



Combined Project Information Documents / Integrated Safeguards Datasheet (PID/ISDS)

Appraisal Stage | Date Prepared/Updated: 15-Jan-2018 | Report No: PIDISDSA21046



BASIC INFORMATION

A. Basic Project Data

Country China	Project ID P158760	Project Name Jiangxi Integrated Rural and Urban Water Supply and Wastewater Management Project	Parent Project ID (if any)
Region EAST ASIA AND PACIFIC	Estimated Appraisal Date 22-Jan-2018	Estimated Board Date 29-Mar-2018	Practice Area (Lead) Water
Financing Instrument Investment Project Financing	Borrower(s) PEOPLE'S REPUBLIC OF CHINA	Implementing Agency PIU of Jiangxi Provincial Water Investment Group Under PMO of Jiangxi Provincial Water Bureau	

Proposed Development Objective(s)

The Project Development Objectives (PDOs) are to increase access and improve operating efficiency of the water supply system, and pilot improved wastewater management services in selected counties in Jiangxi Province.

Components

Expansion, Rehabilitation, and Modernization of Water Supply System
Demonstration of Rural Wastewater Management Services
Public Engagement and Project Management

Financing (in USD Million)

Financing Source	Amount
Borrower	164.74
International Bank for Reconstruction and Development	200.00
Total Project Cost	364.74

Environmental Assessment Category

B - Partial Assessment

Decision

The review did authorize the preparation to continue



Other Decision (as needed)

B. Introduction and Context

Country Context

1. ***With an estimated population of 1.4 billion, China has experienced decades of rapid economic growth, with Gross Domestic product (GDP) recently averaging 9.6 percent per annum from 1978 to 2015¹.*** Since the early 1980's, China has been shifting towards a market-based economy with Chinese characteristics, resulting in rapid economic and social transformations that have lifted more than 800 million people out of poverty. In 2015, China's GDP was estimated at close to US\$11 trillion, making it the second largest economy in the world. China achieved all the Millennium Development Goals (MDGs) by 2015 and made a major contribution to the achievement of the MDGs globally.
2. ***In line with the country's impressive growth, China has made remarkable progress in improving water supply and wastewater management over the last three decades.*** China markedly improved access to water supply in urban areas (where access increased from 67 to 95 percent between the early 1990s and 2015), as well as in rural areas (where access increased from 56 to 93 percent on the premises)². Wastewater access nationwide improved from 24 to 65 percent over the same period, mostly in urban areas. Despite these significant accomplishments, there is still a need to improve water supply and wastewater management, particularly in rural areas³. China's rural population accounts for 50 percent of the total population, yet only 73 percent have access to a piped water supply. While most rural household have some form of on-site sanitation (often basic septic tank facilities⁴), safe and complete wastewater management services in rural areas are low. Nationwide, only eight percent of the rural domestic sewage is collected and properly treated, and mostly in coastal regions. The rural-urban service gap is becoming increasingly noticeable, and Jiangxi Province exemplifies this growing gap between urban and rural wastewater management service provisions.
3. ***Recognizing this growing challenge, the Central Government placed rural development at the core of its 12th and the newly approved 13th Five Year Plan (13th FYP 2016-2020).*** In line with the China's concept of green-growth (including that lucid waters and lush mountains are invaluable assets), the newly approved FYP aims to bridge the gap between urban and rural services provision and bring the same standard of living enjoyed by urban residents to rural population. As is the case for most provinces in China - including Jiangxi - the objective of improving rural water supply and wastewater

¹ National Data published by National Bureau of Statistics of China

² Joint Monitoring Program, 2015

³ China's administrative structure consists of the following hierarchical levels: Central (capital) level, provincial level, prefecture level, county/district level, and township /town level. Rural areas refer to the areas at the township/town level and below. A township/town usually consists of a township-seat and a quite number of villages in the jurisdiction of the township/town, some are nearby and some are remote. Urban areas in China refer to the residential, industrial and business areas at the central, provincial, prefecture and county levels.

⁴ Most rural townships/towns have on-site sanitation and rudimentary discharging pipes, and households collect wastewater using septic tanks and use the waste as fertilizers.



management has been translated into the New Countryside Development Program (NCDP), along with specific targets and milestones. The NCDP aims to reduce disparities between cities and the countryside by encouraging urban cities to invest in the development of their surrounding countryside. As part of the response to these policy directives, the Jiangxi provincial and county governments are now proactively planning and implementing investment programs aimed at improving water supply and wastewater management services in the province; including, where feasible, by integrating rural townships into the service areas of larger urban utilities located in county cities/county seats, and by developing independent piped water supply schemes in township-seats that cannot be connected to larger systems of the county seats. The provincial plans also aim to improve the existing water supply service quality and capacity in peri-urban areas of county seats/cities. Moreover, the development of complete wastewater management services, from improved household toilet, to collection, transport, treatment and safe final disposal, is at the core of the province's development goals.

