ADB, EA, IAs, PMO
FSR approval		■	■	■	■	■	■	■	■	■	■	■	■	■	HDRC, PMO
Preparation of FCUR and DRCAFRR			■	■	■	■	■	■	■	■	■	■	■	■	PMO, EPFB, EPDRC, HFB, HDRC
Review and approval of FCUR and DRCAFRR			■	■	■	■	■	■	■	■	■	■	■	■	NDRC, MOF
Selection of tendering agency			■	■	■	■	■	■	■	■	■	■	■	■	PMO
Finalization of project administration manual				■	■	■	■	■	■	■	■	■	■	■	ADB, PMO, PPTA consultants
Finalization of procurement plan				■	■	■	■	■	■	■	■	■	■	■	ADB, PMO, PPTA
Loan Negotiations					■	■	■	■	■	■	■	■	■	■	ADB, MOF, HPG
ADB Board approval											■	■	■	■	ADB
Loan signing												■	■	■	ADB, MOF
Government legal opinion provided													■	■	MOF, MOFA
Government budget inclusion														■	MOF
Loan effectiveness														■	ADB, MOF

ADB = Asian Development Bank, DRCAFRR = debt repayment capacity assessment and finance review report, EA = executing agency, EIA = environmental impact assessment, EPDRC = Enshi Prefectural Development and Reform Commission, EPFB = Enshi Prefectural Finance Bureau, FCUR = foreign capital utilization report, FSR = feasibility study report, HDRC = Hubei Development and Reform Commission, HPFD = Hubei Provincial Finance Department, HPG = Hubei Provincial Government, IA = implementing agency, MOF = Ministry of Finance, MOFA = Ministry of Foreign Affairs, NDRC = National Development and Reform Commission, PMO = project management office, PPTA = project preparatory technical assistance, RPs = resettlement plans.

Source: Asian Development Bank estimates.

B. Overall Project Implementation Plan

[illegible]

Note: Timing for the implementation plan is indicative only.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

Project implementation organizations	Management Roles and Responsibilities
Hubei Provincial Finance Department	<ul style="list-style-type: none"> • Provide overall project guidance and coordination • Establish and manage the project imprest account • Submit withdrawal applications to ADB • Manage and supervise loan repayment
ETMAPG (executing agency)	<ul style="list-style-type: none"> • Responsible for overall project planning, management, and implementation • Facilitate disbursement through EPFB • Facilitate project auditing • Supervise the implementing agencies • Execute loan agreement and sign project agreement • Secure funds for repayment of ADB loan and prepare a repayment plan for the loan and interest in accordance with the loan agreement • Responsible for providing counterpart funds
Enshi Prefectural Project Leading Group	<ul style="list-style-type: none"> • Oversee and coordinate the project preparation and implementation • Provide overall policy guidance • Coordinate project implementation activities among government agencies • Meet regularly, discuss and take actions, if necessary, to ensure smooth project implementation
Enshi Prefectural Project Management Office with assistance of Project Implementing Units in Enshi and Lichuan cities	<ul style="list-style-type: none"> • On behalf of ETMAPG, manage all implementation works during preparation and implementation • Coordinate with all involved agencies, departments, and institutes for project implementation • Coordinate implementation of land acquisition and resettlement activities with land resources bureau and housing management bureau • Implement nonstructural and capacity development components of the project • Implement nonpoint source pollution control pilot project with support of Tunbao Township Government • Engage (i) an external monitoring agency for resettlement and environment, and (ii) consultants for project management and implementation and nonstructural components • Prepare and update procurement plan, and other project documents • Provide ADB with (i) quarterly project progress reports, (ii) semiannual environmental monitoring reports, (iii) project completion report, and (iv) annual audit reports • Forward external resettlement M&E reports to ADB • Review withdrawal applications prepared by the implementing agencies, and prepare and submit withdrawal applications through the EPFD and HPDF • Carry out project performance and compliance monitoring

Project implementation organizations	Management Roles and Responsibilities
	<ul style="list-style-type: none"> • Disclose project-related information and documents in accordance with ADB guidelines
Enshi Urban Construction and Investment Co. Ltd (implementing agency for Enshi City)	<ul style="list-style-type: none"> • Responsible for day-to-day project implementation activities for all infrastructure subcomponents in Enshi City • Design and procure works and goods under all infrastructure components, and administer and monitor the contractors and suppliers, with the support of design institutes, tendering agent, and supervision companies • Undertake contract management, construction supervision and quality control, with the support of supervision companies, external resettlement monitoring agency, and environment monitoring system • Develop project management procedures, implementation plan, and financial management • Prepare withdrawal applications • Maintain separate project accounts for the project • Prepare and update EMP and other project documents • Participate in training • Organize project acceptance verification
Lichuan Liangli Urban Construction and Development Co. Ltd (implementing agency for Lichuan City)	<ul style="list-style-type: none"> • Responsible for day-to-day project implementation activities for all infrastructure subcomponents in Lichuan City • Design and procure works and goods, and administer and monitor the contractors and suppliers, with the support of design institutes, tendering agent, and supervision companies • Undertake contract management, construction supervision and quality control, with the support of supervision companies • Develop project management procedures, implementation plan, and financial management • Prepare withdrawal applications • Maintain separate project accounts for the project • Participate in training • Organize project acceptance verification
ADB	<ul style="list-style-type: none"> • Support project administration including executing agency and implementing agency compliance of obligations and responsibilities in accordance with ADB policies and procedures • Monitor and review the project progress and impact • Review and approve procurement, contract awards, and other reports • Approve withdrawal applications and disburse loan proceeds

ADB = Asian Development Bank, ETMAPG = Enshi Tujia and Miao Autonomous Prefectural Government, EMP = Environmental Management Plan, EPFD = Enshi Prefecture Finance Department, HPDF = Hubei Provincial Department of Finance, M&E = monitoring and evaluation.

Source: Asian Development Bank estimates.

Table 1: Operation and Maintenance Arrangement

Component: Enshi	O&M Party
Wastewater components	
(i) Wastewater treatment plants	Enshi Lvyuan Company
(ii) Wastewater collection pipelines	Enshi Lvyuan Company
River components	
(i) River channels	Enshi City Water Resource and Aquatic Production Bureau
(ii) Solid waste management	Enshi City Management Bureau
(iii) Wetlands, landscaping and trees	Enshi Garden Bureau
(iv) Agricultural NPS pollution reduction	Tunbao Town
(v) Flood warning system	Enshi City Water Resource and Aquatic Production Bureau
Component: Lichuan	O&M Party
Wastewater components	
(i) Lichuan wastewater treatment plant	Under PPP agreement
(iii) Pumping stations and pipelines	Lichuan City EPB
River components	
(i) River channels	Lichuan City Water Resource and Aquatic Production Bureau
(ii) Solid waste management	Lichuan City Management Bureau
(iii) Wetlands, landscaping, and trees	Lichuan Garden Bureau
(iv) Flood warning system	Lichuan City Water Resources and Aquatic Protection Bureau

EPB = environmental protection bureau, NPS = nonpoint source, O&M = operation and maintenance, PPP = public-private partnership

Source: Asian Development Bank estimates.

16. The Enshi Tujia and Miao Autonomous Prefecture Government (ETMAPG) will be the executing agency and responsible for the overall planning and implementation of the project. A project leading group and a project management office have been established in the ETMAP. The PLG is headed by the governor of ETMAP and includes representatives from relevant government departments of ETMAP, including development and reform commission, finance bureau, land resources bureau, housing and construction bureau, environmental protection bureau, water resources bureau, and the resettlement bureau. The implementing agencies will be the Enshi Urban Construction and Investment Co., Ltd. and Lichuan Liangli Urban Construction and Development Co. Ltd. for Enshi and Lichuan cities, respectively.

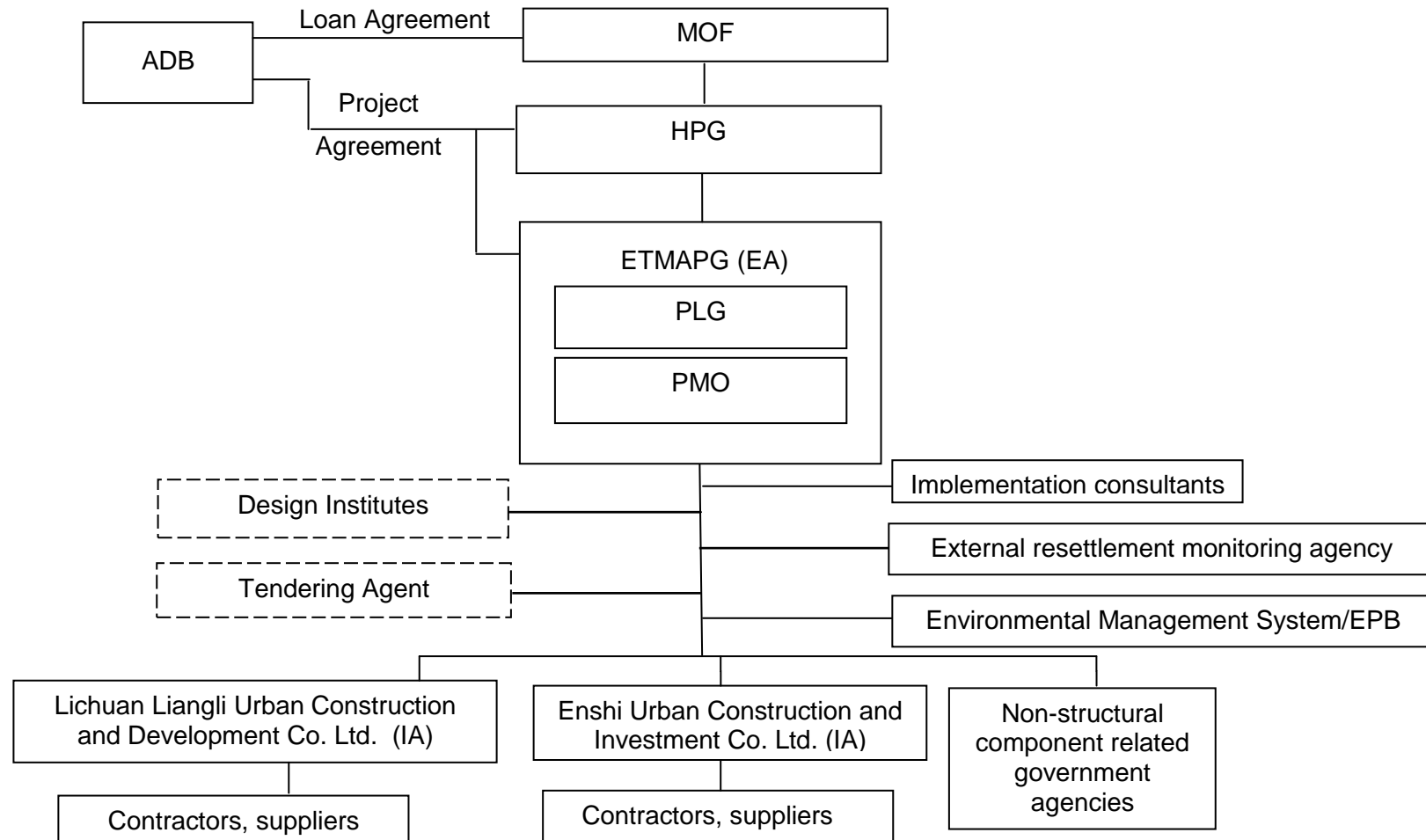
17. The Enshi prefectural PMO, as the representative of ETMAPG, will be responsible for the overall implementation of all non-structural sub-components of the project. The policy advisory and capacity development support will be provided to the implementing agencies in Enshi and Lichuan cities relevant to project implementation as well as operations and maintenance (O&M), including the Enshi and Lichuan PMOs, Enshi Lvyuan Company; Lichuan City Environmental Protection Bureau (EPB); and the Water Resource Bureaus, and City Management Bureaus for Enshi and Lichuan cities. For water resources management related non-structural sub-component, the PMO will work with the following agencies to deliver advisory and capacity building support: (i) the drainage companies of Enshi and Lichuan cities for the sewer infrastructure GIS and Asset Management system, (ii) the water resources bureaus of Enshi and Lichuan cities for flood forecasting and warning system and river bank maintenance program; (iii) Enshi prefecture environmental protection bureau for pollution characterization and Manage; (iv) Tunbao Township Government and Xinjie Village Committee for non-point pollution

control community pilot program; and (iv) Enshi and Lichuan housing and construction bureaus for water sensitive land use planning (Table 1).

B. Key Persons Involved in Implementation

Executing Agency	
Enshi Prefectural Government	Officer's Name: Mr. XIE Shihong Position: Director, Enshi Project Management Office Director, Enshi Development and Reform Commission, Hubei Province Telephone No.: +86 18907260707 Email address: esyhymb@163.com Office Address: Enshi Development and Reform Commission, Municipal Government Building, Enshi City, Hubei Province, People's Republic of China
Implementing Agencies	
Enshi Urban Construction and Investment Co. Ltd (EUCIC)	Officer's Name: Mr. QIN Jiwei Position: Deputy Manager Telephone No.: +86 13971878508 Email address: 64671083@qq.com
Lichuan Liangli Urban Construction and Development Co. Ltd (LLUCDC)	Officer's Name: Mr. LIU Heng Position: General Manager of LLUCDC Telephone No.: +86 13597772898 Email address: 562288743@qq.com
ADB	
East Asia Department Environment, Agriculture and Natural Resources Division	Staff Name: Mr. Qingfeng Zhang Position: Director Telephone No.: +63 2 632 6161/6769 Fax No.: +63 2 636 2534/2444 Email address: qingfengzhang@adb.org
Mission Leader	Staff Name: Ms. Fei Yu Position: Senior Economist Telephone No.: +86 10 8513 0888 Email address: feiyu@adb.org

C. Project Organization Structure



ADB = Asian Development Bank, ETMAPG = Enshi Tujia and Miao Autonomous Prefectural Government, EA = executing agency, HPG = Hubei Provincial Government, IA = implementing agency, MOF = Ministry of Finance, PLG = project leading group, PMO = project management office.

Source: Asian Development Bank estimates.

IV. COSTS AND FINANCING

18. This section describes the project costs, categories, and components to be financed by ADB and the Hubei Provincial Government (HPG). Loan proceeds will be disbursed according to the *Loan Disbursement Handbook* (2015, as amended from time to time), and subject to the provisions of the loan and project agreements.

19. The project is estimated to cost \$ 231.62 million. (Table 1)

Table 1: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Wastewater management improved	95.46
2. Flood management enhanced	103.30
3. Water and environmental management integrated	1.37
4. Inclusive capacity development strengthened	1.75
Subtotal (A)	201.88
B. Contingencies^c	24.28
C. Financing Charges During Implementation^d	5.46
Total (A+B+C)	231.62

^a Includes taxes and duties of \$11.77 million to be financed from government (\$6.38 million) and the ADB loan (\$5.39 million). The following principles were followed in determining the amount of taxes and duties to be financed by ADB: (i) the amount is within reasonable country thresholds; (ii) the amount represents 3.5% of base cost, not an excessive share of the project investment plan; (iii) taxes and duties only to ADB-financed expenditures; and (iv) the financing of the taxes and duties is relevant to the success of the project.

^b In mid-2014 prices.

^c Physical contingencies computed at 8.0% for all expenditure categories. Price contingencies are computed at 1.6% in 2016, 1.1% in 2017, 1.4% in 2018, 1.4% in 2019, and 1.5% thereafter on foreign exchange costs assuming exchange rate fluctuations under a purchasing power parity model. Price contingencies on local currency are calculated at 3% in 2016–2019 and thereafter.

^d Includes interest during construction and commitment charges. Interest for the ADB loan has been computed at the 3-year US Dollar fixed swap rate plus an ADB spread of 0.5% and a maturity premium of 0.1%. Commitment charges for the ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

20. The government has requested a loan of \$100 million from ADB's ordinary capital resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years; an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; a commitment charge of 0.15% per year; and such other terms and conditions set forth in the loan and project agreements. The government has requested that the repayment will follow the straight line repayment option and that the repayment dates are expected to be 1 March and 1 September in each year. Based on the requested loan terms and the repayment option, the average loan maturity is 15.25 years and the maturity premium payable to ADB is 0.1%. The ADB loan will also finance taxes and duties for eligible ADB-financed expenditures, and transportation and insurance costs included in the base cost for ensuring smooth project implementation. The loan will finance 43.17% of the project cost, including civil works, equipment and materials, and institutional strengthening. The Enshi city government (ECG) will finance 36.7% of the project cost and the LCG 20.1% through counterpart funds (Table 2). Counterpart funds will finance some civil works, land acquisition and resettlement, survey, design, and supervision and monitoring.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources	100.00	43.2
Enshi City Government	85.10	36.7
Lichuan City Government	46.52	20.1
Total	231.62	100.00

Source: Asian Development Bank estimates.

21. The government has requested a repayment schedule based on a straight line loan format and that the repayment dates will extend from 2021 to 2040. Based on the above loan terms and these repayment option and dates, the average loan maturity is 15.25 years and the maturity premium payable to ADB is 0.1% per annum.

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

A. Detailed Cost Estimates by Expenditure Category

	CNY Million			\$ Million			Percent of Total	Percent of base
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost		
A. Investment Costs								
Civil works	456.36	440.31	896.67	74.45	71.83	146.28	63.16	72.46
Equipment and goods	141.26	0.00	141.26	23.04	0.00	23.04	9.95	11.41
Land acquisition and resettlement	0.00	122.78	122.78	0.00	20.03	20.03	8.65	9.92
Consulting services	12.93	0.00	12.93	2.11	0.00	2.11	0.91	1.04
Survey, design, supervision and monitoring	0.00	61.41	61.41	0.00	10.02	10.02	4.33	4.96
Training	2.45	0.00	2.45	0.40	0.00	0.40	0.17	0.20
Sub-total A	613.00	624.50	1,237.50	100.00	101.88	201.88	87.16	100.00
B. Contingencies								
Physical	49.04	49.96	99.00	8.00	8.15	16.15	6.97	8.00
Price	25.26	24.58	49.84	4.12	4.01	8.13	3.51	4.03
Sub-total C	74.30	74.54	148.84	12.12	12.16	24.28	10.48	12.03
C. Financing Charges During Implementation								
Interest Charges	32.03	0.00	32.03	5.23	0.00	5.23	2.26	2.59
Commitment fee	1.42	0.00	1.42	0.23	0.00	0.23	0.10	0.11
Sub-total D	33.45	0.00	33.45	5.46	0.00	5.46	2.36	2.70
Total Project Cost (A+B+C)	720.75	699.04	1,419.79	117.58	114.04	231.62	100.00	114.73

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

B. Allocation and Withdrawal of Loan Proceeds

CATEGORY			ADB FINANCING BASIS
No.	Item	Total Amount Allocated (\$)	Percentage and Basis for Withdrawal from the Loan Account*
01	Civil works	74,446,290	51% of total expenditure claimed
02	Equipment and goods*	23,043,710	100% of total expenditure claimed
03	Consulting services	2,110,000	100% of total expenditure claimed
04	Training	400,000	100% of total expenditure claimed
Total		100,000,000	

* Includes insurance and transportation costs

C. Detailed Cost Estimates by Financier (\$ Million)

	Total cost	ADB loan		Enshi City Gov't		Lichuan City Gov't	
		Amount	% Cost category	Amount	% Cost category	Amount	% Cost category
A. Investment Costs							
Civil works	146.28	74.45	50.9	49.78	34.0	22.05	15.1
Equipment and goods	23.04	23.04	100.0	0.00	0.0	0.00	0.0
Land acquisition and resettlement	20.03	0.00	0.0	10.25	51.2	9.78	48.8
Consulting services	2.11	2.11	100.0	0.00	0.0	0.00	0.0
Survey, design, supervision and monitoring	10.02	0.00	0.0	6.36	63.5	3.66	36.5
Training	0.40	0.40	100.0	0.00	0.0	0.00	0.0
Sub-total A	201.88	100.00	49.5	66.39	32.9	35.49	17.6
B. Contingencies							
Physical	16.15	0.00	0.0	10.11	62.6	6.04	37.4
Price	8.13	0.00	0.0	5.32	65.4	2.81	34.6
Sub-total C	24.28	0.00	0.0	15.43	63.6	8.85	36.4
C. Financing Charges During Implementation							
Interest Charges	5.23	0.00	0.0	3.13	59.8	2.09	40.0
Commitment fee	0.23	0.00	0.0	0.14	60.9	0.09	39.1
Sub-total D	5.46	0.00	0.0	3.27	59.9	2.18	39.9
Total Project Cost (A+B+C)	231.62	100.00	43.2	85.10	36.7	46.52	20.1

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

D. Detailed Cost Estimates by Outputs (\$ Million)

	Total	Wastewater management improved		Flood management enhanced		Water and environmental management integrated		Inclusive capacity development strengthened	
		Amount	% Cost category	Amount	% Cost category	Amount	% Cost category	Amount	% Cost category
A. Investment Costs									
Civil works	146.28	63.53	43.43	82.75	56.57	0.00	0.00	0.00	0.00
Equipment and goods	23.04	22.43	97.35	0.00	0.00	0.61	2.65	0.00	0.00
Land acquisition and resettlement	20.03	4.18	20.87	15.85	79.13	0.00	0.00	0.00	0.00
Consulting services	2.11	0.00	0.00	0.00	0.00	0.76	36.02	1.35	63.98
Survey, design, supervision and monitorir	10.02	5.32	53.09	4.70	46.91	0.00	0.00	0.00	0.00
Training	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.40	100.00
Sub-total A	201.88	95.46	47.29	103.30	51.17	1.37	0.68	1.75	0.87
B. Contingencies									
Physical	16.15	7.64	47.31	8.26	51.17	0.11	0.68	0.14	0.87
Price	8.13	4.38	53.87	3.56	43.79	0.08	0.98	0.11	1.35
Sub-total C	24.28	12.02	49.51	11.82	48.70	0.19	0.78	0.25	1.03
C. Financing Charges During Implementation									
Interest Charges	5.23	2.92	55.83	2.22	42.45	0.04	0.76	0.05	0.96
Commitment fee	0.23	0.11	46.43	0.12	50.24	0.00	0.00	0.00	1.43
Sub-total D	5.46	3.03	55.44	2.34	42.78	0.04	0.73	0.05	0.98
Total Project Cost (A+B+C)	231.62	110.51	47.71	117.46	50.71	1.60	0.69	2.05	0.89

Note: Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

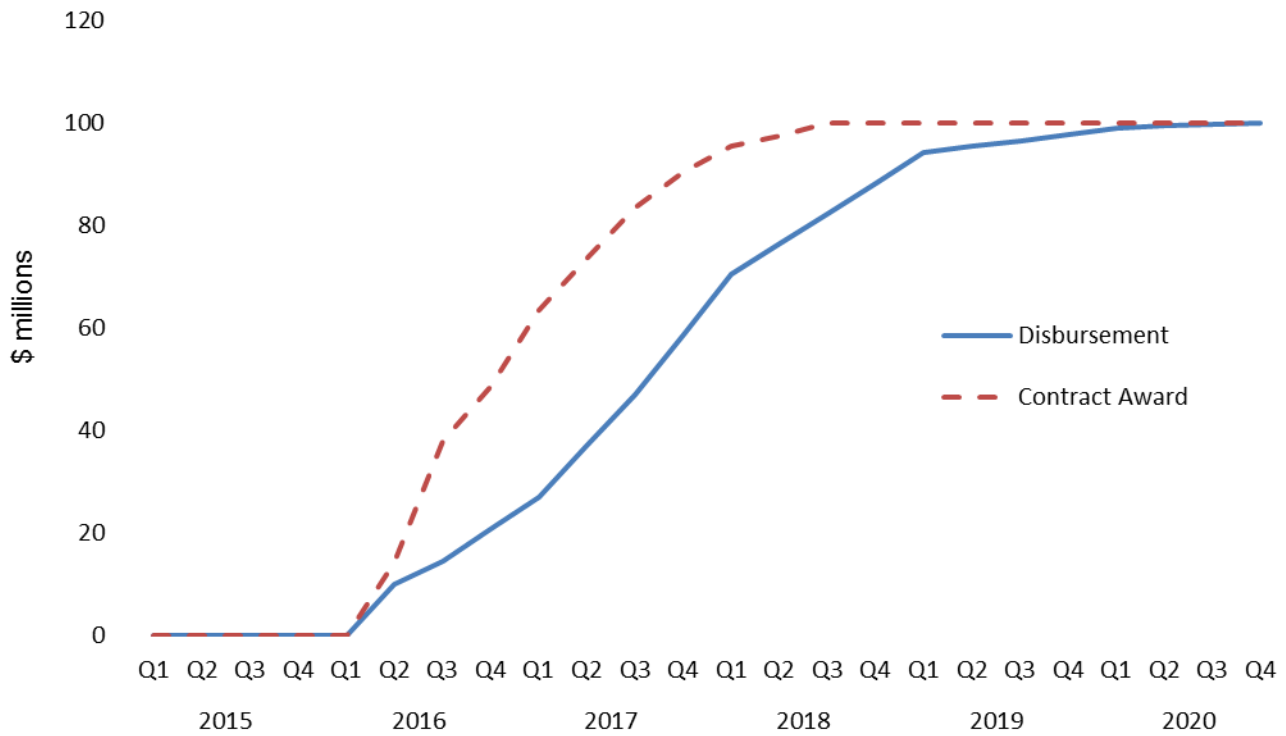
E. Detailed Cost Estimates by Year (\$ Million)

	Total costs	2015	2016	2017	2018	2019	2020
A. Investment Costs							
Civil works	146.28	36.07	48.42	26.74	24.24	9.03	1.78
Equipment and goods	23.04	0.00	9.13	9.61	4.10	0.20	0.00
Land acquisition and resettlement	20.03	17.75	0.94	0.00	1.34	0.00	0.00
Consulting services	2.11	0.00	0.27	0.53	0.52	0.52	0.27
Survey, design, supervision and monitoring	10.02	2.27	3.05	1.94	1.99	0.63	0.14
Training	0.40	0.00	0.08	0.08	0.08	0.08	0.08
Sub-total A	201.88	56.09	61.89	38.90	32.27	10.46	2.27
B. Contingencies							
Physical	16.15	4.49	4.95	3.11	2.58	0.84	0.18
Price	8.13	0.00	2.16	2.08	2.53	1.07	0.29
Sub-total B	24.28	4.49	7.11	5.19	5.11	1.91	0.47
C. Financing Charges During Implementation							
Interest Charges	5.23	0.20	0.68	1.15	1.50	1.69	0.00
Commitment fee	0.23	0.12	0.07	0.04	0.01	0.00	0.00
Sub-total C	5.46	0.32	0.75	1.19	1.51	1.69	0.00
Total Project Cost (A+B+C)	231.62	60.90	69.75	45.28	38.89	14.06	2.74

Note: Numbers may not sum precisely because of rounding.