Sectoral and Institutional Context

4. Jiangxi is in southeast China and covers an area of approximately 166,919 square kilometers, with an estimated population of 45.92 million. The provincial economy ranks 18th among China's 34 provinces, and its GDP per capita is about US\$ 5,657 (below the national average of US\$7,924). Agriculture is the main economic activity in the region, and accounted for 10.6 percent of the provincial GDP in 2016, while employing 48 percent of the population. Jiangxi Province is divided into 11 prefecture-level cities; and these cities are further subdivided into 100 "county-level divisions", of which there are 11 county-level cities (big counties), 22 districts, and 67 counties. Twenty-one (21) of the counties in Jiangxi Province are designated by the national government as "poverty-stricken zones", and thus specifically targeted for poverty alleviation and urgent development efforts.

Current Situation on Water Supply Management

5. As per the 2015 data from the Provincial Water Resources Department (PWRD), about 90% of the urban population has access to piped water supply (which is still lower than the national average of 95%). However, recent improvements have not been uniform, and rural areas are lagging behind. Only 65 percent of the rural population has access to piped water supply, and this is below the national average of 73 percent. In rural areas, for those households with access to piped water supplies, the quality of water services (in terms of both water quantity and water quality) is low due to aged and/or poorly constructed water supply systems that often have fallen into disrepair and/or have insufficient capacity to supply all water users. For those households without access to piped water supplies, residents rely on untreated groundwater drawn from individual borehole wells and small electric pumps or hand pumps. Even some poorer households who have access to piped water systems still choose to use groundwater for washing and bathing – to save money on water fees. Most of these shallow groundwater wells are contaminated to different extents by raw sewage and surface pollutants, as wastewater management systems in most rural towns are lacking. Some residents who have neither piped supply, nor groundwater supplies often resort to drawing water from nearby streams, or purchasing such water from others (and the quality of these water sources is unknown). The major challenge for rural areas is to extend water supply access and provide quality water services that meet the same national standards for drinking water supply as those in urban areas. At the same time, Jiangxi Province aims to continue improving water services in urban areas to also meet national standards.

6. In Jiangxi Province, it is the provincial government that sets policy priorities aiming to ensure affordable water supply services are provided in both urban and rural areas (and peri-urban areas). In line with the national rural development plan, the Jiangxi provincial government's 13th FYP (2016-2020) has a specific objective to extend piped



water access to reach approximately 90 percent of the rural population. In practice, water supply provision in Jiangxi Province is the responsibility of local county governments; and water service delivery can be provided directly through a public utility (run by the county water resources bureau), or through different types of private or semi-private operators. In some rural townships, small local operators and community managed schemes are the main water service providers; however, these are unregulated and as such, are not considered as a formal service provider. The quality of water service across these different models can vary widely; and in order to upgrade and standardize service levels, the Provincial Water Resources Department (PWRD) is now increasingly delegating water service provision to the Provincial Water Investment Group (PWIG), a state-owned enterprise (SOE) that provides integrated urban and rural water supply services. *[Note: PWIG has been appointed by the Provincial Government to take the lead in preparation and implementation of this Project, along with the support of local governments in the seven project counties.]*

Current Situation on Wastewater Management

7. Jiangxi Province has made progress in wastewater management in urban areas. The Jiangxi Provincial Water Resources Department (PWRD) reports that about 60 percent of wastewater is fully treated in urban areas; and that this is lower than the national average of 65 percent. The provincial 13th FYP (2016-2020) has set a target for the rate of wastewater treatment to increase to 85 percent in urban county-seats by 2020. Government investment programs have been launched and implemented to reach this target.

8. In rural areas, however, only about 3-5 percent of wastewater is currently collected and treated, which is less than the (already low) national average of 8 percent. Most rural households collect wastewater using septic tanks (some others collect it in pits) and use the waste as fertilizer. Improper disposal of wastewater and direct discharge of untreated water into rivers contributes to the contamination of ground and surface waters, which deteriorates the ecological environment and significantly harms public health⁵. In 2015, the provincial government launched a “Pilot Wastewater Management Program for 100 Selected Township/Town-Seats in Rural Areas” (100 Township Wastewater Program). The objective of the 100 Township Wastewater Program was to collect and treat all of the wastewater produced in the selected township/town seats by 2020, and a midterm milestone goal was to collect and treat 80 percent of the wastewater by the second year, i.e. 2017. However, after the first two years of the program, only 20% of the rural households have been connected to the system. The initial results indicate that the program’s objective is unlikely to be fully achieved. Analysis of the 100 Township Wastewater Program indicate a number of key issues that were not well considered and resolved during the design stage and initial program implementation, namely:

- (a) *Wastewater treatment plants were built first, but sewer pipeline networks were delayed:* County government counterpart investments for sewer main pipelines were not allocated in time, which delayed the progress of program implementation; despite the fact that construction of wastewater treatment plants had already been completed with financing from the provincial government;
- (b) *Rural customers/households were not aware of program benefits, and so did not connect:* There is a long history of government subsidies for rural water and wastewater service in Jiangxi; at the same time, where rural wastewater services are of low quality, some residents do not see the value and are not willing to pay.