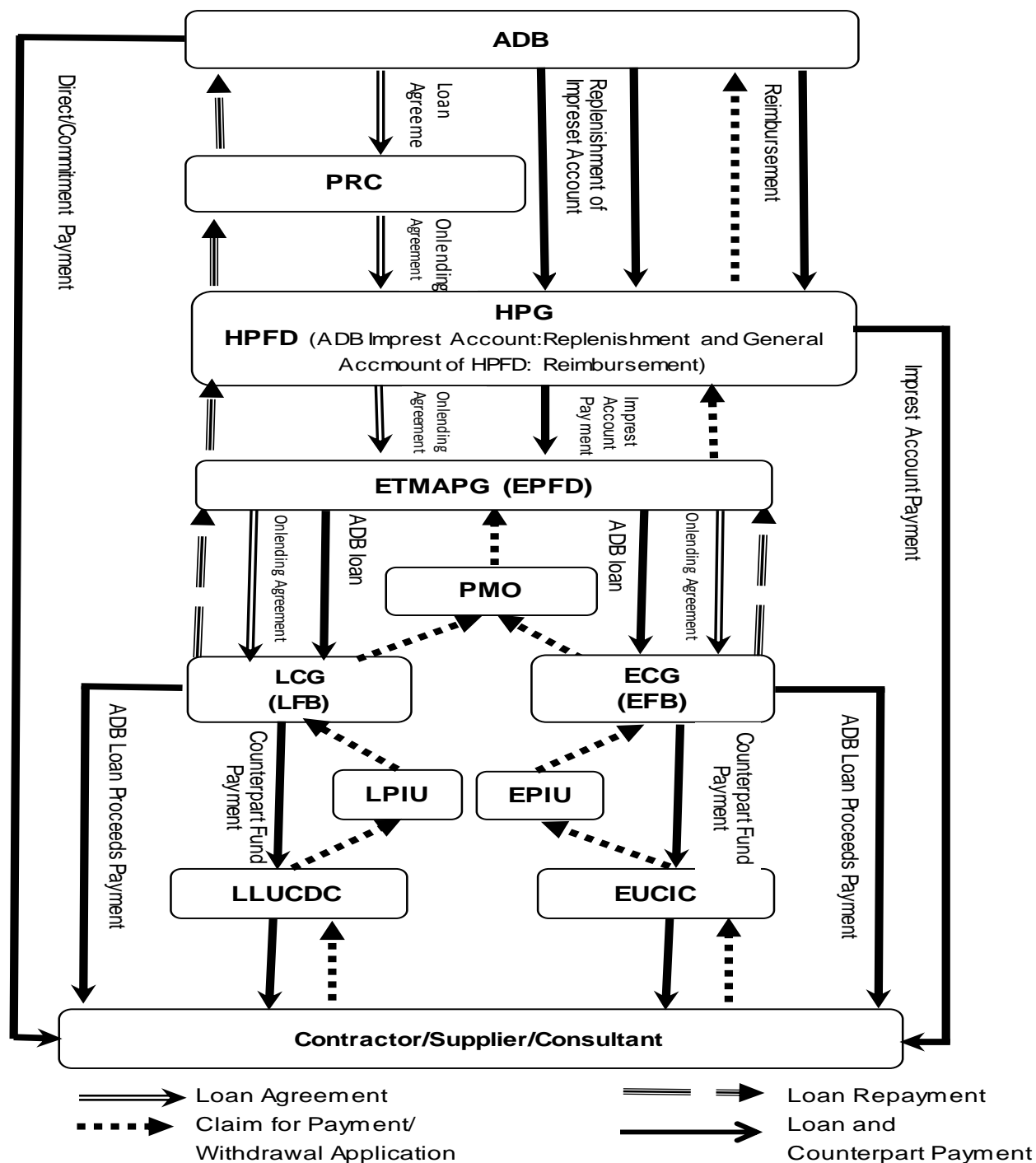
Source: Asian Development Bank estimates.

F. Contract and Disbursement S-curve



	Disbursement					Contract Award				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2015	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
2016	0.00	10.00	4.56	6.26	20.82	0.00	14.33	23.59	10.65	48.57
2017	6.26	10.00	10.00	11.69	37.95	15.00	10.00	9.78	7.00	41.78
2018	11.71	5.95	5.95	5.95	29.56	5.00	2.12	2.48	0.00	9.60
2019	5.95	1.17	1.17	1.17	9.46	0.00	0.00	0.00	0.00	0.00
2020	1.17	0.52	0.26	0.26	2.21	0.00	0.00	0.00	0.00	0.00
Total					100.00					100.00

G. Fund Flow Diagram



ADB = Asian Development Bank, ECG = Enshi City Government, EFB = Enshi Financial Bureau, EPFD = Enshi Prefectural Financial Department, EPIU = Enshi Project Implementation Unit, EUCIC = Enshi Urban Construction and Investment Co. Ltd., HPFD = Hubei Provincial Department of Finance, HPG = Hubei Provincial Government, LCG = Lichuan City Government, LFB = Lichuan Financial Bureau, LPIU = Lichuan Project Implementation Unit, LLUCDC = Lichuan Liangli Urban Construction and Development Co. Ltd., MOF = Ministry of Finance, PMO = project management office, PRC = People's Republic of China.

Source: Asian Development Bank estimates.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

23. The financial management assessment (FMA) was carried out in 2014 in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects. Below is a summary of the financial analysis.

24. The Enshi Tujia and Miao Autonomous Prefecture Government (ETMAPG), the executing agency, has extensive experience in the preparation and implementation of projects funded by the World Bank and foreign governments. A new prefecture project management office (PMO) has been established within the Enshi Prefecture Development and Reform Commission. It is responsible, on behalf of the ETMAPG, for daily coordination and management of project preparation and implementation. The Enshi Prefecture Finance Department (EPFD) will be responsible, on behalf of the ETMAPG, for the financial management of the project. The Enshi Urban Construction and Investment Co. Ltd. (EUCIC) and the Lichuan Liangli Urban Construction and Development Co. Ltd. (LLUCDC) are the implementing agencies of the project responsible for the implementation of the subcomponents in Enshi and Lichuan cities respectively. They are stated-owned companies.

25. The FMA assessed the financial management capacity of EPFD, EUCIC, and LLUCDC. The assessment included review of fund-flow arrangements, staffing, accounting policies and procedures, internal and external auditing arrangements, reporting and monitoring, and financial information systems.

26. EPFD has adequate financial staff, accounting policies and procedures, internal and external controls, audit arrangements, and reporting system. It has experience on World Bank and foreign government projects, but no experience on ADB projects yet.

27. LLUCDC and EUCIC have sound financial management systems which can meet the minimum financial management requirements for their current activities though they have no experience yet on the financial management of foreign-funded projects. External financial management assistance is proposed to help EUCIC implement needed improvements in its budget management system.

28. The executing and implementing agencies have agreed to strengthen their financial management capability to manage the project, including (i) undertaking training, particularly on ADB policy and procedural requirements including procurement, disbursement, and project management; and (ii) seeking external financial management assistance as needed.

29. The overall financial management risk-rating of the project, before considering mitigating measures, is moderate. The identified financial management risks will be closely monitored during project implementation.

B. Disbursement

30. The Loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time),⁹ and detailed arrangements agreed upon between the Government and ADB.

⁹ Available at: <http://www.adb.org/documents/loan-disbursement-handbook>.

31. The implementing agencies will be responsible for all disbursement arrangements for expenditures related to the implementation of subcomponents in Enshi and Lichuan cities, including (i) preparing disbursement projections, (ii) requesting budgetary allocations for counterpart funds, (iii) collecting supporting documents, and (iv) preparing withdrawal applications that will be submitted to ADB by HPG.

32. Direct payment procedure will generally be used for large civil works, equipment contracts, and consulting services contracts. Reimbursement procedures will also be used as appropriate when the government initially funds ADB eligible expenditures from its budget allocation or its own resources. The statement of expenditure (SOE) procedure will be used.

33. Each year, ETMAPG will ensure ECG and LCG allocate the necessary amount of counterpart funding and disburse it upon request from the implementing agencies. For ADB's loan proceeds, withdrawal applications to ADB will be prepared by the PMO with assistance of the implementing agencies. At the end of each year, realistic projections of contract awards/commitments and disbursement for the following calendar year will be made for an assessment and projection of ADB funds required to cover contract awards/commitments and disbursements for ongoing loans. The PMO will be responsible for preparing contract award/commitment and disbursement projections each year.

34. An imprest account will be set up for the project by the Hubei Provincial Finance Department (HPFD) in a commercial bank acceptable to ADB after the loan becomes effective. HPFD will be responsible for the management, monitoring, and reconciliation of the imprest account. For every liquidation and replenishment request of the imprest account, the borrower will furnish to ADB (i) the statement of account (bank statement) where the imprest account is maintained; and (ii) the imprest account reconciliation statement reconciling the above mentioned bank statement against the executing agency's records. Follow the format provided in Appendix 10C of ADB's *Loan Disbursement Handbook* (2015, as amended from time to time). The bank charges in the operation of the imprest account may be financed from the loan proceeds. The total outstanding advance to the imprest account should not exceed the estimate of ADB's share of expenditures to be paid through the imprest account for the forthcoming 6 months. The executing agency may request for initial and additional advances to the imprest account based on an estimate of expenditure sheet available in Appendix 10B of the ADB's *Loan Disbursement Handbook* (2015, as amended from time to time), setting out the estimated expenditures to be financed through the account for the forthcoming 6 months, and submission of evidence satisfactory to ADB that the imprest account has been duly opened. Supporting documents should be submitted to ADB or retained by the executing and implementing agencies in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time) when liquidating or replenishing the imprest account.

35. To expedite funds flow and simplify the documentation process, the SOE¹⁰ procedure will be used for liquidation and replenishment of the imprest account and reimbursement of eligible expenditures not exceeding \$200,000 per individual payment. Payments in excess of the SOE ceiling will be reimbursed, liquidated, or replenished based on full supporting documentation process. SOE records should be maintained and made readily available for review by ADB's disbursement and review missions or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.

¹⁰ Checklist for SOE procedures available in Chapter 9 and formats in Appendix 10B of the Loan Disbursement Handbook
(<http://www.adb.org/sites/default/files/institutional-document/33606/files/loan-disbursement-handbook.pdf>).

36. Before the submission of the first withdrawal application, HPG, through the HPFD and prefectural PMO, should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of HPG, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is \$100,000 equivalent. The PMO will consolidate claims to meet this limit for reimbursement and imprest account claims. Individual payments below this amount should be paid (i) by the executing agency or implementing agencies and subsequently claimed to ADB through reimbursement; or (ii) from the imprest account, and subsequently claimed to ADB through reimbursement or liquidation/replenishment, unless otherwise accepted by ADB. ADB reserves the right not to accept withdrawal applications below the minimum amount.

37. For the counterpart funds, the implementing agencies will allocate the designated funding for the project as specified in the loan and project agreements. Counterpart funds from the government will be disbursed and liquidated by the implementing agencies to contractors and service providers. The disbursement process will follow this process: (i) according to the progress of the contract, the implementing agencies will submit disbursement request to the respective PMO; and (ii) once approved, counterpart funds will be disbursed from the respective municipal finance bureau.

C. Accounting

38. The ETMAPG and the implementing agencies will maintain, or cause to maintain, separate books and records by funding source for all expenditures incurred on the project. Consolidated project financial statements will be prepared annually by ETMAPG through the prefectural PMO in accordance with the government's accounting laws and regulations, which are consistent with international accounting principles and practices.¹¹

D. Auditing and Public Disclosure

39. The ETMAPG and the implementing agencies will cause the detailed consolidated project financial statements to be audited in accordance with International Standards on Auditing and the Government Auditing Standards of the PRC (where these are consistent with International Standards on Auditing), by an auditor acceptable to ADB. The audited consolidated project financial statements will be submitted in the English language to ADB within six months of the end of the fiscal year by the prefectural PMO.

40. The annual audit report for the project will include an audit management letter¹² 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 framework; (ii) whether loan proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the loan and project agreements for the project; (iv) use of the imprest fund procedure; and (v) use of the SOE procedure certifying to the eligibility of those expenditures claimed under SOE procedure, and

¹¹ Applicable laws, regulations and guidelines include: (i) the Accounting Law of the PRC (2000); (ii) State-owned Construction Enterprise Accounting Control Regulations; (iii) Capital Construction Financial Control Regulations; and (iv) Accounting Methods of Projects Financed by the World Bank.

¹² A management letter means formal communications from the auditor the client management in accordance with the International Standard on Auditing 265 (communicating deficiencies in internal control to those charged with governance and management), which is not required to be provided separately as it is equivalent to the Audit Findings and Recommendations prepared by the Project auditor and submitted to ADB.

proper use of the SOE and imprest procedures in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time) and other project documents.

41. 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.

42. The borrower, HPG, and ETMAPG have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.¹³ 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.

43. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).¹⁴ After review, ADB will disclose the financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

¹³ ADB policy on delayed submission of audited project financial statements:

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

¹⁴ Available from <http://www.adb.org/site/disclosure/public-communications-policy> .

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

44. The ETMAPG has requested advance contracting and retroactive financing to enable early commencement of procurement of civil works, goods, and services. The details of activities to be financed and their justifications will be set out in a written request to ADB. The ETMAP has been advised that retroactive financing may only apply to up to 20% of the amount of the ADB loan in respect for expenditures incurred before loan effectiveness, but not earlier than 12 months before the signing of the loan and project agreements. Approval of advance contracting and retroactive financing does not commit ADB to financing the project. All advance contracting and retroactive financing will be undertaken in conformity with ADB's Procurement Guidelines¹⁵ (2015, as amended from time to time) and ADB's Guidelines on the Use of Consultants¹⁶ (2013, as amended from time to time). The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval and advance contracting should follow ADB's review and approval procedures relating to procurement and consulting services.

B. Procurement of Goods, Works and Consulting Services

45. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines (2015, as amended from time to time). International competitive bidding (ICB) will be used for civil works contracts estimated to cost \$20 million and above. National competitive bidding (NCB) will be used for civil works contracts estimated to cost over \$200,000 equivalent up to \$20 million. For goods and equipment, ICB will be used for values exceeding \$5 million, while NCB will be used for goods and equipment from over \$100,000 to below \$5 million equivalent. For NCB, the first draft English language of the procurement documents (prequalification, bidding documents, and draft contract) should be submitted for ADB approval regardless of the estimated contract amount. Subsequent procurements are subject to post review. All ICB contracts are subject to prior review. Prior review and approval of ADB of the procurement documents (prequalification, bidding, contract) is required.

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

47. All consultants financed by ADB will be recruited according to ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).¹⁷ An estimated 187 person-months (27 person-months international, 160 person-months national) of consulting services are required to: (i) facilitate project implementation and institutional strengthening support (quality and cost-based selection), (ii) conduct resettlement and social monitoring (consultant's qualifications selection), (iii) advise on initial project implementation support including project management and procurement (individual consultant selection), and (iv) provide guidance on strengthening non-structural measures for Qing River integrated management (quality and cost-

¹⁵ Procurement Guidelines: <http://www.adb.org/sites/default/files/institutional-document/31482/procurement-guidelines-april-2015.pdf>

¹⁶ Guidelines on the Use of Consultants: <http://www.adb.org/documents/guidelines-use-consultants-asian-development-bank-and-its-borrowers>.

¹⁷ Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbook-project-implementation>.

based selection). The terms of reference for these consulting services packages are detailed in Appendixes 1–4.

C. Procurement Plan

Table 1: Basic Data

Project Name: Hubei Enshi Qing River Upstream Environmental Rehabilitation Project	
Project Number: 47048-002	Approval Number:
Country: People's Republic of China	Executing Agency: Enshi Tujia and Miao Autonomous Prefecture Government
Project Procurement Classification: B	Implementing Agencies: Enshi Urban Construction and Investment Company; Lichuan Liangli Urban Construction and Development Company
Procurement Risk: Moderate	
Project Financing Amount: \$231.62million	Project Closing Date: June 2020
ADB Financing: \$100 million	
Non-ADB Financing: \$131.62 million	
Date of First Procurement Plan: 21 November 2014	Date of this Procurement Plan: 3 July 2015

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

1. Procurement and Consulting Methods, Thresholds

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

Table 2: Procurement of Goods and Works

Method	Threshold (USD)	Comments
International Competitive Bidding (ICB) for Works	> \$20,000,000	
International Competitive Bidding for Goods	> \$5,000,000	
National Competitive Bidding (NCB) for Works	> \$ 200,000 and =< \$20,000,000	
National Competitive Bidding for Goods	> \$ 100,000 and =< \$5,000,000	
Shopping for Civil Works	=< \$200,000	
Shopping for Goods	=< \$100,000	

Table 3: Consulting Methods

Method	Comments
Quality and Cost Based Selection (QCBS)	Five submissions: (i) shortlist, (ii) technical evaluation; (iii) financial evaluation and ranking of technical proposals, (iv) draft negotiated contract, and (v) signed contract. Use of this method is subject to Guidelines on the Use of Consultants by ADB and its Borrowers (2013, as amended from time to time), and paragraph 48 of PAI 2.03.
Consultant's Qualifications Selection (CQS)	Three submissions: (i) evaluation of expressions of interest and request for proposals, (ii) technical and financial evaluation, and (iii) draft negotiated contract.
Individual Consultant Selection (ICS)	Two submissions: (i) proposal for engagement of consultant, including shortlist, and (ii) signed contract.

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

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

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

Package Number	General Description	Estimated Value^a (\$1,000)	Procurement Method	Review (Prior/Post)	Bidding Procedure	Advertisement Date (quarter/year)	Comments
Enshi City Works							
EC01	Dashaba WWTP (including Gaoqiao River pump station civil works)	8,877.1	NCB	Post review	1S1E	Q3/2016	Q4/2016–Q2/2018
EC02 ^{b c}	Dashaba WWTP Leveling	8,228.4	NCB	Prior review	1S1E	Q4/2015	Q1/2016–Q1/2017
EC03	Gaoqiaohe Pump station and pipeline to Dashaba WWTP	5,007.8	NCB	Post review	1S1E	Q1/2016	Q2/2016–Q4/2018
EC05	Dashaba WWTP pipeline network and equipment (Qingshulin areas)	5,336.2	NCB	Post review	1S1E	Q1/2016	Q2/2016–Q4/2018
EC06	Dashaba WWTP pipeline network and equipment (Qing River right bank interception sewers)	2,528.2	NCB	Post review	1S1E	Q1/2016	Q2/2016–Q4/2018
EC07	Dashaba WWTP pipeline network and equipment (Gaoqiao River areas)	2,922.5	NCB	Post review	1S1E	Q1/2016	Q2/2016–Q4/2018
EC08	Hongmiao WWTP pipeline network	8,778.0	NCB	Post review	1S1E	Q2/2016	Q3/2016–Q2/2019
EC11	The rest sections in Daishui River and its tributaries; Gaojing River sections. (including dredging)	9,075.3	NCB	Post review	1S1E	Q1/2016	Q2/2016–Q3/2020
EC12	Longdong River and Yulong River sections (including dredging)	11,561.2	NCB	Post review	1S1E	Q3/2016	Q4/2016–Q3/2020
EC13	Sha River, Longjiawan River (including dredging)	15,051.0	NCB	Post review	1S1E	Q3/2016	Q4/2016–Q4/2020
Goods							
EE01	Dashaba WWTP (including Gaoqiao River pump station equipment)	10,657.9	ICB	Prior review	1S1E	Q4/2016	Q2/2017–Q1/2018

Package Number	General Description	Estimated Value ^a (\$1,000)	Procurement Method	Review (Prior/Post)	Bidding Procedure	Advertisement Date (quarter/year)	Comments
Lichuan City Works							
LC01 ^c	Lichuan WWTP	8,407.4	NCB	Prior review	1S1E	Q4/2015	Q1/2016–Q1/2018
LC02	Wastewater pipeline for old town (including pump station reconstruction)	4,681.6	NCB	Post review	1S1E	Q2/2016	Q3/2016–Q1/2018
LC03	Wastewater pipeline for new town (including pump station reconstruction)	5,425.7	NCB	Post review	1S1E	Q2/2016	Q3/2016–Q1/2018
LC04	River management project: Qing River sections from Sandu gorge to upstream of water source protection zone (including dredging)	13,866.5	NCB	Post review	1S1E	Q4/2016	Q1/2017–Q1/2021
LC05	River management project: Qing River sections from downstream of water source protection zone to Tenglong No.2 bridge (including dredging)	5,564.2	NCB	Post review	1S1E	Q2/2016	Q3/2016–Q2/2020
LC06	Sandao River and Huilonggou River (including dredging)	5,418.5	NCB	Post review	1S1E	Q1/2016	Q2/2016–Q1/2020
LC07	Yuanbao River (including dredging)	5,752.0	NCB	Post review	1S1E	Q2/2016	Q3/2016–Q4/2019
LC08	Eco rehabilitation auxiliary facilities (Sandao River, Huilonggou River, Yuanbao River)	1,743.4	NCB	Post review	1S1E	Q4/2016	Q1/2017–Q2/2020
Goods							
LE01	Lichuan WWTP equipment	7,883.1	ICB	Prior review	1S1E	Q4/2015	Q1/2016–Q3/2017

ICB = international competitive bidding, NCB = national competitive bidding, Q = quarter, WWTP = wastewater treatment plant.

^a All contract values include physical contingencies.

^b Request for advance contracting for which retroactive financing will be applicable.

^c The first NCB procurement package of goods and civil works will be prior reviewed by ADB.

Source: Asian Development Bank estimates.

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

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

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

Package Number	General Description	Estimated Value ^a (\$1,000)	Recruitment Method	Review (Prior/Post)	Advertisement Date (quarter/year)	Type of Proposal
CS1	Project implementation and institutional strengthening support	1,100.0	QCBS (80:20)	Prior review	Q3/2015	FTP
CS2	Resettlement and social monitoring	190.0	CQS	Prior review	Q3/2015	BTP
CS4	Strengthening non-structural measures on Qing River Integrated Management	760.0	QCBS (90:10)	Prior review	Q4/2015	STP

BTP = biodata technical proposal, CQS = consultants' qualifications selection, FTP = full technical proposal, QCBS = quality and cost-based selection, STP = simplified technical proposal.

^a All contract values include physical contingencies.

Source: Asian Development Bank estimates.

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

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

Table 6: Goods and Works Contracts Estimated to Cost Less than \$1 million

Package Number	General Description	Estimated Value ^a (\$1,000)	Number of Contracts	Procurement Method	Review (Prior/Post)	Bidding Procedure	Advertisement Date (quarter/year)
Goods							
EE04 ^b	Enshi flood forecast and warning system	100.4	1	NCB	Prior review	1S1E	Q1/2016
EE05	Enshi wastewater pipeline GIS system	165.7	1	NCB	Post review	1S1E	Q1/2016

Package Number	General Description	Estimated Value ^a (\$1,000)	Number of Contracts	Procurement Method	Review (Prior/Post)	Bidding Procedure	Advertisement Date (quarter/year)
Goods							
LE02 ^b	Lichuan flood forecast and warning system	100.4	1	NCB	Prior review	1S1E	Q1/2016
LE03	Lichuan wastewater pipeline GIS system	165.7	1	NCB	Post review	1S1E	Q1/2016

NCB = national competitive bidding, Q = quarter.

^a All contract values include physical contingencies.

^b The first NCB procurement package of goods will be prior reviewed by ADB.

Source: Asian Development Bank estimates.

Table 7: Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)

Package Number	General Description	Estimated Value ^a (\$1,000)	Number of Contracts	Recruitment Method	Review (Prior/Post)	Advertisement Date (quarter/year)	Type of Proposal
CS3 ^b	Individual consultant for initial project implementation support– Project management and procurement	60.0	2	ICS	Prior review	Q2/2015	BTP

BTP = biodata technical proposal, ICS = individual consultant selection, Q = quarter.

^a All contract values include physical contingencies.

^b Request for advance contracting for which retroactive financing will be applicable.

Source: Asian Development Bank estimates.

B. Indicative List of Packages Required under the Project

52. The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the 18 months period).

Table 8: Indicative List of Packages Required under the Project

Package Number	General Description	Estimated Value ^a (\$1,000)	Number of Contracts	Procurement Method	Review (Prior/Post)	Bidding Procedure	Comments
Enshi City Goods							
EE02	Hongmiao WWTP equipment	3,896.8	1	NCB	Post review	1S1E	Q1/2018

Package Number	General Description	Estimated Value ^a (\$1,000)	Number of Contracts	Procurement Method	Review (Prior/ Post)	Bidding Procedure	Comments
EE03	Equipment, fertilizer and pesticides for Agricultural non-point source pilot program	73.8	1	Shopping	Post review		Q1/2017
Civil Works							
EC04	Hongmiao WWTP civil works	3,333.4	1	NCB	Post review		Q3/2017

NCB = national competitive bidding, Q = quarter, WWTP = wastewater treatment plant.

^a All contract values include physical contingencies.

Source: Asian Development Bank estimates.

C. Non-ADB Financing

Table 9: Goods and Works under Non-ADB Financing

General Description	Estimated Value ^a (\$1,000)	Estimated Number of Contracts	Procurement Method	Comments
Goods and Works				
River management project: Qing river upstream and downstream sections; 1 km section upstream of Daishui river mouth; (including dredging)	9,985.5	1	PRC Standard	
Gaoqiao River section management (including dredging)	2,122.5	1	PRC Standard	
Upstream of Huangshi bridge and ecological rehabilitation ancillary facilities	2,608.8	1	PRC Standard	

PRC = People's Republic of China, Q = quarter

^a All contract values include physical contingencies.