⁵ A review of China’s Rural Water Management (2015): “approximately 88% of sicknesses and 33% of human deaths were directly linked to unsafe domestic water and nearly 700 million and 180 million people have drunk water containing excessive E. coli bacteria and organic pollutant concentration.”



In this program, some people seemed not to fully understand the importance of wastewater treatment, and some were concerned that connections would damage their homes or decorations. Therefore, difficulties arose in connecting some households under the program.

- (c) *Rural WWTPs had insufficient volumes to operate properly*: Because of the missing or delayed sewer pipes, and limited number of household connections, the wastewater treatment plants were not able to collect sufficient wastewater to function properly; and as a result, many stopped operations; and
- (d) *Wastewater service providers were not able to operate sustainably, and closed down*: Many wastewater treatment plants also stopped operations because the wastewater treatment fees collected from a limited number of customers were not sufficient to cover O&M costs of the plants (rural wastewater fees are set at low levels due to low incomes of township residents).

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

- 9. The Project Development Objectives (PDOs) are to increase access and improve operating efficiency of the water supply system, and pilot improved wastewater management services in selected counties in Jiangxi Province.

Key Results

- 10. **Project Outcomes and PDO indicators**: The following PDO-Level Results Indicators have been selected to measure the project outcomes and accomplishment of PDOs:
 - (1) The number of beneficiaries with new access to piped water supply (number);
 - (2) Reduction in non-revenue water (volume of NRW in m3);
 - (3) Reduction in O&M unit cost of water supply system (RMB/m3)
 - (4) The number of beneficiaries with new connections to sewerage systems (number);

D. Project Description

11. The proposed Project is intended to support the aims of the government to equalize the level of water and wastewater services between urban and rural residents in Jiangxi Province. For water supply, this will include extending coverage of connections and services to previously unconnected rural households; and at the same time expanding, improving and rehabilitating existing urban water systems to better serve nearby areas. The Project also emphasizes improvement of water supply system operations and efficiency in urban and rural areas – through modern metering, monitoring, information, and control, as well as through non-revenue water reductions and energy efficiency. For wastewater, the Project includes a demonstration of complete wastewater management in one pilot township to help show the provincial government how wastewater management services can be provided to currently unserved rural residents. Supporting these above aims, the Project also includes focused studies and technical assistance to make recommendations on future rural water and wastewater policies, standards, and financial models, including potential PPPs (among other topics). Finally, the proposed Project is designed to incorporate important questions of gender equality, public participation, and climate change adaptation. The Project development objectives will be achieved



through the implementation of three project components, which are described below.

A. Project Components

Component 1 - Expansion, Rehabilitation, and Modernization of Water Supply System (total cost \$US326.2 million, IBRD US\$184.8 million)

12. Component 1 focuses on increasing access to water supply services, and on improving the operational efficiency of the water supply system in both urban areas (seven urbanized county seats) and rural areas (42 township/town-seats) in the seven project counties. This component has three sub-components. The first two sub-components increase water supply access by extending and rehabilitating water supply infrastructure (one in urban areas, the other in rural areas). The third sub-component improves operational efficiency in three areas: 1) modernization through Smart water system metering and monitoring, so as to reduce non-revenue water losses and improve overall system control; 2) energy efficiency investments to reduce energy use (and carbon emissions) in the system; and 3) technical assistance to study and support the Jiangxi provincial government with modern management methods, including water pricing policies and alternative financial and ownership models for water supply services. The sub-components are briefly described here.

Subcomponent 1-A: Urban Water Supply Expansion and Rehabilitation: This subcomponent will provide funding for investments in water supply systems serving the seven more-urbanized county-seats. Specific investments and activities include:

- (1) *Rehabilitation and expansion of water treatment plants* - including the development of new water sources; upgrading and rehabilitation of intake structures and pumping; and upgrading and rehabilitation of water treatment plants (to further serve urban areas, and to have capacity to serve the new rural water supply systems of Subcomponent 1-B;
- (2) *Rehabilitation of existing aged/problematic distribution networks, and extension of networks* - into currently unserved peri-urban areas and townships/towns adjacent to the urbanized county seats - including: water service reservoir/tank construction and rehabilitation; pump station construction, replacement, repair and rehabilitation (including the installation of new pumps); pipeline construction, replacement, repair and rehabilitation (including extension to rural areas); and control valve construction, replacement, repair and rehab;
- (3) *Providing household connections and metering* - in areas receiving new/extended water services (including service connection construction and replacement, and customer meter construction and replacement for new household connections).

Note that the pipeline rehabilitation activities of this subcomponent will be coordinated with the NRW identification and reduction activities of Subcomponent 1-C (see below).

Subcomponent 1-B: Rural Water Supply Extension and Rehabilitation: This subcomponent will finance investments to extend water supply services to 42 rural township/town-seats, and to reduce NRW heavily through rehabilitation of existing and aging pipeline systems. The will include, depending on specific needs: capacity expansion of existing water plants at the county seats; rehabilitation of the existing aging systems; construction of new water supply plants at township/town-seats; and extension of distribution infrastructure and pipelines to the township/town-seats. Specific investments and activities include:



- (1) *Construction/extension of transmission/conveyance pipelines* - from county seats to townships (most of the rural subproject areas of this project will be served by expanded capacity from existing water treatment plants in urban areas, additional pipelines will be constructed from the urban areas to supply water in those rural areas);
- (2) *Construction/extension of distribution networks* - into currently unserved towns/townships of project counties (including: pump station construction (with replacement, repair and rehabilitation, and installation of new pumps, as needed); pipe construction; control valve construction (with replacement, repair and rehab., as needed); and
- (3) *Providing household connections and metering* - in areas receiving new/extended water distribution networks (including service connection construction, and customer meter construction for new household connections).

Subcomponent 1-C: Modernization of Water Supply Services: This sub-component focuses on improving the quality of water supply services through modernization activities in three areas: 1) developing smart information systems for improved water supply monitoring and management; 2) improving energy efficiency through audits and remediation; and 3) technical advisory studies for water sector business and management improvements in the project counties of Jiangxi Province.

- (1) *Development of Smart Water Supply Management System:* This activity area provides investment for PWIG to modernize its water metering and monitoring, in order to reduce non-revenue water losses and improve overall system control. PWIG has already been studying options for upgrading their water monitoring, metering, and control capabilities, and has recognized a unique opportunity to develop an innovative and smart water management system. Technology in recent years has made huge advances – with fast and inexpensive broadband, ever more powerful data storage and processing capabilities, and near universal coverage of internet access and smart mobile connectivity. Furthermore, PWIG itself has no ‘legacy’ data and control systems, and would be able design and develop new integrated monitoring systems from the ground up. These conditions combine to create an opportunity to ‘leapfrog’ conventional low-tech meter reading and control systems, and instead develop a powerful Smart water system to benefit PWIG’s operations and customers in Jiangxi. PWIG has already developed advanced and sophisticated plans for a Smart Water Supply Management System and is looking to move forward with implementation. The World Bank, through this subcomponent, will provide financing to help develop the Smart Water Supply Management System in the following three areas:
 - (a) Provision of global technical advice with consulting services for the design⁶ of the Smart Water Supply Management System through a global expert group in the areas of ICT smart systems, water sector expertise and applications development, and leakage detection and control, among other topics;
 - (b) Procurement and installation (with necessary civil works) of the monitoring equipment as an important part of the Smart Water Supply Management System in seven county-seats and 42 township/town-seats. The equipment includes (i) physical sensors and meters: water flow and pressure meters, water quality meters, smart household water meters, leak detection

⁶ The design of Smart Water Supply Management System will be fully financed by WAG/PWIG. Bank will finance the consulting services provided by the global technical experts for the design (about 0.6 million USD of the Bank Loan) under the project.