Source: Asian Development Bank estimates.

D. Consultant's Terms of Reference

53. The terms of reference for the consulting services packages are detailed in Appendixes 1–4.

4. National Competitive Bidding

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

- (i) All invitations to prequalify or to bid shall be advertised in the national press, or official gazette, or a free and open access website in the Borrower's country. Such advertisement shall be made in sufficient time for prospective bidders to

obtain prequalification or bidding documents and prepare and submit their responses. In any event, a minimum preparation period of thirty (30) days shall be given. The preparation period shall count (a) from the date of advertisement, or (b) when the documents are available for issue, whichever date is later. The advertisement and the prequalification and bidding documents shall specify the deadline for such submission.

- (ii) Qualification requirements of bidders and the method of evaluating the qualification of each bidder shall be specified in detail in the bidding documents, and in the prequalification documents if the bidding is preceded by a prequalification process.
- (iii) If bidding is preceded by a prequalification process, all bidders that meet the qualification criteria set out in the prequalification document shall be allowed to bid and there shall be no limit on the number of prequalified bidders.
- (iv) All bidders shall be required to provide a performance security in an amount sufficient to protect the Borrower/Project Executing Agency in case of breach of contract by the contractor, and the bidding documents shall specify the required form and amount of such performance security.
- (v) Bidders shall be allowed to submit bids by mail or by hand.
- (vi) All bids shall be opened in public; all bidders shall be afforded an opportunity to be present (either in person or through their representatives) at the time of bid opening, but bidders shall not be required to be present at the bid opening.
- (vii) All bid evaluation criteria shall be disclosed in the bidding documents and quantified in monetary terms or expressed in the form of pass/fail requirements.
- (viii) No bid may be rejected solely on the basis that the bid price falls outside any standard contract estimate, or margin or bracket of average bids established by the Borrower/Project Executing Agency.
- (ix) Each contract shall be awarded to the lowest evaluated responsive bidder, that is, the bidder who meets the appropriate standards of capability and resources and whose bid has been determined (a) to be substantially responsive to the bidding documents and (b) to offer the lowest evaluated cost. The winning bidder shall not be required, as a condition of award, to undertake responsibilities for work not stipulated in the bidding documents or otherwise to modify the bid as originally submitted.
- (x) Each contract financed with the proceeds of the Loan shall provide that the suppliers and contractors shall permit ADB, at its request, to inspect their accounts and records relating to the performance of the contract and to have said accounts and records audited by auditors appointed by ADB.
- (xi) Government owned enterprises in the Borrower's country may be permitted to bid if they can establish that they (a) are legally and financially autonomous, (b) operate under commercial law, and (c) are not a dependent agency of the Borrower/Project Executing Agency.
- (xii) Rebidding shall not be allowed solely because the number of bids is less than three (3).

VII. SAFEGUARDS

A. Environment

55. **Environment due diligence.** The project is classified as category A for environment. An environmental impact assessment (EIA) and environmental management plan (EMP) were prepared and disclosed on the ADB website on 26 November 2014. The EIA incorporates the results of the domestic environmental impact assessment (DEIA) approved by the Hubei Provincial Department of Environmental Protection in November 2014. The EIA complies with ADB's policies and requirements including ADB's Safeguard Policy Statement (2009). The EIA concludes that the project's anticipated environmental impacts can be mitigated through full and effective implementation of the EMP, which forms part of the PAM (Attachment 5).

56. **EMP.** The project EIA and EMP, not the domestic EIA, forms the basis of the official loan agreement between ADB and ETMAPG. The EMP is the key document to be used by the ETMAPG and contractors to manage and report on the environmental impacts of project construction and operation. The EMP defines the mitigation measures, monitoring program, grievance redress mechanism (GRM), public consultation plan, and roles and responsibilities for the project agencies. The ETMAPG, through the PMO, holds final responsibility for implementation and compliance with the EMP. The ETMAPG and implementing agencies will be responsible for ensuring the project is designed, constructed, decommissioned, and operated in accordance with: (i) the national and local government environmental, health and safety laws, regulations, procedures, and guidelines; (ii) ADB's Safeguard Policy Statement (2009); and (iii) the EMP. A full-time environmental officer has been assigned in the PMO to coordinate implementation of the EMP. The effectiveness of the mitigation measures will be evaluated through environmental inspections and monitoring. The loan implementation environment consultants will support the PMO and contractors to implement the EMP.

57. **EMP update and bidding documents.** In the design stage the ETMAPG will forward the EMP to: (i) the design institutes for incorporating mitigation measures into the detailed technical designs; (ii) the wetland specialist, who will design the fauna habitat features for the embankments and constructed wetlands. The EMP will be updated at the end of the detailed design, as needed, reviewed by ADB, and re-posted on the ADB website. To ensure that contractors comply with the EMP, the PMO will prepare and provide the following for incorporation into the bidding documents: (i) a list of environmental management requirements to be budgeted by bidders in their proposals, (ii) environmental clauses for contractual terms and conditions, and (iii) the updated EMP. The contractors and supervision companies will incorporate the EMP mitigation measures in their construction plans and will also be responsible for preparation of Site Environmental Management and Supervision Plan, as well as internal environmental monitoring during construction. Environmental impact monitoring will be conducted by the Environment Monitoring Stations, contracted by the ETMAPG. Assurances for environmental safeguards have been prepared and are included in the loan and project agreements. During project implementation, related trainings will be conducted by implementing agencies, wetland and greenhouse (GHG) specialists.

58. **Environmental benefits.** The project will result in environmental benefits including: (i) improvement in water quality of the Qing River in the project area from Class V to above Class IV; (ii) reduction in flood risk frequency from 1 in 4 years recurrence to 1 in 20 years, to benefit about 70,900 households; (iii) 100% completion of the wastewater treatment targets of Enshi and Lichuan cities; (iv) improved sewage coverage for about 40,000 households; (v) overall

improved management of water resources in the ETMAPG, through the project non-structural and structural measures.

59. **Potential impacts.** Dredging will result in temporary damage of in-channel and riverbank habitats, elevated levels of suspended solids, limited clearance of vegetation, and localized impacts to aquatic invertebrates, fish, and possibly other fauna. Other construction impacts include localized air pollution, noise and vibration, fugitive dust, soil erosion, solid waste disposal, interference with traffic and municipal facilities, and occupational and community health and safety. Potential operational impacts include odor and GHG emissions from the wastewater treatment plants (WWTPs), lack of maintenance of project structures, and higher flow velocities in the Qing River. Potential cumulative and/or induced impacts, including the effects of climate change, have been assessed. Design and mitigation measures for the potential impacts have been developed. For the dredging and embankments, this includes the use of specialized machinery, timing of dredging, fauna habitat designs, use of native plant species for habitats, and post-construction monitoring of sediments, flow velocity, and aquatic invertebrates. For the WWTPs, safe distances to residences have been modeled to avoid odor impacts. A GHG specialist will work with the WWTPs to minimize GHG emissions. Training will be given for maintenance of the new structures. Community teams will be established to strengthen solid waste disposal and environmental and flood risk awareness. Impacts will be avoided and/or mitigated through implementation of the EMP. The EIA concludes that full and effective implementation of the EMP, together with the prescribed capacity training, will result in minor residual impacts that are within the limits of the PRC standards defined in the EMP.

60. **Public consultation and GRM.** Information disclosure and two rounds of public consultations were conducted during the EIA in accordance with the PRC Guideline on Public Consultation in EIA (2006) and ADB's Safeguard Policy Statement (2009). Public concerns about air and water pollution were documented and have been addressed in the project design. A project-specific GRM has been established to receive and manage any community concerns which may arise due to the project. The PMO is the lead agency that will have final responsibility for management, implementation and reporting of the GRM. The PMO Environmental and Social Officers will coordinate the GRM and: (i) instruct the implementing agencies, local environmental protection bureaus, and contractors on their responsibilities in the GRM; (ii) establish a simple registry system, to document and track grievances received (including forms to record complaints and how they have been resolved); (iii) report on progress of the GRM in the quarterly project progress reports and the semi-annual environmental and resettlement monitoring and progress reports to ADB; and (iv) arrange future public consultations for the project. The GRM procedures, reporting timelines, roles and responsibilities of all agencies, and GRM contact persons in each implementing agency, are described in Section G of the EMP.

61. **Capacity building.** Capacity building in environmental management will be provided to the PMO, implementing agencies, contractors, and construction and supervision companies in accordance with the training plan in the EMP (Attachment 5), to ensure adequate institutional capacity in managing the environmental impacts. The training will include: (i) implementation of the EMP for mitigation, monitoring, and reporting; (ii) management and maintenance of the constructed wetlands and fauna habitats of the embankments; (iii) improved WWTP operations to reduce GHG emissions; (iv) inclusion of the EMP in project tenders and review of bids; and (v) implementation of the GRM, including access points, roles, and responsibilities for project agencies.

62. **Budget.** The ETMAPG shall make available, and cause the implementing agencies to make available, the necessary budgetary and human resources to fully implement the EMP. If any unanticipated environmental risks and impacts arise during construction or operation of the project that were not considered in the EIA and/or EMP, the ETMAPG, through the implementing agencies, should promptly inform ADB in writing of the occurrence of such risks or impacts, with detailed description of the event and the proposed action plan for incorporation in the updated EMP. The estimated budget for the EMP is in Table A1.8 of the EMP.

B. Resettlement

63. The project is classified as Category A for involuntary resettlement due to significant land acquisition and resettlement impacts. ETMAPG, with the support of a local institute, prepared two resettlement plans according to Safeguard Policy Statement (2009). The resettlement planning and implementation is designed to ensure that the affected persons (APs)¹⁸ will be better off or at least not worst off as a result of the project.

64. **Land acquisition and resettlement.** The project will acquire a total of 73.15 hectares (1,097.36 *mu*), and 145.28 hectares (2,179.15 *mu*) will be occupied temporarily. The project will demolish 12,778 square meters of housing. It will affect 5,431 people, 1,645 of these will lose more than 10% of their productive assets; 143 persons will be physically displaced. The ETMAPG, with the assistance of consultants engaged under the project preparatory TA, prepared the resettlement plans in line with ADB's Safeguard Policy Statement (2009) and related laws and regulations of Enshi City, Hubei Province, and the PRC. The ETMAPG has endorsed the resettlement plans and disclosed the relevant information to affected people. The ETMAPG will fully finance CNY132.61 million of land acquisition and resettlement costs. The ADB loan will finance the costs for semiannual external resettlement monitoring and evaluation.

65. The land acquisition and resettlement compensation standards will follow the Land Administration Law of the People's Republic of China (2004), Decision of the State Council on Deepening the Reform and Rigidly Enforcing Land Administration (SC [2004] No.28) (October 21, 2004), and other applicable guidelines. They will also be based on local policies regarding land acquisition and resettlement (LAR) in Hubei Province, Enshi Prefecture, and ADB's Safeguard Policy Statement (2009). HPG and ETMAPG will provide necessary assistance for house construction and relocation during resettlement implementation.

66. All affected people are eligible to compensation and assistance. The cut-off date for eligible resettlement entitlement of the project was on 30 June 2014. Compensation for acquisition of collectively-owned land includes land compensation, resettlement subsidy, social security fund, young crop compensation and ground attachment compensation. Compensation for occupation of state-owned land for paid use will be made based on the benchmark land price published by ETMAPG for the respective areas. Compensation on rural residential houses to be relocated will be made based on the house replacement price determined by appraisal. The affected households will be entitled to participate in the process of choosing appraisal agency and decline the appraisal result. Meanwhile, the property-exchange house will be another option for the APs to choose, if they prefer.

¹⁸ ADB's Safeguard Policy Statement (2009) trigger for involuntary resettlement changed the terminology of "affected persons" which are defined as persons who are physically and/or economically displaced as a result of involuntary acquisition of land or voluntary restrictions on land use or on access to legally designated parks and protected areas. In the PRC, although the resettlement plans maintain the original terminology of "affected persons", the definition is equivalent to ADB's definition of "displaced persons".

67. **Resettlement and income restoration.** The key actions of economic restoration will include: monetary compensation, uniform resettlement houses, temporary living subsidies for displaced persons, social security funds provided by local security system for all eligible persons. The skill training (including employment at non-agricultural positions, project employments, non-monetary supports, etc.) is also provided for APs.

68. **Institutional arrangements.** The PMO will assume the overall responsibility for the implementation of LAR, including the planning, implementation, financing, and reporting of LAR. LMC will take the primary responsibility of the resettlement consultation, implementation, and timely delivery of entitlements. To ensure smooth implementation, the staff in charge of LAR will undertake training on resettlement implementation organized by the PMO. The resettlement implementation schedule has been prepared based on the preparation and construction timetable. The resettlement plans will be updated based on the final design and detailed measurement survey, disclosed to affected persons, and submitted to ADB for review and approval prior to the award of civil works contract.

69. The total estimated resettlement cost is CNY 132,607,613, including (i) costs for permanent land acquisition of CNY 64,047,582 (accounting for 48.3% in the total budget), (ii) compensation for temporary land occupation of CNY 1,328,059 (1%), (iii) compensation for houses demolition of CNY 10,747,200 (8.1%), (iv) compensation for ground affiliated facilities of CNY 164,780 (0.12%), (v) taxes of CNY 38,852,215 (29.3%), and (vi) contingency and other costs of CNY 17,296,645 (13.04%). The estimation of resettlement cost is in Table 2.

70. **Grievance redress mechanism.** A grievance redress mechanism (GRM) has been developed in compliance with ADB's Safeguard Policy Statement (2009) requirement to address environmental, health, safety, and social concerns associated with project construction, operation, land acquisition, and leasing arrangements. The details of the GRM, including a time-bound flow chart of procedures, are included in the resettlement plans.

71. Displaced persons may file an appeal on any aspect of resettlement, including compensation rates, etc. The above means of appeal, and the names, locations, persons responsible and telephone numbers of the appeal accepting agencies will be communicated to the displaced persons at a meeting, through an announcement or the resettlement information booklet, so that the displaced persons know their right of appeal. Mass media will be used to strengthen publicity and reporting, and comments and suggestions on resettlement from all parties concerned will be shared by the resettlement organization. All agencies will accept grievances and appeals from the affected people for free, and costs so reasonably incurred will be disbursed from the contingency costs. During the whole design and construction periods of the project, these appeal procedures will remain effective to ensure that the affected persons can use them to address relevant issues. Affected persons can also submit complaints to ADB which will be handled by the project team. If an affected person is still not satisfied and believes he/she has been harmed due to non-compliance with ADB policy, s/he may submit a complaint to ADB's Accountability Mechanism.¹⁹

72. **Monitoring.** A detailed plan for both the internal and external monitoring is included in the resettlement plans. PMO will submit an internal monitoring report through semiannual project monitoring report to ADB. Furthermore, PMO will employ an external resettlement monitoring institute or firm to establish an independent external monitoring organization in order to deliver an independent and unbiased external monitoring report. A baseline study of affected

¹⁹ For further information, see: <http://www.adb.org/site/accountability-mechanism/main>

persons will be completed for each resettlement plan before the LAR begins and the report will be submitted in September 2015. After that and until project completion, semiannual monitoring reports will be prepared and submitted for ADB's review during resettlement implementation and annually for two years after completion of resettlement. The implementation plan of the resettlement plans are summarized in the table below.

73. Pursuant to ADB's Safeguard Policy Statement (2009),²⁰ ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement.

²⁰ Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>

Table 1: Summary of Land Acquisition and Resettlement Impacts (As of October 2014)

Component		Acquisition of collective land	Permanent Occupation of state-owned land	Demolition of rural residential houses	Temporary occupation of land	Affected persons / Enterprises	
		<i>mu</i> ^a	<i>mu</i> ^a	m ²	<i>mu</i> ^a	Household	Persons
Enhanced flood management	River bank	905.9	4.4	0	88.45	1,221	5,076
	Ancillary service	89.36	39.49	0	0	52	196
	Sub-total	995.26	43.89	0	88.45	1,273	5,272
Improved wastewater management	Wastewater treatment plant	102.1	157.375	12,778	0	42	159
	Sewage interception pipeline	0	0	0	837.6	0	0
	Urban sewage pipeline	0	0	0	1,253.1	0	0
	Sub-total	102.1	157.375	12,778	2,090.7	42	159
Total		1,097.36	201.265	12,778	2,179.15	1,315	5,431

^a *mu* = a Chinese unit of measurement (1 *mu* = 666.67 m²).

Source: Asian Development Bank estimates.

Table 2: Estimation of Resettlement Cost (in CNY)

No.	Item	Sewage interception pipeline	Urban sewage pipeline	Ecological rehabilitation work	Ancillary service	Wastewater Treatment Plant	Total
1	Land compensation fees	1,020,380	0	43,521,731	6,412,786	13,092,686	64,047,582
2	House compensation fees	0	0	0	3,912,000	6,835,200	10,747,200
3	Compensation fees for special facilities restoration and reconstruction	0	0	39,400	20,000	105,380	164,780
	Subtotal of Items 1-3	1,020,380	0	43,561,131	10,344,786	20,033,266	74,959,562
4	Administration fees	20,408	0	871,222	206,896	400,665	1,499,192
5	Other fees ^a	30,611	0	33,570,282	2,713,354	2,537,967	38,852,215
	Total (1-5)	1,071,399	0	78,002,635	13,265,035	22,971,898	115,310,968
6	Contingency	160,710	0	11,700,396	1,989,755	3,445,785	17,296,645
7	Total	1,232,109	0	89,703,031	15,254,791	26,417,682	132,607,613^b

^a Includes land taxes and external monitoring.

^b Includes physical contingency of 8%.

Numbers may not sum precisely because of rounding.

Source: Asian Development Bank estimates.

Table 3: Milestones for Resettlement Activities ²¹ (As of October 2014)

Number	Resettlement Task	Target	Responsible Organization	Time
1	Information publication			
1.1	Information book	45 villages	Enshi urban investment company	2014/12/31
1.2	Publicize RPs on ADB's website		Executive organization, project office and ADB	2015/01/28
2	RP and budget			
2.1	Approval of RPs and budget (including compensation standards)	RMB 63,209,679 RMB 64,723,849	Enshi urban investment company	2014/10/31
2.2	Village-level restoration plan	45 villages	Village committee	2014/10/31
2.3	Detailed measurement and investigation		Executive organization of sub-projects	2015/03/31
2.4	Updated RP according to detailed design	2 RPs	Executive organization and project office	2015/05/31
3	Compensation agreement			
3.1	Village-level land compensation agreement	45 villages	Land bureau	2015/03/01— 2018/03/31
3.2	Land compensation agreement for household	1367 households	Village committee (neighborhood)	2015/03/01— 2017/12/31
3.3	Relocation agreement for house	34 households	Enshi bureau of construction and housing	2015/05/31
4	Reconstruction of house			
4.1	Selection and approval of house site	34 households	Town and village committee and affected household	2015/03/31
4.2	Infrastructure for house site	15 households in Enshi	Village committee	
4.3	Demolition and relocation of house	34 households	Contractor/affected household	2015/04/30
4.4	Construction of new house	34 households	Village collective or affected household	2015/03/31
4.5	Moving into new house	19 households in Lichuan	Affected household	2015/05/31
5	Implementation of livelihood restoration measures	36 villages		
5.1	Compensate land for affected household	36 villages	Village and village collective	2015/03— 2018/03/31
5.2	Implement village-level restoration plan	15 villages, 679 person	Village collective	2015/03— 2018/03/31

²¹ These resettlement milestones are part of the resettlement plan and will be updated during project implementation.

Number	Resettlement Task	Target	Responsible Organization	Time
5.3	Suggestions on income restoration, business and jobs	688 affected households	Town, village collective, labor bureau	2015/03—2018/03/31
5.4	Implement training plan	1,367 persons	Labor bureau	2017/03/31
5.5	Identify the vulnerable and take support measures	109 persons	Bureau of civil affairs, project office	2015/03/31
5.6	Employ affected persons during project construction	1,200 persons	Project office, labor bureau and contractor	2015/03—2018/03/31
6	Capability building for local agencies			
6.1	Provide training for relevant personnel	20 persons	ADB	2016/02/28
6.2	Provide training for relevant personnel in county, town, village	400 persons	Project office and land bureau	2017/02/28
7	Monitoring and evaluation			
7.1	Baseline study		External monitoring agency	2015/05/31
7.2	Establish internal monitoring mechanism		Project office and executive organization	2015/05/31
7.3	Authorize external monitoring organization	2	Project office	2015/05/31
7.4	Internal monitoring reports	Seasonal report	Project office and executive organization	2015/06/30
7.5	External monitoring reports	Semi-annual reports	External monitoring agency	2015/06/30
7.6	External evaluation reports	Annual report (twice)	External monitoring agency	2017/03/31
7.7	Resettlement completion report	1	Executive organization and project office	2018/03/31
8	Participation record		Executive organization	2015/01—2017/12/31
9	Complaint record		Executive organization	2015/01—2017/12/31
10	Land compensation and resettlement funding procedure			
10.1	- Executive organization account	Initial capital		2014/06/30
10.2	- Village accounts	Most of capital	Executive organization	2015/08/31
10.3	- Household accounts	Most of capital	Executive organization and village committee	2015/08/31
11	Start civil works		Project Office	2015/07

Note: Timing for resettlement activities is indicative only.

Source: Asian Development Bank estimates.

C. Ethnic Minorities

74. The project is categorized as B for the Indigenous Peoples Safeguard. Ethnic minorities make up about 43.9% of the population of ETMAP. The social assessment found they are economically and socially integrated and will benefit equally from the project activities as the mainstream population in ETMAP. The Ethnic Minority Development Plan (EMDP) assures that ethnic minorities will be targeted by non-structural measures in urban areas to benefit from project improvements, and benefit from job opportunities created under the project. In rural areas, Tujia and Miao villages will be targeted as benefiting communities of the wastewater collection system and non-structural measures. The project will not have any negative impacts on the dignity, human rights, traditional lands or culture of ethnic minorities. An estimated 40% of persons affected by land acquisition are considered ethnic minorities. Impacts on those persons will be separately recorded in the resettlement and EMDP monitoring, to ensure their restoration of livelihood.

VIII. GENDER AND SOCIAL DIMENSIONS

A. Summary Poverty Reduction and Social Strategy

75. This section describes the required actions for gender and social dimensions, other than social safeguards. A social, poverty and gender analysis was undertaken in accordance with ADB guidelines. The analysis collected information to assist in the design of the project by identifying the poor, examining causes of poverty and recommending poverty reduction measures within the scope of the project.

76. The project will directly benefit about 70,900 households for improved flood protection and 40,000 households for wastewater collection and treatment, of whom approximately 6% are poor. The project will create about 6,300 full-time jobs during the construction period and 105 during the operation stage. Employment targets for vulnerable groups and women are included in the design and monitoring framework and loan assurances. Better flood management and expansion of sewage collection and wastewater treatment system will improve public health. A social action plan (SAP) and a gender action plan (GAP) have been prepared and will be implemented by the PMO in collaboration with other stakeholders during project implementation. The project will not only improve the urban environment, but also raise public awareness on water conservation, solid waste management, flood risk and preparedness and thereby help sustain socioeconomic development in Enshi.

B. Gender Development and Gender Action Plan

77. The project is categorized as effective gender mainstreaming. Women focus group discussions found that environmental improvements are anticipated to have a significant gender impact, with reduced time burdens and costs for healthcare, preparation for floods, and clean-up after floods; and with overall improvement of surroundings. The project will also create women's employment opportunities. A GAP has been prepared to ensure that women are kept fully informed and consulted throughout the project. Gender specific indicators have also been included in the project's design and monitoring framework. The GAP includes measures to address gender concerns in all project components and capacity development, which include (i) ensuring the effective inclusion of women in all project activities; and (ii) ensuring, as far as possible, that the targets set for the employment of women are met, and that the work conditions of and pay for men and women are equitable. Resettlement plan measures will mitigate any possible negative impacts of the project on women due to land acquisition and resettlement impacts. See table 1 for the GAP.

78. The GAP includes provisions to ensure that staff of the PMO and implementing agencies is fully briefed on gender in development and the GAP, at the commencement of project implementation. The staff responsible for social safeguards and gender will work with women's federations, contractors, and community office staff to facilitate the participation of women in opportunities for physical works; and, ensure that all PRC labor laws and core labor standards are respected. The staff will also ensure (i) gender disaggregated baseline and survey data will be collected, (ii) the GAP is implemented, monitored, and reported to ADB through quarterly project progress reports. Social development specialists engaged for project management support will mentor the staff as necessary, and facilitate achievement of the project's gender and development objectives. The GAP will be monitored during ADB review missions and supervision will be supported by ADB's social development specialist.

C. Social Action Plan

79. A Social Action Plan (SAP) has been prepared in order to facilitate continued consultation and participation of communities in the project, as well as ensure that labor rights and entitlements are observed and that the needs of poor households are considered.

80. Measures in the SAP place a particular emphasis on establishing community environmental supervision and flood management teams (CESFMTs) to raise environmental awareness of residents, eliminate improper disposal of solid waste, and promote awareness of early flood warning and response in pilot communities in Enshi and Lichuan. It is important that these are not just educational campaigns, but involve behavioral change advocacy.

81. Under guidance of the consultants, the CESFMTs' activities will include:

- (i) development of methods of publicizing status of water quality using language and formats that the public can understand;
- (ii) improvement of solid waste disposal so it does not end up in or alongside rivers and channels (relocation of neighborhood garbage disposal sites, development of community-funded garbage collection and disposal systems, cooperation with the local environmental service office for provision of large disposal bins and more frequent garbage collection, public awareness raising, community enforcement, etc.); and
- (iii) development and publication of flood warning, evacuation, and emergency response procedures for the community.

82. The SAP also indicates that civil works contracts will stipulate (i) that local people will receive priority with respect to employment, (ii) that equal wages will be paid for work of equal value, and that women's wages will be paid directly to them, (iii) that no child or forced labor will be employed, and (iv) that all employees will be provided with a written contract in accordance with the format prescribed by Chinese national law.

Table 1: Gender Action Plan

Action	Objectives and Monitoring Indicators	Time Frame	Budget and Sources	Responsible Organization	Key Stakeholders
Output 1: Wastewater Management Improved					
1.1. Women's participation in discussions on detailed design	The proportion of women to all participants is not less than 50%.	2015–2016	Included in the C&P plan and SAP	PMO with support from local design institutes	Municipal Women's Federation Districts, townships, villages, and communities Residents, including women
1.2. Women's participation in water/wastewater tariff hearings	Among all participants at the hearing, not less than 30% are women.	3 months before raising tariffs for water or wastewater	Included in the C&P plan and SAP	Municipal Finance Bureau	PMO Municipal Sewage Company Municipal Women's Federation Districts, townships, villages, and communities Residents, including women
1.3. Jobs for women	40% of employment opportunities created during construction and operations are directed towards women. 105 permanent O&M jobs created, at least 42 jobs (40%) held by women.	Throughout construction and operation periods	Staff wages Included in the project budget	Contractors Municipal Sewage Company Municipal Administrative Management Bureau Municipal Landscaping Management Bureau	PMO Municipal Labor and Social Security Bureau Municipal Women's Federation Districts, townships, villages, and communities
Output 2: Flood Management Enhanced					
2.1. Women's participation in discussions on detailed design	The proportion of women to all participants is not less than 50%.	2015–2016	Included in the C&P plan and SAP	PMO with support from local design institutes	Municipal Women's Federation Districts, townships, villages, and communities Residents, including women
2.2. CESFMTs ²²	There is at least one woman in the 3 members of each CESFMT.	2016–2017	Included in the C&P plan and SAP	PMO with assistance of communities and consultants	Municipal Administrative Management Bureau Municipal Women's Federation Residents, including women

²² CESFMT will be established in each of eight model communities which are seriously affected by pollution and floods. CESFMTs will (i) raise the environmental awareness of community residents to eliminate waste dumping into the urban water channels, and (ii) make community residents aware of the flood warning system and flood response plan.

Action	Objectives and Monitoring Indicators	Time Frame	Budget and Sources	Responsible Organization	Key Stakeholders
2.3. Participation in the development on community participation manual, ²³ and flood warning system and response plan	The proportion of women to all participants in the development of the community participation manual, and flood warning and response plan is not less than 40%.	2016–2017	Included in the C&P Plan	PMO with assistance of communities and consultants	Municipal Administrative Management Bureau Municipal Water Resources Bureau Municipal Women's Federation Residents, including women
2.4. Capacity building for CESFMT	(i) Capacity building of CESFMT members and other relevant persons should include a gender perspective to give adequate consideration of women's special rights and interests, and (ii) The proportion of women to all participants is not less than 30%.	2016–2017	Included in the C&P Plan and GAP	PMO with assistance of consultants	CESFMT members Municipal Women's Federation Communities
2.5. Jobs for women	40% of employment opportunities created during construction and operations are directed towards women.	Throughout construction and operation periods	Staff wages Included in the project budget	Contractors Municipal Sewage Company Municipal Administrative Management Bureau Municipal Landscaping Management Bureau	PMO Municipal Labor and Social Security Bureau Municipal Women's Federation Districts, townships, villages, and communities
Output 3: Water and Environmental Management Integrated					
3.1. Women's participation in discussions on detailed design	The proportion of women to all participants is not less than 40%.	2015–2016	Included in the C&P plan and SAP	PMO with support from local design institutes	Municipal Women's Federation Districts, townships, villages, and communities Residents, including women

²³ CESFMTs will lead the development of the community participation manual. The manual is intended to provide guidelines for community residents to meet together to discuss issues in their communities and decide resolutions.

Action	Objectives and Monitoring Indicators	Time Frame	Budget and Sources	Responsible Organization	Key Stakeholders
	500 farmers trained for best farm management practices, of which 250 women. 40 people trained for community supervision, of which 20 women.				
Output 4: Inclusive Capacity Development Strengthened					
4.1. Capacity building	(i) Capacity building of PMO staff and other relevant persons should include a gender perspective to give adequate consideration of women's special rights and interests; and (ii) The proportion of women to all participants is not less than 40%.	2015–2017	Included in the C&P Plan and GAP	PMO with assistance of consultants	PMO staff Municipal Women's Federation
4.2. Project management	The proportion of women to the PMO staff is not less than 30%.	2015–2020	Included in ETMAPG's counterpart funds	ETMAPG	PMO Municipal Women's Federation
4.3 Collection of gender disaggregated baseline and survey data	Gender disaggregated baseline (including women's time and costs for healthcare, preparation for floods, and clean-up after floods) will be established and monitored.	2016–2020	Included in the C&P plan and SAP	PMO with assistance of consultants	PMO staff Municipal Women's Federation

C&P = consultation and participation, CESFMT = community environmental supervision and flood management team, ETMAPG = Enshi Tujia and Miao Autonomous Prefecture Government, PMO = project management office, RP = resettlement plan, SAP = social action plan.

Source: Asian Development Bank estimates.

Table 2: Social Action Plan

Proposed action	Target population	Responsible and assisting agencies	Time	Funding requirement	Monitoring indicators
Measures to Enhance Project Benefits					
A. Socially Inclusive Design Features:					
<ul style="list-style-type: none"> Increasing green spaces to provide local residents with more open areas for exercises. Ensuring water tariff would be affordable to all sections of the society, especially poor and vulnerable. Optimizing the project design to reduce impacts of land acquisition and house demolition. 	Local Residents	Agencies responsible: EA, IAs Assisting agencies: design agency, local governments, local community	2015-2017	Project budget	1. Number of open areas constructed 2. Number of representatives from local residents, poor households and low income people attending the public hearing meetings for water tariff increase. 3. Degree of satisfaction of the public with water tariff increase. 4. No. of house and persons affected.
B. Generating Economic Opportunities					
<ul style="list-style-type: none"> Strengthening skill and training of farmers on techniques on agricultural to promote local economic development; Strengthening Vocational Training program to local labors; Providing training on labor law, contract law and rights to migrant workers; Providing nonagricultural employment information to help local laborers find jobs in nearby enterprises; Priority on using local building materials and resources; using local products and services (e.g., houses, food, drinks and other daily necessities. 	Local residents; especially APs, the poor, vulnerable groups and women	Agencies responsible: local related department such as: agricultural committee, labor & social security bureau, women's federations, Assisting agencies: IAs contractor, village committees	2015-2017	Local government funds	1. Number of training and skill enhancement programs organized 2. Number and percentage of women trained and informed (by type of training and type of information session). 3. Frequency, forms and men-times of a training 4. Frequency of information dissemination on non-farm employment 5. Purchase of local raw materials from contractor 6. Additional income brought to local people from project construction.
C. Generating Employment Opportunities					
<ul style="list-style-type: none"> Making unskilled jobs generated at the construction and operation stages first available to local residents; Providing 40% of the total unskilled jobs to women and poor on the basis of their willingness. 	Local residents; especially APs, the poor, poor group and women	Agencies responsible: local governments Assisting agencies: EA, IAs, agricultural	2015-2018	Project Funds	1. Number of jobs opportunities by the project 2. Number and percentage of the jobs to local residents 3. Number and percentage of the Jobs to women (by type and nature

Proposed action	Target population	Responsible and assisting agencies	Time	Funding requirement	Monitoring indicators
		committee, labor & social security bureau, village committees			of job) 4. Number and percentage of the jobs for poor (by type and nature of job) 5. Wages paid to local residents
Measures to Reduce Potential Risks					
A. Consultation and Public Participation					
1. <u>Consultation and public participation</u> <ul style="list-style-type: none"> Informing and consulting with the local population on project impacts and benefits (at least 50% participants to be women and poor and vulnerable Status and progress of civil works including possible construction related interruptions and disturbances. 2. <u>Establishing a grievance redress mechanism</u> <ul style="list-style-type: none"> Establishing a grievance redress mechanism in the project area, handling appeals from APs, and keeping appeal and remedy records. 	Local residents	Agencies responsible: EA, IAs, local governments Assisting agencies: PMO, labor & social security bureau, land & resources bureau	2015-2018	Project routine management funds	1. Number of such consultation held and degree of public participation desegregated by gender, poor and vulnerable 2. Number of complaints received and disposition (relevant records)
B. Mitigating Construction interference and Applying Safe Construction Methods					
<ul style="list-style-type: none"> Controlling dust to avoid pollution, restricting overnight construction, and complying with noise, dust and vibration standards strictly; Strengthening construction safety, and providing safe roads/channel conditions, and suitable warning signs; and Avoiding damages to public water supply, power supply, drainage and irrigation facilities. 		Agencies responsible: EA Assisting agencies: contractor, environmental protection bureau, local governments	2015-2018	Project funds (Environmental Management Plan)	1. Number of complaints on environmental pollution at the construction stage (including dust and noise) and disposition 2. Number of announcements and warning signs installed during construction 3. Number of damaged public facilities repaired timely
C. Provision of Affordable Water Tariff for Poor and Near-poor Water Users					
<ul style="list-style-type: none"> Ensuring 20% representatives to be poor and near-poor people attending water tariff public hearing meetings. During project implementation, the project will assess the impact of wastewater collection fees and tariffs on the poor and vulnerable households, including among ethnic minority 	Local poor and low-income families	Agencies responsible: EA, IAs, local governments Assisting agencies: PMO, civil affairs	2015-2018	Government funds	1. Number of such public hearings held 2. Number of poor and near-poor representatives involving in public hearings 3. Poor and near-poor people's concerns, problems and disposition

Proposed action	Target population	Responsible and assisting agencies	Time	Funding requirement	Monitoring indicators
people, and provide necessary subsidies to ensure wastewater collection services to the poor; and hold public tariff consultation hearings to consult with the affected people when setting or adjusting tariffs for wastewater.		bureau			(relevant records). 4. No. of poor and near-poor families covered by public assistance program.

APs = affected persons, EA = executing agency, IA = implementing agency, PMO = project management office.

Source: Asian Development Bank estimates.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

Impacts the project is aligned with:

Environmental ecological sustainability in the upper Qing River basin improved (Qing River Basin Pollution Prevention and Control Master Plan, 2010–2020)

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome River health and water resource management in the upper Qing River basin improved	By 2022 (2014 baseline): a. Households affected by 1-in-20-year frequency floods in the project area reduced by 61% (2014 baseline: 82,670) b. Households connected to newly installed sanitary sewers increased by 42% (2014 baseline: 96,000) c. Pollution loads in Enshi and Lichuan are reduced: COD 3,725 tons; Total nitrogen: 685 tons; Total phosphorus: 37 tons (2014 baseline: COD 5,460 tons; Total nitrogen: 844 tons; Total phosphorus: 64 tons) d. Wastewater treatment coverage (m ³ per day) increased to 90% (2014 baseline: 57%)	a–b. Government annual reports, records, and statistics on sanitation, natural disasters, and environment c. Enshi Tujia and Miao Autonomous Prefecture environmental protection bureau water quality monitoring reports for the project d. Project progress reports and review reports	Pollution accidents occur near the Qing River and cause serious deterioration of water quality Impact of climate change on precipitation and storms greater than projected
Outputs 1. Wastewater management improved	By 2020 (2014 baseline) 1a. Total sewage treatment capacity of Enshi and Lichuan increased by 130,000 m ³ per day meeting class 1A effluent standards (2014 baseline: 110,000 m ³ /d) 1b. 231 km sewage pipes installed, an existing pumping station upgraded, two pump stations constructed, and one pump station upgraded (2014 baseline: sewage pipes, 104 km) 1c. Treated effluent upgraded to class 1A for existing WWTP facility in Lichuan (2014 baseline: class 1A) 1d. Energy saving and GHG mitigation from three WWTPs: 131,222 tons per year CO ₂ e (2014 baseline: 145,803 tons per year CO ₂ e) 1e. 105 permanent O&M jobs created, at least 42 jobs (40%) held by women (2014 baseline: 0)	1a–c. Government annual reports, records, and statistics on wastewater treatment 1a–e. ADB mission reports 1a–e. Site inspection and project progress reports 1c–e. Internal and external environment and LAR monitoring reports 1a–e. Project progress reports and review reports	Trained staff reassigned to other positions or leave the position they are trained for Delays in approval of land clearance and compensation
2. Flood management enhanced	2a. 115 km of riverbank constructed or rehabilitated for protection against 1-in-20-year floods (2014 baseline: 0)	2a–c. Government annual reports, records, and statistics on environment, spatial planning documents	Inappropriate riparian development and loss of vegetation upstream results in continued

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
	<p>2b. 81 km of river channel dredged to increase flood conveying capacity (2014 baseline: 0)</p> <p>2c. Area inundated by 20-year flood decreased (2014 baseline: 5.6 km² (Enshi), 3.4 km² (Lichuan))</p>	<p>2a–c. ADB mission reports</p> <p>2a–c. Site inspection and project progress reports</p> <p>2a–b. Internal and external environment and LAR monitoring reports</p>	siltation
3. Water and environmental management integrated	<p>3a. 21 garbage bins and 15 biogas ponds installed; 500 farmers, of whom 50% are women, trained for best farm management practices; adoption of formula fertilizer and low toxicity pesticides in 800 <i>mu</i> of farmland^a (2014 baseline: 0)</p> <p>3b. Sewer infrastructure GIS and asset management system established (2014 baseline: 0)</p> <p>3c. 40 people, of whom 20 are women, trained for community supervision; more than 40 staff, of whom 40% are women, trained for O&M of facilities and sewer infrastructure GIS and asset management system (2014 baseline: 0)</p> <p>3d. Riverbank maintenance program implemented (2014 baseline: 0)</p> <p>3e. Flood forecasting and warning system with 6-hour lead time (2014 baseline: 0)</p> <p>3f. Recommendations on water-sensitive land use planning provided to land use bureaus (2014 baseline: 0)</p>	<p>3a. Report on pilot program implementation</p> <p>3a–f. Government policy announcements, notices, or public speeches of officials</p> <p>3a–f. ADB mission reports</p> <p>3a–f. Project progress reports</p> <p>3a–c. Resettlement and environmental monitoring reports</p>	Data and information necessary for the database are not available and accessible
4. Inclusive capacity development strengthened	<p>4a. More than 100 staff, of whom 40% are women, trained for project management and O&M of the infrastructure by 2016 (2014 baseline: 0)</p> <p>4b. More than 20 staff trained for implementation and monitoring of the resettlement plans, SAP, GAP, and EMDP by 2016 (2014 baseline: 0)</p>	<p>4a. ADB mission reports</p> <p>4b. Project progress reports</p>	High staff turnover affects results of capacity building

Key Activities with Milestones

1. Wastewater management improved

- 1.1. Installation of 154 km of new sewer pipes in Enshi and 77 km of new sewer pipes in Lichuan (by Q2 2019)
- 1.2. In Enshi, expansion of an existing WWTP to provide an additional capacity of 30,000 m³ per day and construction of a new WWTP of 50,000 m³ per day meeting class 1A effluent standards, including sludge advanced treatment and disposal of 102 tons per day (by Q4 2018)
- 1.3. In Lichuan, expansion of the existing WWTP to provide an additional capacity of 50,000 m³ per day meeting class 1A effluent standards, with sludge advanced treatment capacity of 688 tons per day (water content 99.2%) (by Q1 2018), and upgrading of an existing wastewater treatment facility to improve the effluent standard from class 1B to 1A (by Q1 2018)
- 1.4. In Lichuan, retrofitting of the existing pump station, construction of one new pumping station, and reconstruction of pump station (by Q1 2018)

2. Flood management enhanced

- 2.1. Construction of 115 km embankment and affiliated structures along the Qing River (both sides) and its tributaries flowing through Enshi and Lichuan (by Q4 2020)
- 2.2. Dredging and proper disposal of 0.96 million m³ of sediments, with total length of 81 km in both Enshi and Lichuan, to increase flood conveying capacity (by Q4 2020)
- 2.3. In Enshi, construction of two wetlands with landscaping features and ecological buffer zones. In Lichuan, construction of wetlands, including a midstream island wetland and a fringing wetland, and ecological buffer zones in association with a waterfront plaza (by Q4 2020)

3. Water and environmental management integrated

- 3.1. In Enshi, provision of a pilot community participatory program to reduce nonpoint source pollution through improving farming practices (by Q2 2019)
- 3.2. A sewerage infrastructure GIS and asset management system to be established in both Enshi and Lichuan, incorporating energy saving and GHG reduction measures (by Q2 2020)
- 3.3. In both Enshi and Lichuan, provision of nonstructural adaptation measures, including flood forecasting and warning system, community environmental supervision and flood management, and river maintenance program (by Q2 2020)

4. Inclusive capacity development strengthened

- 4.1. Completion of training and recommendations on operation and sustainable financing of wastewater systems (by Q4 2020)
- 4.2. Completion of training program and procurement of equipment for improving water quality monitoring and enforcement (by Q4 2020)

Project Management Activities

Staffing of project management office and provision of initial training on financial management, project implementation, procurement, consulting services under ADB-financed operations, and safeguards (by Q2 2016)
 Recruitment of project management consultants (by Q1 2016)
 Procurement of all project management equipment (by Q3 2016)
 Reporting and supervision of implementation of resettlement plans, SAP, GAP, EMDP, and environmental management plans (from 2016 to 2020)

Inputs

ADB:	\$100,000,000
Government:	\$131,620,000

Assumptions for Partner Financing

Not applicable

ADB = Asian Development Bank, COD = chemical oxygen demand, CO₂e = carbon dioxide equivalent, EMDP = ethnic minority development plan, GAP = gender action plan, GHG = greenhouse gas, GIS = geographic information system, km = kilometer, km² = square kilometer, LAR = land acquisition and resettlement, m³ = cubic meter, O&M = operation and maintenance, Q = quarter, SAP = social action plan, WWTP = wastewater treatment plant.

^a A *mu* is a Chinese unit of measurement (1 *mu* = 666.67 m²).

Source: Asian Development Bank.

B. Monitoring

A. Project performance monitoring

83. The project performance management system (PPMS) indicators, their relevance, and monitoring practicalities will be discussed with the executing agency, 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 project management office and after each ADB review mission. These quarterly reports will provide information necessary to update ADB's project performance reporting system.²⁴ At the start of project implementation, the PMO and implementing agencies, with the project implementation consulting services, will develop integrated PPMS procedures to generate data systematically on the inputs and outputs of the components, as well as the indicators to be used to measure the project's impact and outcome taking into account the components' scope. The PMO will be responsible for monitoring and reporting on project performance. The basis for performance monitoring will be the design and monitoring framework, which identifies performance targets for the impact, outcomes, and outputs of the project. By collecting data from the sources identified in the DMF, the PMO will be able to report on an annual basis the performance of the project. Specific reporting requirements will be set out in the agreement between ADB and the Government. The PMO will collect the data, calculate the indicators, analyze the results, and prepare a brief report describing the extent to which the project is generating the intended outputs and outcomes, as well as the overall impact on ETMAP. The relevance and practicability of data collection for indicators was confirmed with the PMO and the implementing agencies. Meanwhile, the agreed socioeconomic and environmental indicators to be used will be further enhanced to measure project impacts. The PMO and the implementing agencies agreed and confirmed that they will (i) refine and integrate the PPMS framework at the start of project implementation; (ii) confirm that targets are achievable; (iii) develop recording, monitoring, and reporting arrangements; and (iv) establish systems and procedures no later than six months after project inception.

B. Compliance monitoring

84. The ETMAPG, with assistance of Enshi City and Lichuan City governments, 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, implementing agencies' project implementation performance, and compliance of loan and project covenants. These reports will include (i) quarterly progress reports on project implementation; and (ii) a project completion report, which should be submitted not later than three months after the completion of the project facilities. The compliance status of loan and project covenants will be reported and assessed through quarterly progress report. ADB review missions will verify status.

C. Safeguards monitoring

a. Environment

85. Three types of environment safeguard monitoring will be conducted under the EMP: compliance monitoring; internal monitoring; and, external monitoring. The environmental

²⁴ ADB's project performance reporting system is available at:
<http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

monitoring program, including roles, responsibilities, monitoring frequency and variables, is described in Section E of the EMP. ADB and the PMO will monitor the status of EMP implementation through: (i) PMO quarterly project progress reports and semi-annual environmental progress reports to ADB; (ii) reports by the loan implementation environment consultant to PMO and ADB; and (iii) review missions. EMP implementation will be coordinated by the PMO Environment Officer, supported by the PMO, project municipal and county environmental protection bureaus, and loan implementation environment consultant, to ensure overall compliance of all relevant agencies with the EMP.

86. **Compliance monitoring** – documents procedural compliance of the project with the EMP, including all required tasks of mitigation, monitoring, and reporting. To be conducted by the loan implementation environment consultant.

87. **Internal monitoring** – the management of construction activities and quantitative measurement of selected environmental variables. To be conducted by the implementing agencies and construction contractors. During construction, the monitoring will include air quality and noise at construction sites and the discharge water quality, odor and treated sediment quality at dredge spoil treatment sites. During operations, internal monitoring will include the quality of treated wastewater and sludge from the wastewater treatment plants and the progress of embankment and wetland landscaping.

88. **External monitoring** – the quantitative measurement of selected environmental variables at and near construction sites to ensure compliance with regulatory standards. External monitoring covers many of the same parameters as the internal monitoring, acting as a verification of the results by the implementing agencies and contractors. External monitoring will monitor the re-establishment of the aquatic habitat after river works. To be conducted by the Enshi and Lichuan environment monitoring stations for dust, noise, odor, dredge spoil, and surface water quality and flow, and the Wuhan environment monitoring station for aquatic invertebrates, and surface water quality and flow (the latter in the operational phase).

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

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

b. Resettlement and ethnic minorities

91. Internal and external monitoring of resettlement plan implementation will be conducted. Monitoring methodologies are specified in the resettlement plans. The Enshi City Government (ECG) and Lichuan City Government (LCG) will carry out internal supervision and monitoring to

ensure compliance with the provisions of the resettlement plans and submit internal resettlement monitoring reports semiannually during project implementation, to be submitted together with the regular project monitoring report. The PPMS includes indicators on resettlement plan monitoring, and the required frequency. The PMO, ECG, and LCG have agreed to a set of supervision milestones with ADB, to ensure timely and effective implementation of resettlement activities. An external monitoring agency acceptable to ADB will be engaged by ECG and LCG prior to commencement of resettlement plan implementation and land acquisition. The external monitoring agency will prepare pre-resettlement plan implementation baseline surveys and reports, and implement external monitoring and evaluation of resettlement plan implementation. Semiannual external monitoring reports will be prepared and submitted to ADB during RP implementation, and annual evaluation reports will be forwarded directly to both the PMO and ADB for two years after conclusion of resettlement plan implementation. Both implementing units will be responsible to prepare and submit a resettlement completion report to ADB.

92. Monitoring of the ethnic minority development plan (EMDP) implementation will be conducted by the PMO. Monitoring methodologies are specified in the EMDP. ECG and LCG will carry out internal supervision and monitoring to ensure compliance with the provisions of the EMDP and submit ethnic minority development monitoring reports semiannually during project implementation. The PMO, ECG, and LCG have agreed to ensure timely and effective implementation of the EMDP.

D. Gender and social action plans

93. Monitoring indicators for the GAP and SAP have been incorporated into the PPMS. Clear targets and indicators have been established and some indicators, such as those on employment, are also captured in the design and monitoring framework. The regular project progress reports to ADB will include, at least semi-annually, reporting on all the indicators included in the GAP. Assistance will be provided for the executing agency and implementing agencies by the resettlement and social development consultant who will help to set up effective monitoring systems and work with the focal points in the ETMAPG and implementing agencies to ensure implementation and monitoring of the GAP and SAP.

C. Evaluation

94. ADB, ETMAPG, and implementing agencies will undertake a semiannual review mission to evaluate the progress of project implementation. ADB, ETMAPG, and implementing agencies will undertake a 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 three months of physical completion of the project, the PMO will submit a project completion report to ADB.²⁵

²⁵ Project completion report format available at <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

D. Reporting

95. The PMO will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for the next 12 months; and (iii) a project completion report within six months of physical completion of the project.

96. The executing agency and implementing agencies have agreed on the following reporting commitments: (i) submission of semiannual progress reports during project implementation; (ii) submission of semiannual reports on the progress of safeguards monitoring, i.e., resettlement activities, EMDP implementation, environmental management plan implementation, GAP, and SAP; (iii) submission of project completion report six months after 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 semiannual progress reports.