- equipment; (ii) SCADA systems at treatment plants and pump stations; (iii) the associated wired or wireless data transmission equipment; (iv) local storage and processing equipment; and (v) GIS and mapping services, among others; and
- (c) Remedial measures to fix the problems and defects of the water supply systems in the project areas, which will be detected and monitored by the Smart Water Supply Management System during the period of the system trial operations. These remedial fixes will be coordinated with the activities under Subcomponent 1-A and 1-B.
- (2) *Energy Efficiency Assessment and Remediation*: This activity area provides investment to assess and improve energy efficiency of the water supply systems in the project areas (i.e. the seven county-seats and 42 township-seats). Energy audits at water treatment plants and pump station facilities will be conducted to identify actions that can reduce energy consumption and improve efficiency (i.e. optimizing pump operations to design curves, proper sizing of motors, etc.). Based on the results of the energy audits, operating procedures will be updated, and equipment will be replaced as needed (i.e. procurement and installation of energy efficient pumps, motors, speed/frequency variation, etc.). This subcomponent will include two areas:
- (a) Conducting energy technical audits for all the existing water supply plants and pumping stations in the project areas, and prepare technical audit reports, based on which operating rules and procedures of these physical facilities can be updated; and
- (b) Rehabilitating and replacing facilities or equipment as necessary based on the results from energy technical audits.
- (3) *Studies on Rural Water Supply Management and Policy Recommendations*: This activity area supports technical studies to support the future scale-up of modernized management of water supply service sector in rural Jiangxi Province. Subcomponents 1-A and 1-B apply to the seven selected project counties; but the Jiangxi provincial government has longer-term goals to improve water supply services throughout the entire province. The studies of this subcomponent will support the identification of accelerated and more sustainable sector pricing and management models for improved urban and rural water supply services. Bank support for the studies will include consulting services and technical assistance, and will focus on two areas:
- (a) *Study on Rural Water Pricing* – Currently, most water supply systems in rural Jiangxi Province operate with water fees/prices below the cost of providing the service. Water prices and fees are set by local governments, and often without scientific consideration of service cost. While this situation can be justified in part by the lower ability to pay of poorer rural residents, it also does not allow rural water service providers to operate sustainably. This study will examine the economics of rural water pricing, and make recommendations on policies for setting, reviewing, and updating rural water prices. This will include the costs and trade-offs of various water price levels against the costs of water subsidies, and within the context of investment and financing mechanisms for water supply provision in rural areas to ensure overall sustainability and availability of the investments required in rural areas. This study will draw on relevant lessons and experiences from Bank projects in other parts of the world, particularly those related to rural utility aggregation lessons learned, pro-



- poor rural utility payment and social assistance schemes, and differentiated strategies for including remote village residents in sanitation service delivery;
- (b) Study on Alternative Models for Rural Water Supply Management (including PPP) – This study will examine and compare different institutional, ownership, and financial models for providing rural water services to towns and townships in Jiangxi Province. Of particular interest are the potential Public Private Partnership (PPP) models that can engage private capital to provide public services. This study will comprehensively examine the current context and future needs, and will then compare the feasibility, pros, and cons of various water supply models. The study will include detailed descriptions of technical, social, environmental, legal, financial, economic, and risk characteristics of the alternative models (including PPP), as well as detailed design, planning, construction, financing, institutional, and incentive considerations relevant to each. The study will also analyze factors to enhance the enabling environment (such as legal and regulatory policies) and successful implementation and scale-up of PPPs in the water supply sector.

13. Rural water supply systems in Jiangxi Province are vulnerable to climate change (i.e. increased flooding, seasonal source variability, and rising temperatures). The activities of this component will incorporate climate risk analysis and mitigation in the design and construction of water treatment plants, pipe systems, pump stations, and monitoring systems. Designs will carefully consider changing rainfall and flood levels when selecting facility sites, elevations, and sizes. Storm and flood impacts on source water quality and water treatment capacity will also be considered; and climate change scenario forecasts will be used to assess source water availability, potential droughts, and the resulting impacts on water supply system reliability. Through such analysis, the proper engineering and design decisions will be taken; and updated design standards and construction codes will be used to mitigate climate risks.

14. This component will also carefully incorporate public participation and community engagement as a key success factor in the design and construction of the water supply systems. These activities will be closely linked with Component 3 (see below).

Component 2 – Demonstration of Rural Wastewater Management Services (total cost: US\$8.5 million. IBRD: US\$7.8 million)

15. Component 2 focuses on demonstrating complete rural wastewater management services through the design, construction, and operation of a pilot Wastewater Treatment Plant (WWTP) in Zhajin Town of Xiushui County. The demonstration pilot in Zhajin Township-seat will be implemented and operated by EPG-Kang Da/PWIG, and is intended to serve as a useful model for future scaling-up of wastewater management services throughout Jiangxi province. Given that EPG/PWIG has only recently begun offering wastewater services, the demonstration will also include capacity building, training, and technical assistance (TA) targeted at strengthening EPG/PWIG's currently limited experience in managing small-town/rural wastewater schemes. The demonstration and technical assistance will focus on ensuring that adequate operation & maintenance systems are put in place, and will include community participation and outreach efforts. This component also includes several studies to provide recommendations for wastewater management policy, standards, and financial models so that effective wastewater management can be scaled-up across rural towns and townships in Jiangxi Province.



Component 2 has two subcomponents.