Table 1: Project Performance Management System

	Performance Monitoring Indicator	Target	Baseline	Monitoring Mechanism	Responsible agency	Frequency
1.	Impact Indicators (to be achieved by end of 2025)					
1.1	Average water quality of Qing River within Enshi and Lichuan is significantly improved Baseline: Class IV, V and below. Target: above Class III	Above Class III	Class IV, V and below	EPB Annual Reports	PMO and Environmental Protection Bureau	Once a year
1.2	Public satisfaction with environmental and municipal services (sewerage connections, river rehabilitation and provision of wetland and amenity areas) increased Baseline: 57% satisfaction Target: 90% satisfaction	90% satisfaction	57% satisfaction	Survey on residents living along the Qing river	PMO	Midterm report, and completion report during project implementation Once every two years after project completion
1.3	The species richness and diversity of aquatic invertebrates in the Qing River within Enshi and Lichuan is the same or improved compared with before the project.	Same or improved	Results of aquatic survey in 2014	Aquatic survey	PMO and Environmental Protection Bureau	Midterm report, and completion report during project implementation Once every year after project completion
1.4	Increased flood protection in Enshi and Lichuan.	1 in 50 years	1 in 4 years	Enshi Statistic Bureau	PMO and Water Resource and Fishery Bureau	Midterm report, and completion report during project implementation Once every two years after project completion
2.	Outcome Indicators (baseline year: 2015, target year: 2020 or project completion year)					
2.1	Average water quality of Qing River within Enshi and Lichuan is significantly improved Baseline: Class IV, V and below. Target: above Class III	Above Class IV	Class IV, V and below	EPB Annual Reports	PMO and Environmental Protection Bureau	Once a year

	Performance Monitoring Indicator	Target	Baseline	Monitoring Mechanism	Responsible agency	Frequency
2.2	Pollution loads in Enshi and Lichuan are reduced.	COD3,725 tons TN 685 tons TP 37 tons	COD 5,460 tons TN 844 tons TP 64 tons	Annual report of Environmental Protection Bureau Volume of wastewater collected multiplies (COD in WWTPs – COD in WWTPs out)	PMO and Environmental Protection Bureau	Once a year
2.3	Households connected to newly installed sanitary sewers increased.	136,000 households	96,000 households	Number of households in the service area	PMO and Housing and Urban-rural Construction Department	Midterm report, and completion report during project implementation
2.4	Wastewater treatment rate increased in Enshi and Lichuan.	90%	57%	Volume of wastewater collected from the WWTPs divided by volume of wastewater generated	PMO, Enshi Environmental Protection Bureau	Once every two years after project completion
2.5	Increased flood protection in Enshi and Lichuan.	1 in 20 years	1 in 4 years	Enshi Statistic Bureau	PMO and Water Resource and Fishery Bureau	
2.6	Community Environmental and Flood Management Supervision Teams established in pilot communities.	CESFMTs operational in eight communities	CESFMTs do not exist	Progress report	PMO and Water Resource and Fishery Bureau	Quarterly
2.6	Energy saving and greenhouse gases (GHG) from the three WWTPs	131,222 t/yr CO ₂ e (with provision of GHG and energy saving measures)	145,803 t/yr CO ₂ e (estimated of GHG emission without the mitigation measures)	New GHG accounting system Consultant report	GHG consultant, WWTPs	Annual
3.	Output Indicators					
3.1	Wastewater Management Improved					
3.1.1	Total sewage treatment capacity of Enshi and Lichuan increased.	240,000 m ³ /d	110,000 m ³ /d	WWTPs operation records	PMO and Environmental Protection Bureau	Completion report Once every two years after project completion

	Performance Monitoring Indicator	Target	Baseline	Monitoring Mechanism	Responsible agency	Frequency
3.1.2	In Enshi, total 154 km interceptors and new sewer pipes	154 km	0	Contractors completion report	PMO and implementing agency	Quarterly
3.1.3	In Lichuan, total 77 km interceptors and new sewer pipes	77 km	0	Contractors completion report	PMO and implementing agency	Quarterly
3.1.4	An existing pumping station in the Lichuan will be upgraded Treated effluent upgraded from Class 1B to Class 1A.	Class 1A	Class 1B	WWTP testing and commissioning result	PMO and implementing agency	Quarterly
3.1.5	Sewer infrastructure GIS and Asset Management System established.	Management of 221km of sewerage network and three treatment plants in both cities.	0	Suppliers completion report and operation manuals	PMO and implementing agency	Quarterly
3.1.6	Operation of the three WWTPs improved to reduce GHGs	By 2016, GHG accounting system adopted by all 3 WWTPs By 2017, at least 2 GHG mitigation measures adopted by the 3 WWTPs	Baseline 2014: no GHG accounting system Baseline 2014: no specific operational practices to reduce GHG emissions	WWTPs operation records GHG consultant report	PMO and Enshi Environmental Protection Bureau	Completion report during project implementation Once every year after project completion
3.1.7	Pollution characterization completed	Characterized	No characterization	Survey	PMO and Enshi Environmental Protection Bureau	Quarterly
3.2	Flood Management Enhanced					
3.2.1	Riverbank is restored along the Qing River and its tributaries following PRC standards for protection against 1/20 year floods.	115 km	0	Progress report and completion report by contractors	PMO and implementing agencies	Quarterly

	Performance Monitoring Indicator	Target	Baseline	Monitoring Mechanism	Responsible agency	Frequency
3.2.2	Sediments are dredged and properly disposed of to increase flood conveying capacity according to PRC standards for protection against 1/20 year floods.	0.96 million m ³	0	Progress report and completion report by contractors	PMO and implementing agencies	Quarterly
3.2.3	Area inundated by 20 year flood decreased in Enshi	0	5.6 km ²	Enshi Statistic Bureau	PMO and Water Resource and Fishery Bureau	Reports after severe flood events
3.2.4	Area inundated by 20 year flood decreased in Lichuan	0	3.4 km ²	Lichuan Statistic Bureau	PMO and Water Resource and Fishery Bureau	Reports after severe flood events
3.2.5	The number of native fish species recorded in the Qing River in the project area known to lay eggs on the river bed (i.e. are most vulnerable to dredging) is maintained or increased.	Target 2020: same or increased	Baseline 2014: 24 fish species	Survey	PMO and Environmental Protection Bureau	Midterm report, and completion report during project implementation Once every year after project completion
3.2.6	River maintenance program formulated.	inputs into local plans	0	Progress report and completion report by consultants	PMO and Water Resource and Fishery Bureau	Quarterly
3.2.7	Improved adaptation and increased resilience through flood forecasting and warning system.	1 system and inputs into spatial planning documents	0	Supplier's completion report and operation manual	PMO and Water Resource and Fishery Bureau	Completion of the system development and receive training on operation of the system
3.3	Water and Environmental Management Integrated					
3.3.1	A pilot community participatory program for reducing agricultural nonpoint source pollution.	712 households	0	Records of purchase of fertilizers and low toxicity pesticides	PMO and Tunbao Township	Quarterly
	Waste management improved in Xinjie village as the pilot village with community involvements:	21 garbage bins and 15 biogas ponds installed with regular maintenance	0	Suppliers and contractors reports	PMO and Tunbao Township	Completion of installation and provision of equipment

	Performance Monitoring Indicator	Target	Baseline	Monitoring Mechanism	Responsible agency	Frequency
	Number of farmers trained for best farm management practices for rice, maize and green tea	500	0	Training materials and reports	PMO and Tunbao Township	According to training program
	Adoption of formula fertilizer and low toxicity pesticides:	800 mu	0	Records of purchase	PMO and Tunbao Township	Quarterly
3.3.2	Institutional and capacity strengthening program on operation and sustainable management of river and wastewater systems completed	40 people trained for carrying out Community Environmental and Flood Management Supervision.	0	Training materials and reports	PMO	According to training program
3.3.3	Institutional and capacity strengthening programs to improve water quality monitoring and enforcement completed.	More than 10 government staff trained for the operation of sewer infrastructure GIS and Asset Management System.	0	Training materials and reports	PMO	According to training program
3.4	Inclusive Capacity Development Strengthened					
3.4.1	Recruitment of project management consultants by 2015	Yes	No	Consultancy agreement	PMO	Quarterly
3.4.2	Project management equipment procured by 2015	Yes	No	Delivery receipts	PMO	Quarterly
3.4.3	Institutional and capacity strengthening for project management and operation and maintenance of the infrastructure conducted.	More than 100 government staff trained for operation of the wastewater treatment plants and river maintenance	0	Progress report	PMO and project management support consultants	Quarterly

	Performance Monitoring Indicator	Target	Baseline	Monitoring Mechanism	Responsible agency	Frequency
3.4.4	RPs, SAP, GAP, and EMDP are implemented, monitored, and reported until project conclusion.	More than 20 government staff involved in the implementation and monitoring of the plans	0	Progress report and EMDP monitoring report	PMO and project management support consultants	Semiannually
3.4.5	Quarterly project progress reports submitted from the PMO to ADB during 2015–2020	Yes	No	Number and quality of progress reports	PMO and project management support consultants	Quarterly
3.4.6	External resettlement M&E reports submitted to ADB until two year after finalization of RP implementation during 2015–2018	Yes	No	Number and quality of the M&E reports	External resettlement monitoring agency	Semiannually during resettlement implementation and annually for two years after the completion of resettlement implementation
3.4.7	Semiannual internal environmental monitoring reports acceptable to ADB submitted from the PMO to ADB during 2015–2020	Yes	No	Number and quality of the reports	PMO and environment specialists engaged under the project	Semiannually
3.4.8	Project completion report submitted from the PMO to ADB in 2021	Yes	No	Quality of the project completion report	PMO and project management support consultants	Within 3 months after the physical completion of the project
3.4.9	Percentage of staff satisfied with training	90%	n/a	Progress report	PMO and project management support consultants	Twice a year
3.5	Other Outputs					
3.5.1	Temporary jobs created during project construction will provide employment opportunities for women.	6300 jobs, of which at least 2520 jobs (40%) are held by women	0	Data reported by contractors	Implementing agencies and PMO	Once a year
3.5.2	Permanent operations and maintenance jobs created will provide employment opportunities for women.	105 jobs, of which at least 42 jobs (40%) are held by women	0	Progress report	Implementing agencies and PMO	Once a year
4.	Safeguard Compliance Indicators					
4.1	Involuntary Resettlement					

	Performance Monitoring Indicator	Target	Baseline	Monitoring Mechanism	Responsible agency	Frequency
4.1.1	Percentage of land acquisition and resettlement milestones met	100%	0	Survey Semiannual external monitoring report	PMO and external resettlement monitoring agency	Semiannually
4.2	Environmental Protection					
4.2.1	Compliance with the project environmental management plan	100%	0	Survey Semiannual internal monitoring report by PMO Semiannual external monitoring report by EMS	Internal report - PMO and Enshi and Lichuan EPBs External report- Enshi, Lichuan, and Hubei Environment Monitoring Stations Environment specialists engaged under the project	Semiannually
4.3	Social Development					
4.3.1	Compliance with the social action plan and gender action plan	100%	0	Survey Semiannual monitoring report	PMO and social development specialist engaged under the project	semiannually
4.3.2	Percentage of gender actions successfully discharged	100%	0	Survey Semiannual monitoring report	PMO and social development specialist engaged under the project	semiannually

	Performance Monitoring Indicator	Target	Baseline	Monitoring Mechanism	Responsible agency	Frequency
4.3.3	Percentage of female participants attending project capacity-building training sessions	50%	n/a	Record of training activities	PMO and social development specialist engaged under the project	semiannually
4.3.4	Percentage of female participants attending community-based public awareness sessions	50%	n/a	Record of activity of community-based public awareness sessions	PMO and social development specialist engaged under the project	semiannually
4.3.5	Percentage of women obtaining construction-related jobs	40% of jobs available	n/a	Contractor reports	Implementing agencies, PMO, and social development specialist engaged under the project	semiannually
4.3.6	Percentage of women obtaining permanent project jobs	40% of jobs available	n/a	Personnel reports by ETMAPG work units	Implementing agencies, PMO, and social development specialist engaged under the project	semiannually
5.	Project Implementation Progress Indicators					
5.1	Land Availability					
5.1.1	Area (percentage) of project land made available as scheduled	>70%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.1.2	Area (percentage) of project land made available up to 6 months late	<20%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.1.3	Area (percentage) of project land made available over 6 months late	10%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.2	Contract Letting					
5.2.1	Number of contracts let on time	>70%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.2.2	Number delayed 3 months or less	<20%	n/a	Progress report	Implementing agencies and PMO	Quarterly

	Performance Monitoring Indicator	Target	Baseline	Monitoring Mechanism	Responsible agency	Frequency
5.2.3	Number delayed 3 to 6 months	<10%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.2.4	Number delayed 6 to 12 months	0%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.2.5	Number delayed more than 12 months	0%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.3	Contract Completion					
5.3.1	Contracts completed on time	>60%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.3.2	Number delayed 3 months or less	<30%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.3.3	Number delayed 3 to 6 months	<10%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.3.4	Number delayed 6 to 12 months	0%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.3.5	No delayed more than 12 months	0%	n/a	Progress report	Implementing agencies and PMO	Quarterly
5.4	Disbursement Progress					
5.4.1	Percentage of planned cumulative disbursement	100%	n/a	Progress report	PMO	Quarterly
5.4.2	Percentage of current year target	100%	n/a	Progress report	PMO	Quarterly
5.5	Covenant Compliance					
5.5.1	Number fully complied with	80% or more	n/a	ADB mission	ADB and PMO	Twice a year
5.5.2	Number with delayed compliance	20% or less	n/a	ADB mission	ADB and PMO	Twice a year
5.5.3	Number not complied with	none	n/a	ADB mission	ADB and PMO	Twice a year
5.6	Capacity-Building Inputs					
	Amount of consults' inputs	104 person-months	0	Progress report	PMO	Twice a year
	Number of training days	tbd	0	Progress report	PMO	Twice a year

ADB = Asian Development Bank, CESFMT = community environmental supervision and flood management team, CNY = Chinese yuan, COD = chemical oxygen demand, ha = hectare, EPB = Environmental Protection Bureau, ETMAPG = Enshi Tujia and Miao Autonomous Prefectural Government, km = kilometer, M&E = monitoring and evaluation, m³/year = cubic meter per year, N/A = not applicable, NH₃-N = ammonia, PMO = project management office, tbd = to be decided once training plan has been finalized, TN = total nitrogen, TP = total phosphorus, WWT = wastewater treatment, WWTP = wastewater treatment plant.

Source: Asian Development Bank estimates.

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

Table 2: 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 including environmental management plan	Project Agreement, Schedule, paragraphs	No later than 6 months after loan effectiveness Semiannual, included in the quarterly project progress reports
Quarterly project progress reports	Project Agreement, Schedule, Article	Quarterly, within one month after the end of each quarter
Audited project accounts and financial statements, auditor's report (including auditor's opinion on the use of the imprest account and statement of expenditures)	Project Agreement, Schedule, Article	Not later than six months after the closure of fiscal year (end of June)
Resettlement monitoring Internal monitoring reports for the executing and implementing agencies Land acquisition and resettlement phase – external monitoring report Post-land acquisition and resettlement phase – external evaluation report Resettlement completion report	Project Agreement, Schedule, paragraphs	Included in the semiannual progress report Semiannual Annual reports for two years after the resettlement activities' completion Within three months after project completion
Ethnic Minority Development Plan monitoring	Project Agreement, Schedule, paragraphs	Semiannual during project implementation
Other social monitoring Reporting on gender action plan implementation Reporting on social action plan implementation	Project Agreement, Schedule, paragraphs	Semiannual, included in the quarterly project progress reports Semiannual, included in the quarterly project progress reports
Environmental Report Construction phase – environmental management plan monitoring and progress report Operations phase – external monitoring report	Project Agreement, Schedule, paragraphs	Semiannual Annual, until a project completion report is issued
Project Completion Report	Project Agreement, Schedule, Article	Not later than six months after the physical completion of the project

Source: Asian Development Bank estimates.

E. Stakeholder Communication Strategy

98. 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 public communication policy. Main stakeholders are the different government agencies, beneficiaries, displaced persons, and participants in the project implementation. Stakeholder

communication is part of the resettlement plans, environmental management plan, EMDP, SAP and the GAP and will be monitored accordingly.

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

100. **Involuntary resettlement and ethnic minorities.** All of the affected households and towns/townships, leaders and town and township governments will be involved in the project resettlement baseline survey. Through meetings, interviews, focus group discussions, public consultation workshops, and community consultation meetings, local representatives have participated in the planning and concerns have been integrated into the resettlement plans and EMDP. Before implementation, the PMO, implementing agencies and other relevant leaders 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 as a result of project implementation. The PMO and implementing agencies will disclose the resettlement plans and EMDP in the offices and to affected people. The resettlement plans and EMDP will also be posted on the ADB website. Resettlement information booklets were distributed to affected households. This guideline contains information such as the affected project area, proposed land acquisition and relocation implementation progress and procedure, compensation standards for land acquisition, relocation assistance, and livelihood restoration strategy. Each implementing agency will establish a project resettlement unit for supervision of implementation, continued public consultation, monitoring of progress, and response to grievances. The grievance redress procedures will be established and explanations have been included in the resettlement information booklets.

101. During project implementation, consultations with minority people affected by the project will be conducted. During the land acquisition and resettlement phase, all affected minority people and villages will be provided the opportunity to review and consult the final compensation packages before signing compensation agreements. The agreed compensation rates and rehabilitation measures will be disclosed in the area affected by the project and be supervised by the affected people. Relocated minority households will have a choice of cash or an in-kind rehabilitation option. For landless farmers, a training needs assessment will be carried out by the local government. Beyond resettlement, ethnic minority villages have been consulted during the project design period about their participation in non-structural measures and nonpoint source pollution pilot activities. Ethnic minority will participate in CESFMT and other community awareness programs. Their participation is essential for those activities, and they will be further consulted about who participates, and the activities to be piloted.

102. **GAP and SAP.** 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, EMDP, and RRP. Disclosure of social and environmental monitoring reports will be undertaken during project implementation.

103. Consultations with communities have taken place and will continue at different points in the preparation and implementation of the GAP and SAP within the components, and will be

designed not only to inform people about the component or specific activities related to its preparation and implementation, but also to enable people in the community to ask questions, make suggestions, state preferences, and express concerns. Special attention will be paid to the participation of women and any other vulnerable groups, such as the poor.

X. ANTICORRUPTION POLICY

104. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the Project.²⁶ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.²⁷

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

²⁶ Available at: <http://www.adb.org/sectors/governance/anticorruption>

²⁷ ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

XI. ACCOUNTABILITY MECHANISM

106. 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.²⁸

²⁸ For further information see: <http://www.adb.org/site/accountability-mechanism/main>

XII. RECORD OF PAM CHANGES

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

OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR PROJECT IMPLEMENTATION AND INSTITUTIONAL STRENGTHENING SUPPORT

A. Introduction

108. This document sets out the terms of reference for consulting services needed to ensure the smooth implementation of the Hubei Enshi Qing River Upstream Environment Rehabilitation Project. The direct client for the consulting services is the Enshi Prefectural Project Management Office (EPPMO) established in the Enshi Tujia and Miao Autonomous Prefecture Government (ETMAPG), although the consulting services will also be provided to the two implementing agencies: the Enshi Urban Construction and Investment Co. Ltd (EUCIC) and the Lichuan Liangli Urban Construction and Development Co. Ltd. (LLUCDC).

B. Overall Scope of Work

109. The project implementation management support will provide project management assistance to ETMAPG, EPPMO, EUCIC and LLUCDC to comply with ADB procedural requirements including: (a) project performance management system (PPMS), (b) procurement of contracts, (c) disbursement and contract management, (d) technical support in detailed design, (e) construction planning and monitoring, (f) reporting requirements, (g) safeguard management and monitoring, and (h) financial management. The consultants will also provide capacity development support to ETMAPG, EPPMO, EUCIC, LLUCDC and other concerned agencies on: (a) ADB's procedural requirements on procurement, disbursement, safeguards and financial management; and (b) training, organization of study visits and workshops. To supplement the project supported infrastructure works and ensure the long term sustainability of the created infrastructure assets, various capacity development support will also be provided, including: (a) wastewater collection and treatment; (b) flooding prevention and management; (c) wetland; (d) solid waste management, (e) NPS management; (f) PPP; (g) institutional reform and development; and (g) public awareness campaign on environmental protection, and public health. The consultants will also provide capacity development support to ETMAPG, EPPMO, EUCIC, LLUCDC, and other concerned agencies to develop various plans and training, and to organize study visits and workshops.

C. Implementation Arrangements

110. The consulting services for project implementation and institutional support will be carried out by a consulting firm. A total of 19 person-months of international and 85 person-months of national consulting services will be required. The consulting services will be financed by the Asian Development Bank (ADB), and the consultants will be recruited by the PMO according to ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).¹ The consulting firm will be selected by (i) inviting full technical proposals; and (ii) using the quality- and cost-based selection method, with a quality–cost weighting ratio of 80:20. The consulting services are expected to start in January 2016 and be completed in December 2020.

¹ 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/>.

Staffing	Input (Person-months)
International Consultant	
Wastewater Management Specialist/Team Leader	12.0
Procurement and Contract Management Specialist	5.0
Public Private Partnership Specialist	2.0
Subtotal	19.0
National Consultant	
Project Construction Management Specialist/Deputy Team Leader	40.0
Procurement and Contract Management Specialist	8.0
Wetlands Specialist	3.0
Nonpoint Source Pollution Control Specialist	3.0
Wastewater Management Specialist	3.0
Flood Control Specialist	3.0
Environmental Specialist	8.0
Social and Resettlement Specialist	8.0
Financial Management Specialist	5.0
Public Private Partnership Specialist	4.0
Subtotal	85.0

D. Reporting Requirements

111. The consultant team will produce (i) an inception report within 4 weeks of the start of the consulting services, (ii) an annual report by the end of each year during 2016–2020, (iii) draft project completion report by June 2020, and (iii) a project completion report at the end of the consulting services. The inception, annual, and draft final reports will be subject to tripartite reviews by ADB, the PMO, and the consultants. All reports are to be written in English and translated into Chinese. One hard copy and five electronic copies of each report are to be submitted to ADB (English version only) and the PMO (both Chinese and English versions).

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

E. Other Requirements

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

F. Scope of Services

114. The consultants will assist ETMAPG, EPPMO, EUCIC, and LLUCDC in:

- (i) setting up institutional framework, operational procedure, document control, design supervision, and contract management systems for the project and work plan to guide and facilitate the project implementation. This should utilize and adapt as necessary the arrangements set up for the earlier ADB projects in Hubei province;
- (ii) establishing a PPMS in accordance with ADB requirements, including

- establishing baseline and operation mechanism for data collection, analysis and reporting;
- (iii) developing comprehensive project implementation plans and procedures for monitoring and controlling overall project activities;
- (iv) conducting technical review and providing expert comments on detailed engineering design in accordance with the design codes and standards;
- (v) reviewing designs, drawings, and bidding documents, including the identification of potential technical problems and suggesting means of resolving these, and incorporating environmental mitigation measures where appropriate;
- (vi) ensuring that bidding documents include for contractors to provide equipment operation and maintenance manuals in Chinese and that training in equipment and maintenance is adequately provided for;
- (vii) conducting technical, financial, and procedural review of bid evaluation, and contract negotiations;
- (viii) conducting routine site visits and providing technical inputs to construction planning, supervision, and monitoring for quality control of the project construction;
- (ix) conducting contract management, including monitoring construction progress, preparing semiannual progress reports, reviewing the contractors' claims for payments, coordinating project implementation among contractors and various stakeholders, and coordinating daily operational tasks;
- (x) conducting technical review for construction supervision and management including:
 - (a) approval of construction methods and the Site Environmental Management and Supervision Plans prepared by the contractors for each work site;
 - (b) ensuring work is undertaken according to the intent of contract specifications;
 - (c) control over construction quality;
 - (d) adherence to contract work programs and recovery of slippage;
 - (e) site health and safety procedures;
 - (f) record keeping systems to protect client interests in event of claims; and
 - (g) claims assessment and determination.
- (xi) providing expert inputs, review, and justification for contract variation and preparing necessary documentations in accordance with the Government and ADB requirements, if necessary;
- (xii) providing expert inputs on asset commissioning and handover, including a review of documentation provided by the contractors and that they have fully discharged their training obligations;
- (xiii) establishing an efficient and effective financial management system for the project implementation in accordance with ADB policy and procedural requirements and implementing such financial management system;
- (xiv) assessing financial management and (a) reviewing current accounting and administrative capacities of the project operation units for the built facilities, (b)

- verifying if internal control system is employed, (c) checking current internal audit, external or government audit, and (d) recommending any changes as appropriate;
- (xv) assessing the financial performance of the project operation units for the past five years and evaluating its financial capacity regarding cost recovery, borrowing capacity, debt servicing, tariff collection, accounts receivable, and subsidies, as appropriate;
 - (xvi) identifying areas for improvement and training needed with respect to the quality of financial statements, disclosure, and notes to the financial statements, and developing templates for the annual financial statements;
 - (xvii) reviewing disbursement applications and supporting documents;
 - (xviii) collecting all necessary information, editing, drafting, and submitting the reports required under loan and project covenants on a timely manner;
 - (xix) reviewing and updating the environment management plan (EMP), resettlement plans (RPs), Ethnic Minority Development Plan (EMDP), social action plan (SAP), and gender action plan (GAP), and assist PIUs to conduct internal monitoring of the implementation of the EMP, EMDP, RPs, SAP, and GAP, and prepare reports on a semiannual basis;
 - (xx) providing expert opinions to ensure effectiveness of the project components' environmental mitigation measures and enhancement package implementation;
 - (xxi) collecting periodic information for PPMS updating;
 - (xxii) preparing necessary information for ADB's loan administration missions including loan review, loan midterm review, and loan completion missions;
 - (xxiii) updating project financial status, project cost tables, financing plan and financial and economic analysis, and safeguard implementation;
 - (xxiv) organizing and providing semiannual training on effective project financial management, procurement, disbursement, safeguards, and anticorruption measures;
 - (xxv) organizing and providing semiannual training on the skills necessary for construction supervision, project management, and implementation of social and environmental safeguards for ADB requirements;
 - (xxvi) undertaking annual tariff reviews for wastewater tariff and assessing the impact and affordability for the poor of the tariff increase;
 - (xxvii) consulting with the stakeholders concerned, in particular, the poor and ensuring the poor's participation in the public hearing process for tariff increase in accordance with the government's policies and regulations;
 - (xxviii) providing (a) training on prevention and control of transmissible diseases and HIV/AIDS, and community disturbance to contractors, and (b) drug and human trafficking awareness campaigns to the local communities;
 - (xxix) advising and training contractors and supervising companies on ADB policy and procedural requirements to ensure their full compliance;
 - (xxx) sampling and monitoring of environmental data related to the project, and contracting out the official environmental monitoring service to an accredited

environmental monitoring station;

- (xxxi) making recommendations to resolve any issues or problems on implementing the EMP, EMDP and RP;
- (xxxii) developing and submitting the semiannual progress reports, including internal social, resettlement, and environmental monitoring reports, to ADB with quality acceptable to ADB; and preparing a project completion report within three months of project completion.

OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR RESETTLEMENT AND SOCIAL MONITORING

1. An external resettlement and social monitor will be engaged intermittently for the entire duration of project implementation. The consulting firm or institute with estimated total input of 25 person-months of national consultants will be engaged through consultant qualification selection method. The external resettlement and social monitor will assist the Enshi Tujia and Miao Autonomous Prefecture Government, the project management office, the Enshi Urban Construction and Investment Co. Ltd, and the Lichuan Liangli Urban Construction and Development Co. Ltd. in:

- (i) conducting baseline survey of affected persons and regular monitoring to ensure implementation of the resettlement plans, ethnic minority development plan, social action plan, and gender action plan in compliance with ADB's safeguard and social and gender development policies;
- (ii) evaluating income restoration and post-resettlement conditions of the affected persons and host communities;
- (iii) paying special attention to vulnerable groups, including women and the poor, to assess whether they have participated and improved their standard of living;
- (iv) specifically, monitoring and evaluation will focus on the following aspects of the affected persons' situation and the resettlement process: (a) economic situation prior to and after displacement of land or structures; (b) timely disbursement of funds; (c) environmental conditions; (d) social adaptability after resettlement; (e) rehabilitation of the vulnerable groups; (f) measures taken to restore affected production and livelihoods of the affected persons; and (g) living conditions and economic status of affected persons following resettlement in comparison to the non-affected households in the project area;
- (v) making recommendations to resolve any issues or problems on implementation of resettlement plans and ethnic minority development plan, and providing advice to the project management office and implementing agencies;
- (vi) supporting the executing agency and implementing agencies in the implementation, monitoring, and reporting on the gender action plan, and providing technical advice to ensure adequate gender mainstreaming in the project; and
- (vii) submitting English and Chinese external resettlement and social monitoring reports (separate for resettlement and social) to Enshi Tujia and Miao Autonomous Prefecture Government and ADB with quality acceptable to ADB, every six months during resettlement implementation of the project.

Implementation Arrangements

Staffing	Input (Person-months)
National Consultant	
Social Development Specialist	10
Resettlement Specialist	15
Total	25

OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR INITIAL PROJECT IMPLEMENTATION SUPPORT

1. Two individual consultants of estimated 9 person-months of national consultant—project procurement and management expert for 5 person-months and resettlement expert for 4 person-months— will be engaged through individual consultant selection for initial project implementation support. The consultants will assist the Enshi Tujia and Miao Autonomous Prefecture, the project management office, the Enshi Urban Construction and Investment Co. Ltd, and the Lichuan Liangli Urban Construction and Development Co. Ltd. in:

- (i) establishing initial project management system including internal procedures of routine data filling and information exchange among the project management office, Enshi Urban Construction and Investment Co. Ltd, Lichuan Liangli Urban Construction and Development Co. Ltd., Hubei Provincial Financial Department, and other agencies of the Enshi Tujia and Miao Autonomous Prefecture for procurement, disbursement, financial management including internal auditing, and required reporting on project progress and safeguards;
- (ii) recruiting consulting services for the project implementation and institutional strengthening support (package A), through quality- and cost-based selection method in accordance with ADB guidelines and procedural requirements;
- (iii) recruiting consulting services for the external social and resettlement monitoring (package B), through consultant qualification selection method in accordance with ADB guidelines and procedural requirements;
- (iv) procuring goods and works for the project's infrastructural components under advance contracting in accordance with ADB guidelines¹ and procedural requirements;
- (v) collecting necessary information for reporting requirement of ADB including, semiannual implementation progress report, and project administration manual update for inception mission;
- (vi) finalizing the resettlement plans by revisions arising from census of affected people and land survey made by detailed engineering design;
- (vii) collecting additional information or conducting additional consultation, if necessary, to ensure the final resettlement plans will be in full compliance with ADB safeguard policy (2009);
- (viii) supervising the updating of resettlement plans; and
- (ix) providing training on project management, procurement, disbursement, financial management, and safeguards policy and procedures.

¹ Procurement Guidelines: <http://www.adb.org/documents/procurement-guidelines>.

OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES FOR NON-STRUCTURAL MEASURES FOR QING RIVER INTEGRATED MANAGEMENT

A. INTRODUCTION

1. This appendix sets out the terms of reference for consulting services for non-structural measures under the Hubei Enshi Qing River Upstream Environmental Rehabilitation Project. These non-structural measures support the wastewater system improvements and river rehabilitation work under the Project, with the goal of improving infrastructure management, sustainable flood risk management, and pollution management in Enshi and Lichuan cities. The direct client for the consulting services is the project management office (PMO) established in the ETMAP government. The consulting services, however, will also be provided to agencies in Enshi and Lichuan cities relevant to project implementation as well as operations and maintenance, including the Enshi and Lichuan PMOs, Enshi Lvyuan Company, Lichuan City Environmental Protection Bureau, and water resource and aquatic products bureaus, water resource and fishery bureaus, and city management bureaus for Enshi and Lichuan cities.

2. In addition, a community engagement scheme is provided for the Xinjie Village at Tunbao Township of Enshi to conduct a pilot program to reduce agricultural nonpoint source (NPS) pollution. This pilot program aims to promote adoption of the fertilizer and pesticides through (i) providing financial incentives (subsidies) to farmers who use environmentally friendly fertilizers and pesticides, (ii) establishing demonstration plots to disseminate best management practices, (iii) training of local agricultural extension service personnel to provide farm services that will help reduce pollution from agricultural runoff, and (iv) provision equipment and facilities to improve the sanitation and hygienic conditions of the village. Under the guidance of the consultants, the program will be implemented by the PMO in close cooperation with Tunbao Township Government which has jurisdiction over Xinjie Village.

B. OVERALL SCOPE OF WORK

3. The scope of work is divided into two parts: Part A – General non-structural measures; and Part B – Agricultural NPS pollution reduction pilot scheme.

Part A – General Non-Structural Measures

4. The general non-structural measures cover the following tasks:
- Sewer Infrastructure Geographic Information System (GIS) and Asset Management System
 - Flood Forecasting and Warning System
 - Pollution Characterization and Management
 - Community Environmental Supervision and Flood Management.
 - River Maintenance Program
 - Water Sensitive Land Use Planning

(i) Sewer Infrastructure GIS and Asset Management System. Provide technical assistance to the design institute and local government in developing a GIS and asset management strategy for the wastewater and stormwater sewer infrastructure in Enshi and Lichuan cities. The GIS will include location and attribute data for existing infrastructure and sewers to be constructed under the ADB project (pipes, manholes, pump stations, treatment plants, etc). The asset management strategy shall include a

GIS-based database if appropriate, sewer/equipment inspection and maintenance plans for prevention and repair, staffing requirements, budget, and financing mechanisms. Both the GIS and the asset management strategy will be developed according to local conditions and needs and will include capacity and institutional development for long term sustainability of the system. Opportunities and needs for sewer and stormwater drainage modeling using the GIS database will also be explored.

(ii) Flood Forecasting and Warning System. Provide technical assistance to the design institute and local government in developing a flood forecasting and warning system for Enshi and Lichuan cities, which will include rainfall and water level monitoring equipment, information systems and server equipment at the flood control headquarters, flood forecast modeling, communications equipment and procedures for flood warning to residents, and emergency response plans. The system will be built upon the cities' existing hydrological monitoring system and early warning system. The flood forecast model will be developed using historical data from the cities' existing rainfall and hydrological stations. Associated capacity building and institutional development will also be included, such as software training and emergency response drills. Public education related to flood warning will be carried out by the Community Environmental Supervision and Flood Management Team (CESFMT) as described below.

(iii) Pollution Characterization and Management. Provide technical assistance to the design institute and local government in characterizing pollution sources in the Qing River watershed within the boundaries of Enshi and Lichuan municipalities and developing an action plan for improved management of these pollution sources. Pollution characterization will include major point sources such as wastewater treatment plants, industries, livestock/poultry farms, as well as agricultural, rural, and urban non-point sources. Pollution survey results will be digitized in GIS. The consultants will assist with any modeling required to estimate NPS pollution levels. Recommended pollution mitigation measures will be provided based on international and domestic best practices and case studies. A watershed action plan will then be formulated in conjunction with local stakeholders based on a priority ranking of the recommended measures.

(iv) Community Environmental Supervision and Flood Management. Assist the PMO and local governments in establishing CESFMTs to raise environmental awareness of residents, eliminate improper disposal of solid waste, and promote awareness of early flood warning and response in pilot communities in Enshi and Lichuan. Teams will be set up in a total of eight communities that are seriously affected by water pollution and flooding (three urban and one rural in each city). Each CESFMT should consist of at least three selected members of the community, including at least one woman. Each member will be paid CNY500 per month and each team will be granted a public welfare activity fund of CNY 5,000 for the two-year pilot period. Budget for the teams will be included under the Project. Team members are selected for terms of two years and can serve no more than two terms. Under guidance of the consultants, the CESFMTs' activities may include:

- a) development of methods of publicizing status of water quality using language and formats that the public can understand;
- b) improvement of solid waste disposal so it does not end up in or alongside rivers and channels (relocation of neighborhood garbage disposal sites, development of

community-funded garbage collection and disposal systems, cooperation with the local environmental service office for provision of large disposal bins and more frequent garbage collection, public awareness raising, community enforcement, etc.); and

- c) development and publication of flood warning, evacuation, and emergency response procedures for the community.

(v) River Maintenance Program. Assist the Water Resource and Aquatic Products Bureaus in Enshi and Lichuan in developing river maintenance programs for the rivers and channels to be rehabilitated under the project. This program will include inspection, maintenance activities, equipment for maintenance, staffing, and training, as well as institutional arrangements and financing mechanisms. Activities may include maintenance of pump stations, inspection and repair of embankments, removing flow obstructions, clearing overgrowth of vegetation, managing riverbank vegetation, etc. The program will also include procedures for reporting harmful activities to the rivers including (a) reduce capacity of the rivers, (b) interfere with water flow, (c) pollute the water (e.g. unauthorized construction and encroachment, illegal dumping of solid waste, wastewater discharges etc.). Development of the program will include capacity building and institutional development to make it sustainable long term.

(vi) Water Sensitive Land Use Planning. Assist the Enshi and Lichuan governments in improving water-sensitive land use planning by providing recommendations on implementing development controls in flood-prone and/or ecologically sensitive areas. This may include adjustment of master plans based on results of flood risk mapping or ecological surveys, incorporation of land use controls in local regulations, etc. Recommendations on implementing sustainable drainage systems to reduce stormwater runoff in more localized areas will also be provided (e.g. bioretention filters, rain gardens, detention basins, green roofs etc.).

Part B – Agricultural NPS Pollution Reduction Pilot Program

5. A preliminary study has been conducted by the project preparatory technical assistance consultant to discuss with representatives of the Xinjie Village in Enshi. The community in Xinjie Village has been encouraged to voice their problems and concerns, develop alternative solutions. After several rounds of discussions, the following targets have been agreed.

- Household garbage and wastewater will be collected and treated;
- Use of fertilizer, pesticide and herbicide will be reduced, animal feces be collected, treated and used;
- Vulnerable groups will equally participate in project, and preferentially gain benefits from the activities to improve their livelihoods;
- The village will formulate an organization and mechanism of self-governance of the environment; the villagers will strengthen their awareness on environment protection, and conscientiously follow the regulations of public sanitation management.

6. In order to achieve the above targets, the following activities have been discussed and agreed. The activities can be generally arranged into three groups.

7. Activities Group 1: provision of garbage bins, vehicle and garbage tanks for garbage collection and transfer for treatment. Subsidy for garbage collection fees for the households.

8. Activities Group 2: Soil testing, subsidies for purchasing high efficiency and low toxicity pesticides, purchasing formula fertilizer and organic fertilizer, use of wastewater services, building bio-gas tanks, provision of equipment (mobile vehicle for wastewater pumping services, signs for drinking water protection zone, etc), and construction of aqueduct pipes.

9. Activities Group 3: Training and services to disseminate production techniques for rice, maize and green tea, support farmers/women's association for environment protection including publicizing and competition awards, and assistance in farmers/women's association development.

A. IMPLEMENTATION ARRANGEMENTS

10. The consulting services will be carried out by a team of consultants through a firm. A total of 8 person-months of international and 41 person-months of national consulting services will be required. The consulting services will be financed by the ADB, and the consultants will be recruited by the PMO according to ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The consulting firm will be selected by (i) inviting simplified technical proposals; and (ii) using the quality- and cost-based selection method, with a quality-cost weighting ratio of 90:10. The consulting services are expected to start in Q2 2016, and will be implemented over about 4 years intermittently, with most tasks requiring intensive, short-term inputs, and others requiring inputs throughout the entire 4 years.

B. STAFFING

Staffing	Input (Person-months)
International Consultant	
Watershed Management Specialist/TL	6
Asset Management Specialist	2
Subtotal	8
National Consultant	
Utility Management Specialist/DTL	2
Pollution Characterization and Management Specialist	4
GIS Specialist	4
Public Outreach and Community Development Specialist	5
Policy and Institutional Specialist	3
River Management Specialist	4
Hydrologist	5
Ecological Land Use Planner	4
Agricultural Pollution Control Specialist	10
Subtotal	41

International Specialists

11. 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 loan or technical assistance projects; and (iii) experience in projects in the PRC will be highly regarded.

12. Watershed Management Specialist/Team Leader (6 person-months): As team leader, (i) coordinate all project management support activities; (ii) finalize the approach for consulting services; (iii) prepare the inception, annual, draft final, and final reports; and conduct any other necessary work for smooth implementation of the consulting services. As watershed management specialist, in conjunction with the national pollution characterization and management specialist, the specialist will (i) review the existing inventory of pollution sources, existing water quality protection and pollution control plans, existing status and future goals of surface and groundwater quality, potential pollution sources in the future, in Enshi and Lichuan; (ii) assist the design institute in developing a pollution survey and modeling methodology (including survey locations, parameters, timing, consideration of future pollutant loads); (iii) review pollution survey and monitoring results; (iv) identify key pollution sources and feasible pollution mitigation measures based on international and domestic best practices and case studies; (v) in collaboration with local stakeholders, prioritize the pollution issues and mitigation measures in a watershed action plan (see para. 2iii). The plan can include structural measures, non-structural measures, as well as any institutional and policy-related recommendations.

13. Asset Management Specialist (2 person-months): In conjunction with the national asset management specialist and GIS specialist, the specialist will (i) provide support to the design institute, Enshi Lvyuan Company, and the Lichuan EPB in developing a GIS and asset management strategy/plan for the cities' sewer and drainage infrastructure, as described in para 2i); (ii) in conjunction with the national asset management specialist and river specialist, develop a river maintenance program for the two cities as described in para 2v). Existing asset management and maintenance plans and resources must be reviewed carefully and discussed with relevant agencies. Design and complexity of the GIS and asset management approach must be based on local needs and capabilities to ensure that the systems can be operated and maintained properly on a long term basis.

National Specialists

14. 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 loan or technical assistance projects; and (iii) experience in working with international organizations and/or consultants will be highly regarded.

15. Asset Management Specialist/ Deputy Team Leader (2 person-months): The specialist will (i) assist the international asset management specialist with tasks described in para 2 i) and v); (ii) lead coordination efforts between the design institute, PMO, relevant agencies, and the national GIS specialist to complete the tasks; (iii) develop a training and capacity development plan for the GIS and asset management systems; and (iv) assist the team leader with project management and coordination activities.

16. Pollution Characterization and Management Specialist (4 person-months): The specialist will assist the international watershed management specialist to conduct the tasks described in para 2iii) and will lead coordination efforts between the design institute, PMO, relevant agencies, and the national GIS specialist to complete the tasks.

17. GIS Specialist (4 person-months): In conjunction with the international asset management specialist and national asset management specialist, provide technical assistance to the GIS developer for both the sewer infrastructure GIS and the pollution source GIS (see para 2i) and iii)). The specialist will also assist in providing training and capacity building on all functions and maintenance requirements of the GIS.

18. **Public Outreach and Community Development Specialist (5 person-months):** The specialist will (i) lead the task cited in para. 2iv), particularly on training the CESFMTs and providing support for their work; (ii) review the progress and identify lessons learned from other ADB projects that have implemented this concept (e.g. Anhui Chao Lake Environmental Rehabilitation Project and the Anhui Huainan Integrated Urban Water Systems Integrated Rehabilitation Project; (iii) follow up on the pilot CESFMT activities every 6 months for 2 years and recommend adjustments to the pilot activities as necessary; (iv) make recommendations for the set-up of additional CESFMTs in other communities based on the results of the pilot activities results; (v) provide input to development of the flood warning procedures at the community level (see para 2ii), (vi) ensure ethnic minorities are involved in the implementation of the CESFMTs, in particular by being included in the training and support, and (vii) provide reporting and monitoring as laid out in the EMDP.

19. **Policy and Institutional Specialist (3 person-months):** The specialist will (i) assess the agencies responsible for river management, pollution management, and sewer infrastructure, and recommend a capacity building and institutional strengthening program for their operation, maintenance, and management; (ii) provide recommendations on development of policy/regulations for land use control based on the existing policy environment in the PRC (in support of task 2vi); (iii) assist in developing policy/institutional recommendations for pollution mitigation and watershed management based on international and domestic case studies (in support of task 2iii)), and (iv) provide recommendations on institutional arrangements for implementation and operation and management of systems and plans developed or supported under this TA (e.g. GIS and asset management plans).

20. **River Management Specialist (4 pm):** The specialist will (i) develop a river maintenance program in conjunction with the asset management specialists (see para 2v); and (ii) support relevant government bureaus (e.g. water resource bureau, city management bureau) to incorporate the program in current regulations and assess its applicability in local conditions.

21. **Hydrologist (5 pm):** Support the international flood forecasting and warning specialist which will be provided through the grand funds, and in coordinating with the design institute, PMO, and relevant agencies to complete the tasks in para 2ii).

22. **Ecological Land Use Planner (4 pm):** The specialist will conduct tasks described in para 2vi) in conjunction with the international low impact development specialist, and will lead discussions with relevant government agencies on (i) the importance of proper land use planning in sustainable flood risk management and ecological protection; and (ii) opportunities for improved land use planning in Enshi and Lichuan.

23. **Agricultural Pollution Control Specialist (10 PM):** The specialist will have a degree in agricultural extension, environmental management or a related field, and at least 7 years of experience in agricultural extension and management of environmental impacts of agriculture and rural livelihoods. The specialist will have extensive experience in preparing and implementing community-based nonpoint source pollution or agricultural pollution reduction projects, preferably with experience of conservation tillage technology or with experience of environment friendly tillage technology. In coordination with staff of Enshi PMO and agricultural experts, the specialist will undertake the following tasks:

- (i) prepare the project implementation schedule and detailed implementation arrangements;
- (ii) organize workshops and implement training, in coordination with agriculture technology specialist, farmers involved in this pilot project, village committee and PMO, to ensure implementing the pilot project;

- (iii) conduct a baseline assessment of the amount and types of agricultural and non-agricultural pollutions (solid and liquid) within the prefecture of Tunbao town and Xinjie village;
- (iv) develop baseline data for key pollutants in the pilot village, develop baseline data or baseline data collection methodology on the use of fertilizer and other chemicals by farmers, prepare supervision indicators and monitoring processes;
- (v) formulate village organization and mechanism of self-governance for environment protection in Xinjie village, strengthening their awareness on citizens' rights and responsibilities under the regulations of public sanitation management;
- (vi) ensure ethnic minorities are consulted and participate in the implementation of the project, in particular by being included in the training and support, and provide reporting and monitoring as laid out in the EMDP;
- (vii) establish a pilot project performance evaluation planning and write quarterly project progress reports, which will be submitted by the implementing agencies to the PMO and ADB, including physical progress of project implementation, results of the pilot program, implementation of environmental protection plan, implementation of social and poverty-reduction activities, and compliance with policy, legal, financial, economic, and environmental covenants;
- (viii) format a pilot project completion report to be submitted by the PMO to ADB within 3 months of physical completion of the pilot project, which describes the achievements in relation to the project's expected impact, outcome, and outputs;
- (ix) provide a flow of data and information generation and collection, necessary arrangements including procedures, and responsibilities of relevant agencies, to produce the reports mentioned above; and
- (x) summarize problems, experience and findings learned from this pilot project as inputs to format a knowledge product, which will instruct the implementation of chemical fertilizer reduction projects in Qing river basin.

C. REPORTING

24. Assuming the consultancy commences in first quarter of 2016, the consultant team will produce (i) an inception report within 4 weeks from the start of the consulting services, (ii) an annual report by the end of each year during 2016–2017, (iii) draft final report by the third quarter of 2019, and (iv) a final report at the conclusion of the consulting services. The inception, annual, and draft final reports will be subject to tripartite reviews by ADB, the PMO, and the consultants. All reports are to be written in English and translated into Chinese. Three copies of each report are to be submitted to ADB (English version only) and the PMO (both Chinese and English versions).

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

**ENVIRONMENTAL MANAGEMENT PLAN FOR THE HUBEI
ENSHI QING RIVER UPSTREAM ENVIRONMENT
REHABILITATION PROJECT**

People's Republic of China

**Prepared by the Enshi Tujia and Miao Autonomous Prefecture Government for the Asian
Development Bank**

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A. Introduction

1. This Environmental Management Plan (EMP) is for the Hubei Enshi Qing River Upstream Environment Rehabilitation Project. It summarizes the potential project environmental impacts and defines mitigation measures and monitoring requirements for the design, construction, and operational stages of the project. It also defines the institutional arrangements and mechanisms, roles and responsibilities of different institutions, and costs for EMP implementation. The EMP seeks to avoid, reduce, and/or mitigate adverse impacts and risks. The EMP is based on the findings of the Environmental Impact Assessment (EIA) and domestic environmental assessment report.

2. The EIA and EMP have been disclosed on the ADB public website (www.adb.org) since November 2014 and are also included in the Project Administration Manual (PAM). The EMP will be included as a separate annex in all bidding and contract documents. The contractors will be informed of their obligations to implement the EMP, and to provide for EMP implementation costs in their bids for project works.

3. The EMP includes a monitoring program. Monitoring results will be used to evaluate: (i) the extent and severity of actual environmental impacts against the predicted impacts; (ii) the performance of the environmental protection measures and compliance with relevant laws and regulations; (iii) trends of impacts; and (iv) overall effectiveness of the EMP.

B. Institutional Arrangements and Responsibilities for EMP Implementation

4. **Executing Agency.** The Enshi Tujia and Miao Autonomous Prefecture (ETMAP) of Hubei Province is the executing agency for the project.

5. **Project Leading Group.** The executing agency has set up a Project Leading Group (PLG) to facilitate liaison with project agencies and to assist in complaints resolution in the GRM. The PLG is headed by the governor of ETMAP and includes representatives from relevant government departments of ETMAP, including the Development and Reform Commission (DRC) and bureaus of finance, land resources, construction, environmental protection, water resources, and resettlement. (Table A1.1).

Table A1.1: Project Leading Group

Name	Agency
Group Leader	
Yang Tianran	Governor of ETMAP
Standing Deputy Group Leaders	
Dong Yongxiang	Standing Vice Governor of ETMAP
Deputy Group Leader	
Chen Xiaoyan	Vice Governor of ETMAP
Group Members	
Liao Yushi	Secretary Chief of ETMAP
Li Guoqing	Mayor of Enshi City Government
Zhang Tao	Mayor of Lichuan City Government
Tian Jinpei	Director General of Enshi Prefecture DRC
Wang Jinwei	Director General of Enshi Prefecture Finance Bureau
Chen Xin	Director General of Enshi Prefecture Land Resources
Zhang Yong	Director General of Enshi Prefecture Housing and Urban Rural Development
Yang Nianhan	Director General of Enshi Prefecture EPB
Deng Shengzhi	Director General of Enshi Pref Water Resource and Aquatic Production Bureau
Zheng Donglai	Director General of Enshi Prefecture Commerce Bureau
Zhang Anjun	Director General of Enshi Prefecture Auditing Bureau
Li Keming	Director General of Enshi Prefecture Forest Bureau
Huang Hongwei	Director General of Enshi Prefecture Resettlement Bureau
Long Shikui	Director General of Enshi Prefecture Work Safety Bureau

Name	Agency
Xie Chongli	Deputy President of Enshi Prefecture Branch of People's Bank of China

6. **Project Management Office.** The executing agency has established a Project Management Office (PMO) within the Enshi Prefecture DRC. The PMO will be responsible, on behalf of the executing agency, for day-to-day management of the project and implementation of the EMP. The PMO will be supported by two city-level PMOs – one for the Enshi project component and one for the Lichuan project component.

7. **PMO Environment Officer.** The PMO has established the position of a PMO Environment Officer to coordinate EMP implementation. The terms of reference for this position are in Annex A. The PMO, through the PMO Environment Officer and in coordination with the Loan Implementation Environmental Consultant (see below), will do the following.

- (i) Translate the EMP into Chinese language and ensure that it remains consistent with this original version in English language.
- (ii) Ensure that the two implementing agencies (see below) understand their roles for EMP implementation and allocate budgets as necessary.
- (iii) Prepare selection criteria for the project bidding procedures to ensure the EMP is included in tenders by the PMO and bids by applicants. These criteria will include clear directions for bidders on how to include actions and budgets for the EMP in their bids, enabling fair and transparent comparison between bids.
- (iv) Review tenders for conformance with selection criteria for EMP implementation.
- (v) Prepare clauses to be included in the contractual terms and conditions for contractors to ensure full and effective implementation of the EMP.
- (vi) Monitor the progress of all agencies for EMP implementation.
- (vii) Implement the Grievance Redress Mechanism (Section G).
- (viii) Prepare and submit semi-annual environmental monitoring reports to ADB.

8. **Implementing Agencies (IAs).** There are two IAs for the project, one each for Enshi and Lichuan: the Enshi Urban Construction and Investment Co. Ltd (EUCIC; owned by Enshi City and Prefecture Governments); and the Lichuan City Liangli Urban Construction and Development Co. Ltd (LCLUCD; which has a joint office with the Lichuan City Housing and Urban Rural Development Bureaus). The IAs will implement project components, administer and monitor contractors and suppliers, and be responsible for construction supervision and quality control at each subproject site. Implementing departments within the companies have been set up, including administration, engineering, safeguards, planning and financing and information management divisions. These departments worked with the PPTA consultants and design institutes during loan processing and will work with the PMO and LIEC during loan implementation. Each IA has assigned an Environment Officer and a Social Officer to work with their PMO counterparts.

9. **Environmental Monitoring Station (EMS).** In Enshi and Lichuan Cities, the EMS of the Environment Protection Bureau (EPB) will be contracted by the city IA to implement the external environmental monitoring program described in this EMP. The PMO will supervise this monitoring. Each EMS will report to the local EPB and PMO.