Subcomponent 2-A: Development of Pilot Rural Wastewater Management Services: This subcomponent will finance a small-scale wastewater management pilot system in Zhajin Town of Xiushui County. The pilot system in Zhajin will demonstrate a “complete” wastewater management – including an inclusive process of public awareness and engagement; as well as appropriate design of “typical” rural household sewer connections (done during the feasibility study stage), construction of a wastewater treatment plant and sewage pipeline network, and community participation in the construction and operation and maintenance of the wastewater system (detailed activities on public participation are given in Component 3, below). Subcomponent 2-A will focus on the following areas:

- (1) *Construction of wastewater treatment plant in Zhajin Township*⁷ – with treatment capacity of 5,000 tons/day, built in two stages (2,000 tons/day by 2025 under this Project, and an additional 3,000 tons/day by 2030);
- (2) *Construction of sewerage pipelines including household connection; and*
- (3) *Trial operations and management of wastewater treatment plant.*

Subcomponent 2-B: Studies on Rural Wastewater Management and Policy Recommendations: Like subcomponent 1-C of Component 1 above, this subcomponent supports technical assistance for studies relevant to the future scale-up of solutions for rural wastewater management in small towns and townships across Jiangxi Province. These studies will support provincial and national goals in improving wastewater treatment and services for rural residents. Support for the studies will include consulting services and technical assistance, and will focus on three areas:

- (1) ***Study on Policy Recommendations for Sustainable Mechanisms on Rural Wastewater Management*** – This study will support the Jiangxi provincial and county governments in developing a comprehensive strategic framework in line with the policies and tasks set out by the 19th National Party Congress in October 2017, and informed by the demonstration of complete and quality wastewater management services in Zhajin Town of Xiushui County. The study will consider: (a) financing on construction of wastewater treatment plants, and subsequent and sustainable O&M in rural areas; (b) institutional arrangements for wastewater management services in collection, treatment, and safe management in rural areas; and (c) enforcement mechanisms to ensure service standards and treated wastewater effluent standards are met. This will include research and analysis for a comprehensive view of the current context, challenges, and future requirements in wastewater management in rural areas. The study will also examine alternative wastewater management approaches, innovative technologies, low-cost/low-maintenance models, and wastewater fee structures and metering that can be customized and adopted in Jiangxi's rural towns. This study will pay particular attention to the fact that rural service delivery is markedly different from urban service deliveries; and that institution and utilities may require a transformation in business and management models to successfully serve rural markets. The study will then provide specific policy recommendations, and a strategic outlook for managing the wastewater sector in rural Jiangxi;

⁷ Detailed technical designs for the engineering works, including comparison of different wastewater treatment technologies, has been done using the information available in the Feasibility Study Report for Xiushui County.



- (2) **Feasibility Study on PPP Approach for Rural Wastewater Management** – This study will examine rural areas within Nanfeng County to compare different institutional, ownership, and financial models for providing rural wastewater services to towns and townships in Jiangxi Province. Of interest are the potential Public Private Partnership (PPP) models that can engage private capital to provide public services. This study will comprehensively examine the current context and future needs, and will then compare the feasibility, pros, and cons of various wastewater management models. The study will include detailed descriptions of technical, social, environmental, legal, financial, economic, and risk characteristics of the alternative models (including PPP), as well as detailed design, planning, construction, financing, institutional, and incentive considerations relevant to each. The study will also analyze factors to enhance the enabling environment (such as legal and regulatory policies) and successful implementation and scale-up of PPPs in the wastewater sector.

16. As noted in Section I-B above, rural wastewater management systems in Jiangxi Province are vulnerable to climate change. This component will incorporate climate risk analysis and mitigation in the design and construction of wastewater treatment plants, sewage systems, pump stations, and monitoring systems. Designs will carefully consider changing rainfall and flood levels when selecting facility sites, elevations, and sizes. Storm and flood impacts on sewage overflow, treatment capacity, and pollution control operations will also be considered; along with system impacts such as service disruptions or breakages in collection networks. Through such analysis, the proper engineering and design decisions will be taken; and updated design standards and construction codes will be used to mitigate climate risks.

17. This component will also carefully incorporate public participation and community engagement as a key success factor in the design and construction of the pilot wastewater management system. These activities will be closely linked with Component 3 (see below).

Component 3: Public Engagement and Project Management (total cost: US\$7.4 million, IBRD: US\$6.9 million)

18. Component 3 aims to ensure robust and meaningful Public Participation and Engagement as a key success factor for the above listed project activities. This component also supports project management and monitoring and evaluation (M&E) activities. This Component has three subcomponents.

Subcomponent 3-A: Public Awareness and Engagement: This subcomponent will be closely integrated with the implementation of Component 1 (Water Supply System Expansion and Rehabilitation) and Component 2 (Demonstration of Rural Wastewater Management Services). Public and community participation was part of the project feasibility study activities, and will be integrated into the project preliminary design stage (through retroactive Bank financing after project appraisal), and throughout the project implementation period (construction and operation). Specific activities are listed below.

- (1) *Public dissemination, mobilization, and training (including media outreach);*
- (2) *Establishment of community participation mechanisms;*
- (3) *Promotion of women's participation in planning, design, implementation and O&M phases to ensure gender-sensitive needs and challenges are met;*



- (4) *Participatory design for household sewers connections* (typical design has been done during the feasibility study stage);
- (5) *Participatory management of local water supply systems*;
- (6) *Participatory monitoring of water quality* (tap water and groundwater comparison);
- (7) *Employment of local beneficiaries during project implementation*;
- (8) *Public participation in system Operation & Maintenance* (including septic tanks); and
- (9) *Behavior change campaigns*.

Subcomponent 3-B: Project Management: This subcomponent will support activities to strengthen the proper management and execution of the Project, as well as to enhance the institutional capacity of the Provincial PMO under the Provincial Water Resources Department, the Provincial PIU under the PWIG, the County PLGs under project county government, and the county PMOs under their respective County Branches of WAG/PWIG. Such management and implementation support will focus on the following areas:

- (1) *Office equipment and working vehicles*;
- (2) *Training and study tours including overseas and domestic training and study tours*;
- (3) *Consultant services to provide technical guidance and advice* on the technical, design and engineering issues, preparation of TORs for the studies under the Project, technical review of the study reports, preparation of semi-annual project progress reports, mid-term review report and project completion report) to the Provincial PIU and County PMOs under PWIG; and
- (4) *Development of Management Information System (MIS)* and keep it running throughout project implementation period.

Subcomponent 3-C: Monitoring & Evaluation (M&E): This Subcomponent will support the establishment of M&E system, as well as ongoing M&E of project activities during project implementation. The project M&E will focus the following areas:

- (1) *Preparation of M&E Baseline Report* to finalize the baseline and target values of PDO and Intermediate indicators in the Project Result Framework;
- (2) *Preparation of Semi-annual M&E Report and updating the values* of all the project indicators in the Project Result Framework based on the project progress with necessary field visits to the project areas;
- (3) *Preparation of Semi-annual External M&E Report for implementation of ESMP* based on the project progress throughout project implementation period;
- (4) *Preparation of Semi-annual External M&E Report for implementation of RAP and BPM* based on the progress of the project throughout project implementation period; and
- (5) *Carrying out social M&E activities during project implementation period*.

E. Implementation

Institutional and Implementation Arrangements

19. **Project Leadership and Coordination Level:** The Provincial Government has newly established project implementing units within the Provincial Water Resources Department (PWRD), and within the PWIG to coordinate management and implementation of the project, along with adequate staffing and



funding. These include:

- (1) *Provincial Project Leading Group (PPLG)*: The PPLG will be fully responsible and accountable for the overall coordination and implementation of the Project. The PPLG is led by the Deputy Director General of PWRD and the Deputy General Manager of the Provincial Water Investment Group (PWIG), and its group members consist of responsible leaders from project-related government departments and entities;
- (2) *Provincial Project Management Office (PPMO)*: The PPMO, serving as a project executive office of PPLG, is responsible for monitoring the progress of project management and implementation and reporting the existing or potential issues and problems to PPLG to resolve them in a timely manner during project implementation.

20. ***Project Management and Implementation Level***: Under the leadership and coordination of PPLG/PPMO, the following existing or newly established implementing entities will be jointly responsible for project management and implementation within their respective mandates:

- (1) *Provincial Project Implementing Unit (PPIU)*: The PPIU, newly established under the leadership of the Provincial Water Investment Group (PWIG), will be responsible for day-to-day project management and implementation, with the technical support and close cooperation from the other implementing entities described below. The PPIU is composed of five sub-groups (Engineering, Comprehensive, Finance, Procurement, and Safeguards) to coordinate the project activities and interface with the World Bank's supervision missions to ensure that the project implementation is on the right track towards achieving the PDOs. The PPIU will receive special and technical support from: (a) a Technical Expert Panel (TEP), newly established within the PPIU and consisting of expertise in: water supply and wastewater, dam safety, procurement and financial aspects, and Bank safeguards; (b) the WAG /PWIG to implement *Component 1 – Expansion, Rehabilitation, and Modernization of Water Supply System*; and (c) the Ecological Protection Group (EPG-Kang Da) to implement *Component 2 – Demonstration of Rural Wastewater Management Services*;
- (2) *WAG/PWIG*: the WAG/PWIG (Water Affairs Group under PWIG), an existing entity and the system operating agency for water supply plants. The WAG/PWIG will take primary responsibility for the implementation of *Sub-Component 1-C of Component 1 – Modernization of Water Supply Services* supported by the PPIU; and most importantly, will work on and cooperate with the PPIU to manage its branch companies at the county level to implement *Subcomponents 1-A and 1-B* for urban and rural water supply expansion and rehabilitation. The WAG will receive support from a Global Expert Group (GEG) consisting of expertise in: ICT and smart data systems, water sector information applications, and water leak detection and control;
- (3) *EPG/PWIG - Kang Da*: This is the joint venture between PWIG and Chongqing Kang-Da International Environment Protection Company Ltd. (an experienced Chinese private wastewater management company with rich experience in wastewater management). EPG/PWIG – Kang Da will be the system operating agency for the pilot wastewater treatment system in Zhajin township, and will take primary responsibility for implementing *Component 2 – Demonstration of Rural Wastewater Management Services*, with support from the PPIU.