10. **Loan Implementation Environmental Consultant (LIEC).** A LIEC will be hired under the loan implementation consultancy services. The terms of reference for this position are in Annex B. The LIEC is essential to completion of environmental pre-construction activities and should be recruited as soon as possible after loan effectiveness. The LIEC will assist the PMO Environmental Officer with the following.

- Assist the PMO and IAs to integrate the EMP mitigation and management measures into construction contracts and arrangements.
- Ensure that relevant sections of the project EMP are incorporated in the construction

contract documents.

- Assist the PMO to establish and publicize the grievance redress mechanism (GRM).
- Develop procedures to (i) monitor and report on the EMP implementation progress; and (ii) record and collate complaints and resolution under the GRM.
- Provide support and training to PMO, IAs and contractors on the specific requirements of the EMP as required.
- Assess the environmental readiness of project components prior to implementation.
- Conduct regular EMP compliance assessments, undertake site visits as required, identify any environment-related implementation issues, and propose necessary responses in corrective action plans.
- Assist PMO to prepare semi-annual environmental monitoring progress reports for submission to ADB.

C. Summary of Potential Impacts and Mitigation Measures

11. Potential environmental issues and impacts during the project pre-construction, construction and operation phases, and corresponding mitigation measures, are summarized in Table A1.2. These measures were developed jointly by the PMO, design institute (DI), EIA Institute and PPTA team during the project preparation phase. The domestic EIA provided a list and costs for mitigation and environmental measures, and these have been adapted to the more detailed itemization included in Table A1.2. The costs total for mitigation and management measures in the domestic EIA have been retained in this EMP.

Table A1.2: Summary of Potential Impacts and Mitigation Measures

Item	Environmental Issues and Impacts	Mitigation Measure	Who Implements	Who Supervises
Pre-construction				
1.1 Feasibility and Design stage	Detailed design (embankments, dredging, landscaping, WWTPs)	i. Finalize detailed designs for all infrastructure.	IAs, LDI	PMO
		ii. Include habitat features for aquatic flora, turtles, frogs, in the design of embankments and landscaping		
		iii. PMO recruit a wetland specialist to: (a) design these fauna-specific habitat features; (b) inspect the features once completed, to ensure compliance with the designs.	Wetland specialist	PMO
		Verify design influent volume, quality, and ability of planned treatment processes to achieve 1A discharge.	IAs, LDI	PMO
		Confirm amended layout of Lichuan WWTP extension. Locate odor-generating and noise-producing facilities furthest from residences.	IA, LDI	PMO
	Public consultations	Conduct consultation on the EMP in each city, including environmental issues, poverty, resettlement, and GRM	EIA Institute	PMO
1.2 Implementation Support	Resettlement Plans (RP)	Finalize RP for each subproject to required ADB and PRC standards. i. Establish a resettlement office comprising local government officials to manage the resettlement process. ii. Conduct community consultation programs and ensure information is disseminated about entitlement based on the Land Administration Law. iii. Ensure that all relocation and resettlement activities are completed before construction starts on any subproject.	PMO	PPTA team
	Establish support positions	Contract a Loan Implementation Environmental Consultant (LIEC)	PMO	ADB
		Contract Enshi and Lichuan EMS for external monitoring of construction and operations.	PMO	LIEC
	Establish environmental staff positions	i. Appoint PMO Environment Officer ii. Establish environmental management units in the two IAs with appropriately skilled staff	PMO, IAs	PMO
	1.3 Construction Preparation Stage	Update EMP	PMO, IAs	PMO, ADB, LIEC
		Review EMP on need for updating due to any changes in final engineering design. For changes in project locations, sites, or other changes that may cause new or greater environmental impacts or involve additional affected people: the PMO will conduct additional environmental assessment and public consultation. The revised EIA reports will be submitted to the PMO, EPB and ADB for approval and disclosure.		
		Land-take confirmation	PMO	LIEC, ADB
		Confirm sediment quality	IAs	PMO, LIEC
		Baseline for aquatic invertebrate monitoring	Hubei Wuhan EMS	PMO
		Contract documents	IAs with LDI	PMO, LIEC
	Grievance Redress Mechanism (GRM)	i. Prepare clauses referring to this EMP and include in the terms of reference for construction tenders & contracts. ii. Prepare environmental contract clauses for contractors, especially the EMP and monitoring plan.		
		i. Implement the GRM described in this EMP. ii. Establish complaints recording procedures within PMO.	PMO	ADB

Item	Environmental Issues and Impacts	Mitigation Measure	Who Implements	Who Supervises
		iii. Publicize GRM at all construction sites.		
	Construction site planning	i. Prepare Site Environmental Management and Supervision Plan (SEMSP), including health and safety plan See EIA-Section VI.C.2. ii. Assign site environmental health and safety officer iii. IAs and PMO review and approve each SEMSP	Contractors	IAs, PMO
	Environmental Protection Training	Provide training on implementation of this EMP to all relevant agencies, especially the IAs and contractors.	LIEC, Enshi and Lichuan EPBs	PMO, ADB
Construction				
2.1 Water	Domestic wastewater from construction sites	Contractor provides portable toilets at construction sites. Toilets are emptied regularly and sewage transported to WWTP.	Contractors	IAs, PMO
	Construction wastewater (pouring concrete, repairs etc) is managed	i. Settling ponds and oil-water separators implemented. ii. Recycled water is used to spray for dust control. iii. Residues are removed from site and disposed in municipal landfills.	Contractors	IAs, PMO
	Handling of hazardous and harmful materials	i. Guidelines for handling and disposal, including spill responses, are prepared and included in the SEMSP. ii. Construct storage facilities (including fuel and oil storage), with bunds and clean-up equipment. iii. Fuel supplier is properly licensed and follows the proper protocol for transferring fuel, and complies with JT 3145-88 (Transportation, Loading and Unloading of Dangerous or Harmful Goods). iv. Vehicles and equipment are parked in designated areas to prevent contamination of soil and surface water. v. Vehicle, machinery, and equipment maintenance and refueling are carried out so that spilled materials do not seep into the soil or into water bodies. vi. Fuel storage and refilling areas are at least 300 m from stormwater drains, Qing River and its tributaries. vii. Oil traps for service areas, and parking areas.	Contractors	IAs, PMO
2.2 Air	Generation of dust by construction activities	i. Transport containers and vehicles carrying soil, sand or other fine materials to and from the sites are covered. ii. Materials storage sites are covered or sprayed with water. iii. Water is sprayed on bare earth surfaces at construction sites and access roads twice daily. iv. All roads and tracks used by vehicles of the contractors or any subcontractors or supplier are kept clean and clear of all dust, mud, or extraneous materials dropped by vehicles.	Contractors	IAs
	Air emission from vehicles and equipment	i. Equipment and machinery is maintained to a high standard to ensure efficient running and fuel-burning. High-horsepower equipment will be installed with tail gas purifiers to ensure emissions be in compliance with PRC-GB16297-1996. ii. A regular inspection and certification system for equipment and machinery is initiated.	Contractors	IAs
	Odor from dredge spoil	i. Dredge spoil is separated into sediments and trash. ii. Trash is transported directly to the landfill sites and is not stockpiled along the river or any project site. iii. Spoil management sites will be clearly demarcated. iv. Transport of the dried and treated dredge spoil to landfill is undertaken in covered trucks daily.	Contractors	IAs

Item	Environmental Issues and Impacts	Mitigation Measure	Who Implements	Who Supervises
2.3 Noise and Vibration	Noise from vehicles and construction machinery	i. Noise levels from equipment and machinery conform to PRC standard GB12523-2011. ii. Install portable noise shields near sensitive receptors such as schools and medical centers. iii. Prohibit noise-generating construction work between 2000 and 0600 h. iv. If construction noise needs to continue into the night, the contractor must first consult with the PMO, IAs, and local communities and obtain their agreement and if necessary provide compensation	Contractors	IAs
2.4 Solid waste	Domestic waste from construction sites	i. Provide appropriate waste storage containers. ii. Trash collection bins are regularly sprayed with pesticides to reduce flies. iii. Wastes are stored away from water bodies and regularly hauled to a suitable landfill or designated dumping site.	Contractors	IAs
	Construction wastes cause adverse impacts on surrounds.	Construction wastes that cannot be reused will be regularly transported off-site for disposal, and not allowed to accumulate on site over long periods.	Contractors	IAs
2.5 Soil erosion and stability	Erosion from construction sites	i. Construct interception ditches and drains to prevent runoff entering construction sites, and to divert runoff from sites to existing drainage. ii. Limit construction and material handling during rain and high wind. iii. Stabilize all cut slopes, embankments, and other erosion-prone working areas while works are going on. iv. All earthwork disturbance areas shall be stabilized within 30 days after earthworks have ceased at the sites. v. Preserve existing vegetation where no construction activity is planned.	Contractors	IAs
	Handling and disposal of dredge spoil	Confirm quality of treated dredge spoil against GB/T23485-2009 to ensure safe disposal at landfill.	IAs	PMO
2.6 Flora and Fauna	Habitat retention	Loss of any existing natural vegetation at WWTP sites and riverbank trees in embankment construction will be replaced by the same species in WWTP landscaping and in habitat re-establishment in embankments.	IAs	PMO
	Invasive species	i. Ensure that all plant species used for the embankments, constructed wetlands, and landscaping are the agreed list of native, locally sourced species in Tables IV.16 and IV.17 of the EIA. ii. Clear any large infestations of weeds in the construction sites.	IAs	PMO
	Fauna protection	Any fauna found during construction, especially turtles, will be immediately reported to the EPBs and PMO Environment Officer, photographed, and released on the same day in the nearest suitable habitat.	IAs, contractors, PMO	PMO
	Inspection of completed embankments for compliance with fauna habitat designs	i. Upon completion of each river embankment section and/or constructed wetland, the wetland specialist inspects the new structures to ensure compliance with the habitat design-features (see Item 1.1). ii. In the case of non-compliance, the contractor will correct the structures to be in compliance. iii. The wetland specialist will provide a brief report to PMO.	Wetland specialist	PMO
2.7 Social and Cultural	Traffic management – all components	i. Select haulage routes to reduce disturbance to regular traffic. ii. Trucks hauling treated dredge spoil to landfill will have light loads (not exceeding 10 t per trip), and fully covered. iii. Divert or limit construction traffic at peak traffic hours. iv. At all times, safe and convenient passage is given to community vehicles, pedestrians, and livestock to and	PMO, IAs, contractors	PMO

Item	Environmental Issues and Impacts	Mitigation Measure	Who Implements	Who Supervises
		from side roads.		
	Work camp health and hygiene	i. Ensure construction sites, canteens, food, water and food handling, and toilets, are maintained under hygienic conditions ii. Construction site operations comply with PRC State Administration of Worker Safety Laws and Regulations.	Contractors	IAs
	Community safety	i. Place signs around the construction areas to provide safety advice and warnings. ii. Ensure sites and machinery are off-limits to the general public. iii. For residential areas next to construction (especially loud noise), ensure residents are aware of the duration and nature of works, potential hazards, and offer to provide ear plugs/dust masks/other basic safety equipment.	Contractors	IAs
	Construction site safety	i. To the furthest extent possible, protect all persons and nearby property from construction accidents. ii. Comply with all national and local safety requirements and any other measures necessary to avoid accidents. iii. Provide protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed boots) for construction workers and enforce their use. iv. Ensure sites and machinery are sealed or closed at night. v. Provide signs showing directions to the various construction works, to minimize on-site vehicle activity. vi. During heavy rains / emergencies, suspend all work.	Contractors	IAs
	Cultural, physical and natural heritage protection	If a cultural artefact is unearthed, stop work at the site and immediately report the matter to the IAs, PMO and local Cultural Relics Preservation Bureau for guidance on next steps.	Contractors	IAs, PMO
2.8 Unexpected impacts		If unexpected environmental impacts occur during project construction phase, immediately inform the PMO; assess the impacts; and update the EMP	IA	PMO
Operation				
3.1 Water	Performance testing of WWTP processes	Prior to commissioning of the new and extended WWTPs, test the functioning of the WWTPs and ability to achieve Class 1A discharge standard.	WWTP O&M Units	PMO
	Wastewater discharged without meeting relevant requirements /standards	i. Install wastewater quality monitoring devices for real-time monitoring at WWTPs ii. Establish real-time monitoring framework	WWTP O&M Units	PMO
	Water source protection (Lichuan No.1 WTP)	Enforce the Lichuan City regulations for WTP No. 1: i. "Renovation projects for riverside buildings and businesses must reduce the the amount of pollution discharge from current levels. ii. Close all direct wastewater discharge outlets and re-direct to WWTPs. iii. No riverside loading or unloading facilities to be constructed which include the handling of garbage, manure or fecal waste or toxic or hazardous substances."	Lichuan City Government	ETMAP
3.2 Air	Odor from WWTPs	i. Equip odor generating facilities with ventilation or odor containment. ii. Implement regular sludge removal and avoid stockpiling. iii. Institute regular check, repair and maintenance of all treatment facilities and equipment.	WWTP O&M Units	PMO
	Noise produced	i. Design and implement noise absorbing, noise reduction, noise insulation and vibration reduction measures.	WWTP O&M	PMO

Item	Environmental Issues and Impacts	Mitigation Measure	Who Implements	Who Supervises
	during wastewater treatment – mechanical equipment	Adopt low noise level equipment. ii. Create green buffer zone/noise absorption zone along WWTP boundaries using native trees and shrub planting. At Lichuan WWTP expansion, provided a native vegetation barrier along the southern boundary >10m.	Units	
3.3 Solid Waste	Separate and manage solid waste from inflow sewage	Develop and implement a solid waste handling process covering packaging, transportation, and disposal in landfill.	WWTP O&M Units	PMO
	Sludge retention time and GHG emissions	i. In the first year of operation, WWTP operators will undertake trials to shorten SRT to see if it can be achieved without lowering pollution removal performance. Trials will be monitored and reported to the PMO. Results will be incorporated into WWTP operating procedures. ii. A standardized GHG accounting method will be identified and applied to calculate total annual GHG emissions, as described in Section VI.E of the EIA. iii. Annual GHG accounting will be included in the progress reports to PMO and semi-annual environmental progress reports to ADB.	WWTP O&M Units	PMO
3.4 Flora and fauna	Manage the built habitats – landscaped embankments and constructed wetlands	i. Maintain the landscaping – watering, weeding, stabilizing, survival and growth of planted trees, shrubs and herbs, with replacement and corrective action as necessary. ii. Provide security and surveillance to guard against misuse, theft and littering. iii. Regularly remove litter and transport to landfill.	City Garden Bureaus	PMO
	Monitor post-construction recovery of aquatic invertebrates	i. Repeat the baseline sampling survey in the same sites-see Table A1.4. ii. Compare findings with the baseline sampling survey. iii. Provide report to PMO and ADB.	Hubei Wuhan EMS	PMO
3.5 Emergency preparedness and response	WWTP maintenance and health and safety of surrounding residents	Prepare an emergency preparedness and response plan before each WWTP is operational. The plan will include staff training, resources, responsibilities, communication, procedures, and other aspects required to respond effectively to emergencies.	WWTP O&M Units	PMO
3.6 Health and safety	Health and safety of WWTP operating staff	i. Compulsory use of safety equipment and clothing as necessary, including shoes or boots with non-slip soles, protective and chemical resistant clothing, safety goggles ii. Wear respiratory mask in sludge dewatering and de-odor workshops and when moving and transporting sludge; iii. Posting and briefing on safety instructions for the storage, transport, handling or pouring of chemicals, and entry into confined spaces	WWTP O&M Units	PMO
3.7 Unexpected impacts	All areas	If unexpected environmental impacts occur during project operations, immediately inform the PMO; assess the impacts; and update the EMP	WWTP O&M Units	PMO

Sources: PPTA Team; Enshi domestic EIA 2014. ADB = Asian Development Bank, DI = design institute, EIA = Environmental Impact Assessment, EMS = Environmental Monitoring Station, EPB = Environment Protection Bureau, ETMAP = Enshi Tuija Miao Autonomous Prefecture, IA = Implementing Agency, DI = Design Institute, LIEC = Loan Implementation Environmental Consultant, O&M = Operation and maintenance, PMO = Project Management Office, RP = Resettlement Plan, SEMSP = Site Environmental Management and Supervision Plan, SRT = Sludge Retention Time, WTP = water treatment plant, WWTP = Waste Water Treatment Plant.

D. Project Readiness

12. Before construction, the LIEC will assess each IA's readiness in terms of environmental management based on a set of indicators (Table A1.3) and report it to ADB and PMO. This assessment will demonstrate that environmental commitments are being carried out and environmental management systems are in place before construction starts, or suggest corrective actions to ensure that all requirements are met.

Table A1.3: Project Readiness Assessment Indicators

Indicator	Criteria	Assessment
Environmental Supervision in place	LIEC is in place	Yes No
	Qualified EMS contracted by city PMOs	Yes No
Compliance with loan covenants and assurances	The borrower complies with loan covenants related to project design and environmental management planning	Yes No
Public involvement effectiveness	Meaningful consultation completed	Yes No
	GRM established with entry points	Yes No
Contracts with environmental safeguards	Bidding documents and contracts incorporating the environmental activities and safeguards listed as loan assurances	Yes No
Site construction planning (environmental)	Site Environmental Management and Supervision Plan prepared for each work site by the IAs and contractors.	Yes No
Dredge sediment quality confirmed	Additional sediment sampling at dredge sites undertaken and compliance with standard for landfill disposal confirmed	Yes No
Habitat features of embankments and constructed wetlands	PMO has recruited a wetland specialist; habitat-specific designs for the embankments and constructed wetlands have been completed; the designs have been integrated in the embankment engineering designs; the contractor has fully included them in their plans.	Yes No
Aquatic environment baseline established	Baseline biological indicators of the aquatic environment of the Qing River mainstream established.	Yes No
EMP financial support	The required funds have been set aside for EMP implementation by each IA	Yes No

EMS = Environment Monitoring Station, IA = Implementing Agency, LIEC = Loan Implementation Environmental Consultant, PMO = Project Management Office, SEMSP = Site Environmental Management and Supervision Plan.

E. Monitoring and Reporting

13. Three types of project monitoring will be conducted under the EMP.

- (i) Internal monitoring. To be conducted by the IAs and their contractors.
- (ii) External monitoring. To be conducted by the EMS of Enshi and Lichuan Cities.
- (iii) Compliance monitoring. To be conducted by the LIEC.

14. Internal environmental monitoring includes the monitoring of air quality and noise at all construction sites as well as the quality of discharged water, odor and treated sediment quality at dredge spoil treatment sites. During operations, internal monitoring will cover quality of treated wastewater and sludge from the WWTPs and the progress of embankment and wetland landscaping. External monitoring (i) covers many of the same parameters and is a verification of the internal monitoring, (ii) also measures effects at sensitive receptors and ecosystems, and (iii) will monitor the re-establishment of the aquatic habitat after river works. Compliance monitoring is independent evaluation of the overall progress of the entire EMP – see Para. 17.

15. Table A1.4 shows the environmental monitoring program designed for this project, defining the scope, location, parameter, duration and frequency, and responsible agencies, for monitoring during the construction and operational stages. Monitoring needs were identified in the environmental assessment and also reflect the requirements of national regulatory standards. Monitoring costs are estimates based on the experience of the PPTA team and PMO from other projects in Hubei Province and elsewhere in the PRC. These costs were discussed and agreed by the PMO and PPTA team during loan processing. ADB will oversee project compliance on the basis of the semi-annual environmental monitoring reports provided by the PMO and site visits as required.

16. The results of the environmental monitoring will be compared with relevant PRC performance standards in Table A1.5. Non-compliance with these standards will be highlighted in the monitoring reports. Monitoring results will be submitted to the PMO and then reported by the PMO to ADB in semi-annual environmental monitoring reports (prepared with the support of the LIEC – Table A1.6).

Table A1.4: Environmental Monitoring Program for Project Duration

Item	Parameter	Monitoring Location	Monitoring Frequency and Duration	Who Implements	Who Supervises
Pre-construction					
River sediment baseline	pH, TP, TN, Zn, Cu, Pb, Hg, As, Cd	All current and new sampling points (see Figure VI.1 and VI.2 in EIA)	One sample per site analysed before construction commences	IAs	PMO
Aquatic baseline	phytoplankton, zooplankton, mollusks, crustaceans and aquatic insects	Three sites in upstream, midstream and downstream of Qing River in Enshi and Lichuan	One-time sampling: November-December 2014	Hubei Wuhan EMS	PMO
CONSTRUCTION STAGE					
Internal monitoring					
Dust and noise	TSP, L_{Aeq}	At construction site boundaries	One 24-hr* continuous sampling period each week, during construction activity	IAs and contractor	PMO
Odor	H ₂ S, NH ₃	Nearest residence from each dredge spoil treatment site (5 in Enshi; 3 in Lichuan)	1 day (24-hr* continuous sampling) per week, during construction activity	IAs and contractor	PMO
Surface water quality	SS, TN, TP	Discharge water from each dredge spoil treatment site	Once day per week during construction activity	IAs and contractor	PMO
Solid waste	Organic matter, Zn, Cu, Pb, Hg, As, Cd moisture content, phenols, mineral oil,	Treated dredge spoil ready for disposal. At each treatment site (5 in Enshi; 3 in Lichuan)	Once per week	IAs and contractor	PMO
External monitoring					
Dust and noise	TSP, L_{Aeq}	At nearest sensitive receptor for each construction site	1 day (24-hr* continuous sampling) per month during construction activity	EMS	PMO
Surface water quality and flow	SS, flow velocity	(i) For SS: selected points 200 m downstream of active dredging operations	(i) For SS: 2 times per week at each site. (ii) For flow velocity: 12 times per year (once a month) – to detect any seasonal changes)	EMS	PMO
Solid waste	Organic matter, Zn, Cu, Pb, Hg, As, Cd moisture content, phenols,	Treated dredge spoil ready for disposal. At each treatment site (5 in Enshi; 3 in Lichuan)	Once per month at each site	EMS	PMO

Item	Parameter	Monitoring Location	Monitoring Frequency and Duration	Who Implements	Who Supervises
	mineral oil,				
Fauna habitat	Compliance of the new structures with the fauna-habitat designs	River embankments and constructed wetlands	Immediately upon completion of each section or site, and while contractor and machinery are present	Wetland specialist	PMO
OPERATIONAL STAGE					
Internal monitoring					
Waste water quality	pH, COD, BOD, NH ₃ -N, TN, TP, E.coli,	At outlets of WWTPs	Continuous routine monitoring	WWTP O&M Units	PMO, Enshi Prefecture EPB
Solid waste (sewage sludge)	Organic matter, Zn, Cu, Pb, Hg, As, Cd moisture content, phenols, mineral oil	At Dashaba and Lichuan WWTP sludge treatment units. Sludge ready for landfill disposal.	Weekly	WWTP O&M Units	PMO, Enshi Prefecture EPB
External monitoring					
Air quality – odor	NH ₃ , H ₂ S	Nearest residence from each WWTP	2 days per month for 12 consecutive months. Monitoring can cease when 100% compliance is achieved 3 consecutive times at the same site	EMS	PMO, Enshi Prefecture EPB
GHG emission	Total CO _{2e} emissions of the 3 WWTPs – see Section IV.G of EIA	At all WWTPs	Starting at operation of each WWTP: 4 times per year for first 2 years; then once a year for 3 years	GHG accounting specialist	PMO
Noise	L _{Aeq}	At all WWTP boundaries	2 days per month for 12 consecutive months. Monitoring can cease when 100% compliance is achieved 3 consecutive times at the same site	EMS	PMO, Enshi Prefecture EPB
Surface water quality and flow	SS, flow velocity	At entrance of all tributaries dredged by project + Qing River, including downstream of Enshi and Lichuan Cities	12 times per year (once a month), to detect any seasonal changes)	Hubei Wuhan EMS (or local EMS?-but then other money needed)	PMO, Enshi Prefecture EPB
Aquatic habitat quality	phytoplankton, zooplankton, mollusks, crustaceans and aquatic insects	Threes sites in upstream, midstream and downstream of Qing River in Enshi and Lichuan	Twice per year, in July and November**, for 3 years after completion. Two samples per site.	Hubei Wuhan EMS	PMO, Enshi Prefecture EPB

Table A1.5: Monitoring Indicators and Applicable PRC Standards

Phase	Indicator	Standard
Construction	Dust and noise at construction site boundary	Construction Site Noise Limits (GB12523–1990) Emission Standard of Environmental Noise for Boundary of Construction Site (GB 12523-2011)
	Dust and noise at sensitive receptors	Class II Ambient Air Quality Standard (GB 3095-1996) Class II and III standards of the Environmental Quality of Noise Standard (GB3096-2008)
	Odor (NH ₃ , H ₂ S)	Emission Standards for Odor Pollutants (GB 14554-93)
	Discharge water quality (dredge spoil treatment sites)	Integrated Wastewater Discharge Standard (GB 8978-1996) Table 4
	Treated dredge spoil quality	Disposal of Sludge from Municipal Wastewater Treatment Plants - Sludge Quality for Disposal to Landfill (GB/T23485-2009) Table 2.
	Surface water quality	Surface Water Ambient Quality Standard (GB3838–2002) Class III

Phase	Indicator	Standard
Operation	Odor (NH ₃ , H ₂ S) at WWTPs	Emission Standard for Odor Pollutants (GB14554—93) Class II
	Noise at WWTPs	Emission Standard for Industrial Enterprises Noise at Boundary (GB 12348-2008)
	Wastewater discharge from WWTPs	Discharge Standard for Municipal Wastewater (CJ3082-1999)
	Sewage sludge	Disposal of Sludge from Municipal Wastewater Treatment Plants - Sludge Quality for Disposal to Landfill (GB/T23485-2009) Table 2.
	Built habitats (embankments and wetlands)	Survival rate of planted vegetation >75% Comparison against baseline fauna species present (section V.D.1 EIA)
	Aquatic habitats	Comparison against baseline established pre-construction.

17. **Compliance evaluation.** Independent evaluation of the compliance with EMP measures will be undertaken by the LIEC. The PMO will report the LIEC's independent evaluation to ADB on the project's adherence to the EMP, along with information on project implementation, environmental performance of the contractors, and environmental compliance through quarterly project progress reports and semi-annual environmental monitoring reports (Table A.6). The LIEC will support the PMO in developing the semi-annual environmental monitoring reports. The reports should identify any environment related implementation issues and necessary corrective actions, and reflect these in a corrective action plan. Operation and performance of the project GRM, environmental institutional strengthening and training, and compliance with all covenants under the project will also be included in the report.

18. **Environmental acceptance reporting.** Following the PRC Regulation on Project Completion Environmental Audit (MEP, 2001), within three months after the completion of major components, an environmental acceptance report for each shall be prepared by a licensed environmental monitoring institute. The report will be reviewed and approved by the Enshi Prefecture EPB and reported to ADB (Table A1.6). The environmental acceptance reports of the component completions will indicate the timing, extent, effectiveness of completed mitigation and of maintenance, and the needs for additional mitigation measures and monitoring during operations.

Table A1.6: Reporting Plan

Reports		From	To	Frequency
Pre-construction Phase				
Project readiness	Project Readiness report	LIEC	ADB	Once before construction
Construction Phase				
Internal monitoring	Environmental monitoring report	IAs	PMO, LIEC	Monthly
External monitoring	Environmental monitoring report	Enshi and Lichuan EMS	ETMAP EPB, PMO, IAs	Monthly
Compliance monitoring	Environment progress and monitoring reports	PMO, LIEC	ADB	Semi-annual
Acceptance report	Environmental acceptance report	Licensed acceptance institute	ETMAP EPB	Once; within 3 months of completion of physical works
Operational Phase				
Internal monitoring	Environmental monitoring report (first three years of operation)*	IA	PMO, LIEC	Quarterly
Compliance monitoring	Compliance with EMP measures report (first year of operation)	LIEC	ADB	Quarterly
External monitoring	Environmental monitoring report (first three years of operation)*	Enshi and Lichuan EMS	ETMAP EPB, PMO, IAs	Quarterly

Reports		From	To	Frequency
Progress report	Environmental progress report	PMO	ADB	Semi-annual

ADB = Asian Development Bank; EPB = Environment Protection Bureau; EMS = Environmental Monitoring Station; LIEC = Loan Implementation Environment consultant; PMO = Project Management Office

* 3 years monitoring from the date of the acceptance report. Reporting frequencies were discussed and agreed between the PMO, IAs and EPD in August 2014.

F. Training

26. The capacity of the PMO and IAs and their Environment and Social Officers to implement this EMP will be strengthened through training. Initially the training will be in formal workshops then will continue with on the job training by the LIEC. The formal training will cover EMP implementation, supervision, and reporting, and the Grievance Redress Mechanism (Table A1.7). Training will be facilitated by the LIEC with the support of other experts under the loan implementation consultant services. Attendees from the IAs will be staff from their environmental units and supervising engineers.

27. Training of WWTP operation and maintenance unit supervisors in environmental safeguards, occupational safety and greenhouse gas emission reduction will be undertaken by a contracted wastewater treatment specialist.

Table A1.7: Training Program

Training	Attendees	Contents	Times	Total Days	No. trainees
EMP implementation	PMO, IAs, contractors	EMP roles and responsibilities, monitoring, supervision, reporting procedures, review of experience (after 12 months)	Once prior to, and once after, the first year of project implementation	4	16
Grievance Redress Mechanism	PMO, IAs, contractors	Roles and responsibilities, Procedures	Once prior to, and once after, the first year of project implementation	2	16
Environmental protection and monitoring	PMO, IAs, ETMAP EPB	Pollution control on construction sites (air, noise, waste water, solid waste)	Once (during project implementation)	2	20
WWTP operation safeguards	WWTP O&M supervisors	Operation of treatment processes, environmental safeguards and safety (UV disinfection operation)	Once (before plant commissioning)	2	10
WWTP operation - SRT and GHG	WWTP O&M supervisors	Sludge retention time and greenhouse gases. Optimising performance and low emissions.	Once (before plant commissioning)	1	10
Constructed wetlands and embankments	PMO, IAs, CGB, WRAPBs	Management and maintenance of the constructed wetlands and fauna habitats of the project embankments	Once prior to, and once after, the first year of project implementation	2	20

CGB = City Garden Bureau, SRT = Sludge Retention Time, WRAPB = Water Resource and Aquatic Products Bureaus.

G. Grievance Redress Mechanism

28. A Grievance Redress Mechanism (GRM) has been established as part of the project EMP to receive and manage any public environmental and/or social issues which may arise due to the Project. The PMO will ensure that potentially affected communities are informed about the GRM at an early stage of the project. During the project preparation phase, the IAs, PMO and ETMAP EPB personnel received training on the GRM from the PPTA team.

29. The PMO is the lead agency responsible for overall management, implementation, and reporting of the GRM. The PMO Environment and Social Officers coordinate the GRM and: (i) instruct the IAs and contractors on their responsibilities in the GRM; (ii) establish a simple registry system, to document and track grievances received (including forms to record complaints and how they have been resolved); and (iii) report on progress of the GRM in the semi-annual environmental monitoring and progress reports to ADB.

30. Each IA has assigned a member of staff, who is responsible for implementation of the GRM and other relevant aspects of the EMP. Tasks include keeping a record of complaints. At least two months before construction commences, these contacts will be publicized at each IA construction site and forwarded to local village committees to ensure that entry points to the GRM are well known.

31. **GRM readiness procedures prior to start of construction.** To be successful and reduce the likelihood of public concerns, the following measures will be implemented before any construction:

- 1) On-site procedures: (i) all contractors and work staff will be briefed by the PMO on the GRM. Contractors and workers will be instructed to be courteous to local residents and, in the event they are approached by the general public with an issue, to immediately halt their work and report the issue to the foreman; (ii) at least one sign will be erected at each construction site providing the public with updated project information, the GRM process, and contact names and details for the GRM entry points.
- 2) Non-project agencies: Prior to project construction, the PMO will notify all relevant agencies about the project and GRM, so that if these agencies receive complaints, they know to contact the PMO and follow up as necessary. This will include, but not be limited to, local EPBs, the local courts, and police.

32. The procedure and timeframe for the GRM is shown in Figure A1.1 and is as follows.

Stage 1 (maximum 10 working days): Affected persons can submit a written or oral complaint to the contractors or IAs. Complaints received by any other institutions will be referred back to the IA for action. The IA will notify the PMO of the complaint within two days. The PMO will enter the complaint in the Complaints Register.

The contractor, in consultation with the IA, attempts to resolve the issue directly with the affected person. Within five working days of receiving the complaint, the agency will provide clear advice to the affected person on the proposed corrective action and by when it will be taken. The corrective action will be implemented not later than 10 working days from receipt of the complaint. The PMO will enter the resolution in the Complaints Register.

If quick corrective action is not possible, or the IA is unsure how to proceed, or the complainant is not satisfied by the initial corrective action, then the complaint will be referred to the PMO for Stage 2.

Stage 2 (maximum 5 working days): For complaints not resolved in Stage 1, Stage 2 is initiated. The PMO Environment Officer, contractor, and IA will meet with the affected person and together discuss the issue and identify possible solutions. At the meeting, a possible solution will be agreed upon. The contractor or IA, as appropriate, will implement the agreed solution and report the outcome to the PMO.

Stage 3 (maximum 10 working days): If Stage 2 is unsuccessful (i.e. no solution can be identified or the affected person is not satisfied with the proposed solution) the PMO will convene a stakeholders meeting and involve the Project Leading Group to ensure that any needed inputs from other project agencies are coordinated. The workshop will identify a solution acceptable to all. The agreed solution will be implemented and a report on the outcome provided to the PMO.

The above steps relate to the construction phase where most complaints will be directed in the first instance to the contractor or IA. During initial operations, complaints will be

received by the operations and maintenance (O&M) units of the facilities.

PMO will inform ADB of all complaints and actions under the GRM and include all relevant documents in its progress reports to ADB.

33. Any costs incurred to receive, document, and address grievances will be paid by the PMO. The grievance procedures will remain valid throughout the duration of project construction and the first two years of project operation.

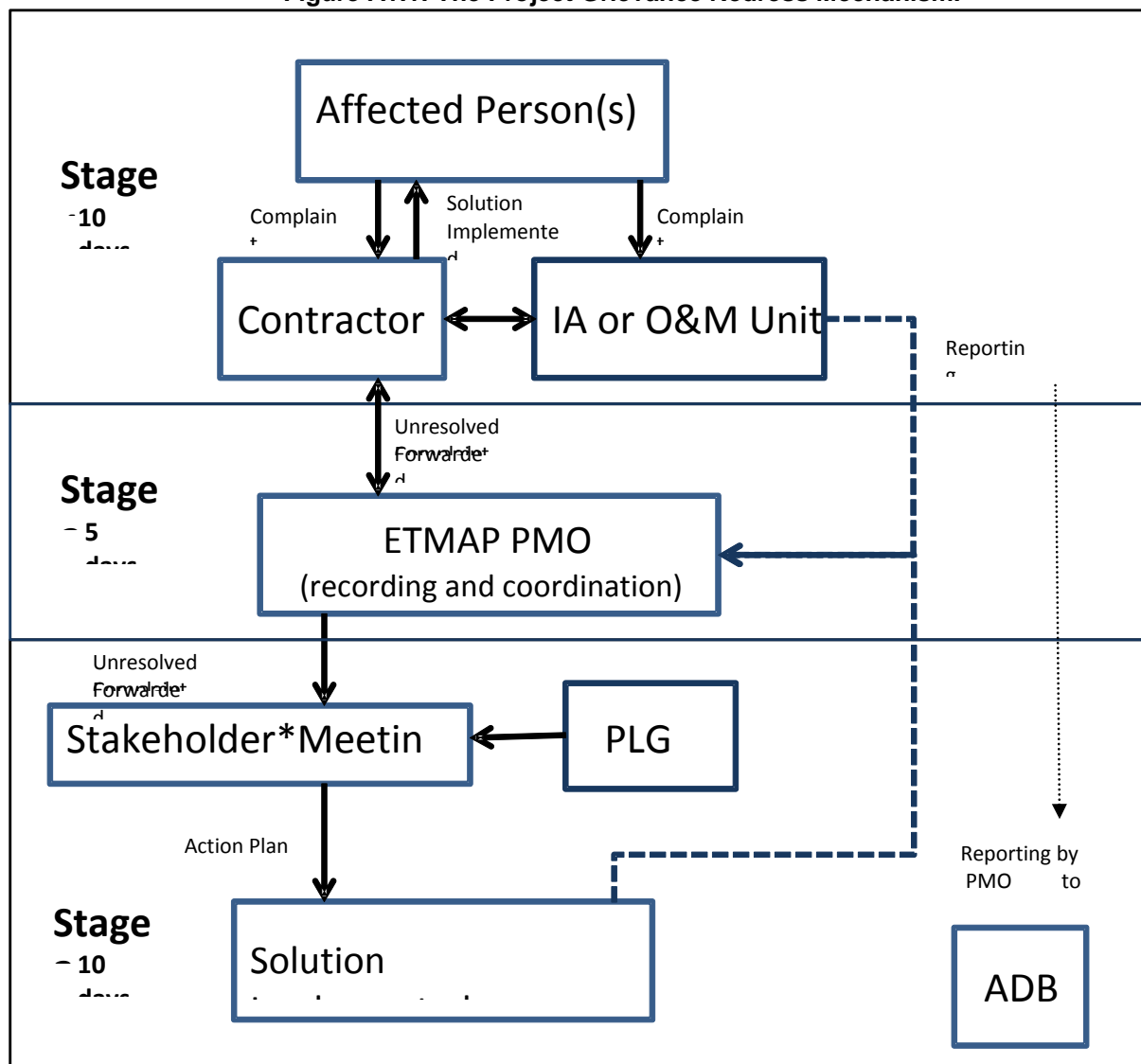
34. The tracking and documenting of grievance resolutions by the PMO will include the following elements: (i) tracking forms and procedures for gathering information from project personnel and complainant(s); (ii) regular updating of the GRM database by the PMO Environment and Social Officers; (iii) processes for informing stakeholders about the status of a case; and (iv) a simple but effective filing system, so that data can be retrieved for reporting purposes, including reports to ADB.

35. No part of the project GRM affects the existing rights of affected persons to take their complaints to the courts. Also, at any time in this process, an affected person may contact ADB (East Asia Department) directly, including the ADB Resident Mission in the PRC.

36. If the above steps are unsuccessful, people 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 (in this case, the ADB East Asia Department). Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.³¹

³¹See: www.adb.org/accountability-mechanism

Figure A1.1: The Project Grievance Redress Mechanism.



* Stakeholders involved will depend upon the nature of the complaint and will include as a minimum the affected person(s), PMO, IA (for the city), City EPB. Other stakeholder agencies relevant to particular concerns can be called upon to contribute through the PLG.

Note: AP = affected person, EPB = environmental protection bureau, O&M = operation and maintenance, PMO = project management office; IA = Implementing Agency.

H. Cost Estimates

37. This section provides an estimate of the cost of implementing the EMP. The cost comprises three categories: mitigation measures (Table A1.2); environmental monitoring (Table A1.4); and, training (Table A1.6). Refer to Tables A1.2, A1.4 and A1.6 for more details of each item. Costs are presented for the construction and operational phases of the project over five years. The costs do not include: (i) detailed design revisions and adjustments; (ii) Items 3.1-3.3 and 3.5-3.7 in Table A1.2, which are operating costs of the wastewater treatment plants (WWTPs); and (iii) the salaries of PMO environment staff. Costs for the mitigation measures are based on estimates in the domestic EIA and the experience of the PPTA team and PMO in other projects. Costs for the monitoring and training are estimates based on the experience of the PPTA team in similar projects and discussed with the PMO.

38. The total estimated cost is CNY4.8 million over five years (Table A1.8). It is anticipated that about CNY2.4 million (51%) will be paid through the construction contractors, CNY1.8 million (37%) paid by the PMO, and CNY0.77 million (11%) from the ADB loan consultant services. The remaining costs would be paid by the Implementing Agencies. Total costs are small given the large scale of the project and when spread over five years.

Table A1.8. Estimated cost (CNY) of implementing the EMP over Five Years. See Tables A1.2, A1.4 and A1.7 for details of activities.

Item	Unit	Unit cost	No. units	Total cost 5 years	Cost per year	PMO	IA Enshi	IA Lichuan	Contractor Enshi	Contractor Lichuan	ADB loan
MITIGATION (EMP Table A1.2)											
PRE-CONSTRUCTION											
1.1 Public consultations	Meeting	10,000	3	30,000	6,000		15,000	15,000			
1.2 LIEC	Consultant PM	35,000	12	420,000	84,000						420,000
1.2 Wetland Specialist	Consultant PM	35,000	3	105,000	21,000						105,000
1.3 GRM	Lumpsum	100,000	1	100,000	20,000	100,000					
1.3 Training	Lumpsum	100,000	1	100,000	20,000	100,000					
CONSTRUCTION											
2.1 Domestic wastewater	Lumpsum	90,000	1	90,000	18,000				60,300	29,700	
2.1 Construction w'water	Lumpsum	280,000	1	280,000	56,000				196,000	84,000	
2.1 Handling materials	Lumpsum	210,000	1	210,000	42,000				140,700	69,300	
2.2 Dust management	Lumpsum	300,000	1	300,000	60,000				200,000	100,000	
2.2 Vehicle emissions	Lumpsum	150,000	1	150,000	30,000				100,500	49,500	
2.2 Odor	Lumpsum	45,000	1	45,000	9,000				30,150	14,850	
2.3 Noise and vibration	Lumpsum	140,000	1	140,000	28,000				89,600	50,400	
2.4 Domestic waste	Lumpsum	50,000	1	50,000	10,000				30,000	20,000	
2.4 Construction waste	Lumpsum	250,000	1	250,000	50,000				160,000	90,000	
2.5 Soil erosion	Lumpsum	650,000	1	650,000	130,000				429,000	221,000	
2.7 Site hygiene	Lumpsum	20,000	1	20,000	4,000				10,000	10,000	
2.7 Community safety	Lumpsum	30,000	1	30,000	6,000				20,100	9,900	
2.7 Site safety	Lumpsum	25,000	1	25,000	5,000				15,000	10,000	
Sub-total	Lumpsum			2,995,000	599,000	200,000	15,000	15,000	1,481,350	758,650	525,000
MONITORING (EMP Table A1.4)											
PRE-CONSTRUCTION											
Second sediment sampling	Lumpsum	50,000	1	50,000	10,000	50,000					
Aquatic invertebrates	EMS-Wuhan	40,000	1	40,000	8,000	40,000					
CONSTRUCTION											
Internal monitoring											
Dust and noise	Lumpsum	50,000	1	50,000	10,000				25,000	25,000	
Odor	Lumpsum	50,000	1	50,000	10,000				25,000	25,000	
Water quality	Lumpsum	50,000	1	50,000	10,000				25,000	25,000	

Item	Unit	Unit cost	No. units	Total cost 5 years	Cost per year	PMO	IA Enshi	IA Lichuan	Contractor Enshi	Contractor Lichuan	ADB loan
Solid waste	Lumpsum	50,000	1	50,000	10,000				25,000	25,000	
External monitoring											
Dust and noise	EMS-local	360,000	1	360,000	72,000	360,000					
Water quality+flow speed	EMS-local	180,000	1	180,000	36,000	180,000					
Solid waste	EMS-local	120,000	1	120,000	24,000	120,000					
OPERATION											
External monitoring											
Air quality	EMS-local	120,000	1	120,000	24,000	120,000					
Noise	EMS-local	60,000	1	60,000	12,000	60,000					
GHG emissions	Consultant PM	35,000	7	245,000	49,000	245,000					
Water quality+flow speed	EMS-local	180,000	1	180,000	36,000	180,000					
Aquatic invertebrates	EMS-Wuhan	115,000	1	115,000	23,000	115,000					
Sub-total				1,670,000	334,000	1,470,000	0	0	100,000	100,000	0
TRAINING (EMP Table A1.7)											
EMP implementation	Participant/day	600	80	48,000	9,600	48,000					
GRM	Participant/day	600	32	19,200	3,840	19,200					
Environmental monitoring	Participant/day	600	40	24,000	4,800	24,000					
WWTP-safeguards	Participant/day	1,000	20	20,000	4,000	20,000					
WWTP-sludge,GHG	Participant/day	1,000	10	10,000	2,000	10,000					
Sub-total				121,200	24,240	121,200	0	0	0	0	0
GRAND TOTAL CNY				4,786,200	957,240	1,791,200	15,000	15,000	1,581,350	858,650	525,000
Total USD (USD1=CNY6.1)				784,623	156,925	293,639	2,459	2,459	259,238	140,762	86,066
Proportion of total (%)				100%		37.4	0.3	0.3	33.0	17.9	11.0

EMS = Environmental Monitoring Station; GRM = Grievance Redress Mechanism; LIEC = Loan Implementation Environmental Consultant; PM = person-months; WWTP = wastewater treatment plant.
Notes: Item 1.1 (design fauna habitats) – assume 1 month before construction + 2 months during construction. Item 1.3 (training) – costs are for materials and venues (trainer costs already included under Item 1.2-LIEC).

ANNEX A. DRAFT TERMS OF REFERENCE: PMO ENVIRONMENT OFFICER

I. BACKGROUND

1. Development projects which are assisted by the Asian Development Bank (ADB) routinely require the establishment of a Project Management Office (PMO). The PMO is responsible for project implementation and comprises the provincial and/or municipal agencies involved in the project. Compliance with the Loan and Project Agreements includes implementation of an Environment Management Plan (EMP), which is prepared as part of the project environment impact assessment. The EMP is the critical guiding document to manage, monitor, and report upon potential project environmental impacts. Implementation of the EMP is a full-time task. For this reason, the PMO assigns a full-time officer for this role. These terms of reference describe the requirements for this officer.

II. SCOPE AND DURATION OF WORK

2. The officer will work on behalf of the PMO to implement the project EMP. The officer will report directly to the PMO. The position is for the entire project duration (generally five years).

III. QUALIFICATIONS

3. The officer will have: (i) an undergraduate degree or higher in environmental management or related field; (ii) at least five years of experience in environmental management, monitoring, and/or impact assessment; (iii) ability to communicate and work effectively with local communities, contractors, and government agencies; (iv) ability to analyze data and prepare technical reports; (v) willingness and health to regularly visit the project construction sites and in different seasons; and (vi) ideally, proficiency in spoken and written English.

IV. DETAILED TASKS

4. The PMO Environment Officer will have a detailed understanding of the project EMP and supporting documents, including the domestic environmental reports, the project EIA, and project environmental assurances. The officer will have the following tasks.

- (i) Assess whether the EMP requires updating due to any changes in project design which may have occurred after the EMP was prepared.
- (ii) Distribute the Chinese language version of the EMP to all relevant agencies, including the implementing agencies, provincial and municipal agencies for environment protection. This should occur at least three months before construction begins.
- (iii) Conduct meetings with agencies as necessary to ensure they understand their specific responsibilities described in the EMP.
- (iv) Ensure that relevant mitigation, monitoring and reporting measures in the EMP are included in the bidding documents, contracts and relevant construction plans.
- (v) Confirm that the Implementing Agencies (IAs) responsible for the internal environment monitoring described in the EMP understand their tasks and will implement the monitoring in a timely fashion.
- (vi) At least two months before construction begins, establish and implement the project Grievance Redress Mechanism (GRM) described in the EMP. This will include: (a) prepare a simple table and budget identifying the type, number and cost of materials needed to inform local communities about the GRM and starting dates and scope of construction; (b) design, prepare and distribute these materials, and plan and conduct the community meetings; (c) prepare a form to record any public complaints; (d) prepare a summary table to record all complaints, including dates, issues, and how

they were resolved; and (e) ensure that all relevant agencies, including contractors, understand their role in the GRM.

- (vii) Prior to construction, ensure that IAs and their contractors have informed their personnel, including all construction workers, of the EMP requirements. This will include all mitigation measures relating to impacts to air, water, noise, soil, sensitive sites, ecological values, cultural values, worker and community health and safety, respectful behavior when communicating with local communities, and responding to and reporting any complaints.
- (viii) During project construction, make regular site visits with LIEC to assess progress, meet with contractors and/or local communities, and assess compliance with the EMP.
- (ix) Ensure that all relevant agencies submit required progress reports and information, including environmental monitoring and reports of any issues or grievances.
- (x) Compile, review, and store environmental progress reports from the IAs, records of any grievances, and any other relevant issues. Maintain digital copies of all information. When necessary, enter data into summary tables in digital format (e.g. to transfer records of grievances from hard copy forms). Ensure that all information is stored in the PMO filing system, backed up, and can be easily retrieved.
- (xi) Prepare semi-annual environment progress reports.
- (xii) Work closely with the PMO, IAs, loan implementation consultants, and other agencies and personnel as necessary to conduct these tasks.

V. REPORTING REQUIREMENTS

Semi-annual environment monitoring reports, using the template provided by ADB or a domestic format reviewed and approved by ADB.

VI. LOGISTICAL SUPPORT PROVIDED BY PMO TO THE ENVIRONMENT OFFICER

- (i) Provision of hard and soft copies of the project EMP, domestic and project environmental reports, feasibility study reports, loan and project agreements, maps, and other supporting materials as necessary to ensure the officer can implement the tasks.
- (ii) Vehicle transport, office materials, and other logistical support as necessary for the officer to visit the project construction sites and local communities, arrange and conduct meetings, and prepare and distribute consultation materials.
- (iii) Overall coordination, including review of the draft semi-annual monitoring reports and final responsibility for submission of the monitoring reports to ADB.

ANNEX B. DRAFT TERMS OF REFERENCE: LOAN IMPLEMENTATION ENVIRONMENTAL CONSULTANT

I. BACKGROUND

1. Implementation of the Hubei Enshi Qing River Upstream Environment Rehabilitation Project will be overseen and coordinated by a Project Management Office (PMO), established within the Enshi Prefecture Development and Reform Committee. The PMO will be assisted by a Loan Implementation Consultant team. The Loan Implementation Environmental Consultant (LIEC) will be a part of this team and will assist the PMO with implementation of the project Environmental Management Plan (EMP).

II. SCOPE AND DURATION OF WORK

2. This position could be a firm or an individual engaged by the PMO. It is an independent position. It is not part of the PMO in-house environmental team or the implementing agencies. The specialist will report directly to the PMO. The position is for the entire project duration (5 years). The LIEC should be recruited as soon as possible after loan effectiveness, as the first task is to confirm project environmental readiness (Table A1.3).

III. QUALIFICATIONS

3. The specialist will have: (i) an undergraduate degree or higher in environmental management or related field; (ii) at least five years of experience in environmental management, monitoring, and/or impact assessment; (iii) familiarity with ADB project management requirements and national environmental management procedures; (iv) ability to communicate and work effectively with local communities, contractors, and government agencies; (v) ability to analyze data and prepare technical reports; (vi) willingness and health to regularly visit the subproject sites; and (vii) proficiency in spoken and written English.

IV. TASKS

Before construction

- (i) Ensure project environmental readiness, including: (i) checklist in Table A1.3 of the EMP is achieved; (ii) all contractor contracts include, and will comply with, the EMP; and (iii) relevant sections of the EMP are incorporated in construction plans and contracts.
- (ii) Assist the PMO to implement the GRM, including: (i) establish and publicize the GRM; and (ii) collate and evaluate grievances received.
- (iii) Develop procedures to: (i) monitor EMP implementation progress; (ii) collate and evaluate data collected in the EMP environmental monitoring program; and (iii) prepare and submit the semi-annual environmental monitoring reports to ADB (to continue until Project Completion Report).
- (iv) Undertake training of project agencies as required by the EMP training plan.
- (v) Provide hands-on support and on-the-job training to the PMO, IAs and contractors on the specific requirements of the EMP as required.

During project implementation

- (i) Undertake site visits to all IAs during subproject construction and operating phase.
- (ii) Assist in the ongoing public consultation process as described in the project EIA.
- (iii) Conduct EMP compliance assessments, identify any environment-related implementation issues, and propose necessary responses in corrective action plans.
- (iv) Undertake training of project agencies as required by the EMP training plan.
- (v) Assist PMO to prepare semi-annual environmental monitoring progress reports for submission to ADB.