- (4) *County Project Leading Groups (CPLGs)*: The CPLGs, newly established in the seven project counties, and under the leadership of the PPLG, will cooperate with the PPIU, WAG and EPG-Kang Da for project management and implementation, and will be responsible for coordination of the related government line bureaus at the county level to facilitate project management and implementation, particularly in resettlement and environment aspects of the Project.

County Project Management Offices (CPMOs): The CPMOs, newly established in the respective branch companies of the WAG/PWIG in the seven project counties, will be responsible for day-to-day implementation of *Component 1 – Expansion, Rehabilitation, and Modernization of Water Supply System* under the leadership of WAG and PPIU.

F. Project location and Salient physical characteristics relevant to the safeguard analysis (if known)

Jiangxi Province, with a total population of 45.66 million (2015), is situated in the southeast of China with an area of 166,900km², of which 78% is mountainous areas, 12% is plains and the remaining 10% is covered by rivers and lakes. There are over 2400 rivers in the province with the average annual runoff volume of 138.5billion m³, which are mainly recharged by precipitation. Located in the subtropical monsoon climate zone, the project area features moderate climate, sufficient sunshine and rainfall, distinctive seasons and a long frost-free period. The average annual rainfall varies between 1,341-1,940mm, of which about 60% is in April-June. The province also features a high forest coverage of over 60%. Based on the ecological survey conducted during EA process, the project-affected areas involve no critical/sensitive natural habitats and no protected species of plants/animals. However, numerous ancient trees (mostly camphor trees) are found in the rural villages to be protected. Jiangxi consists of 99 counties (including county level cities and districts), and seven of them are involved in the project, including: Yongxin County of Ji'an Municipality in the western mountainous areas, Linchuan District, Jinxi County, Nanfeng County and Dongxiang County of Fuzhou Municipality in the east, Leping City of Jingdezhen Municipality in the northeast, and the largest county of the province, Xiushui County of Jiujiang Municipality in the northwest. Among others, Yongxin County and Xiushui County are still listed as the state-level poverty-stricken counties. Jiangxi is the province with the highest percentage of Han People in China (over 99%). Only some scattered ethnic minority populations are mingled with the Han Chinese households in the project areas.

G. Environmental and Social Safeguards Specialists on the Team

Songling Yao, Social Safeguards Specialist
Yiren Feng, Environmental Safeguards Specialist
Xiaodan Huang, Environmental Safeguards Specialist



SAFEGUARD POLICIES THAT MIGHT APPLY

Safeguard Policies	Triggered?	Explanation (Optional)
Environmental Assessment OP/BP 4.01	Yes	<p>The project is expected with overall positive impacts on the environment through the improvements of water supply and wastewater services in selected towns and villages in seven counties (county level city or district) of Jiangxi Province. The physical investments currently proposed (mainly under Component 1 and Component 2) include the rehabilitation and expansion of five urban Water Treatment Plants (WTPs in urbanized county seats) with the capacity of 40,000-100,000m³/d and two rural WTPs of 1200-10000m³/d, the construction of one demonstrative municipal Wastewater Treatment Plant (WwTP) of 2000m³/d for Zhajin Town of Xiushui County, and the associated pipeline network in the served towns and villages.</p> <p>Considering the type, location, sensitivity, and scale of the proposed project activities, potential negative environmental impacts would mainly be site-specific and limited to the construction phase, including dust, noise, wastewater, soil erosion, traffic disturbance and disposal of construction waste, etc. The project is therefore proposed as a Category B project.</p> <p>The following environmental safeguards instruments have been prepared for the project (including both physical investments and TA subprojects) to address the anticipated impacts: An Environmental Impact Assessment (EIA) and a standalone Environmental and Social Management Plan (ESMP). In addition, the social impacts are assessed by a separate Social Assessment (SA) to help maximize project benefits as well as minimize potential adverse impacts on the local communities, and the main context has been integrated into the EIA.</p> <p>During the preparation of the proposed instruments, WBG’s environmental, health and safety (EHS) Guidelines have been used as the important</p>



reference, and due diligence review has been conducted for existing facilities and projects related to the proposed project (WTPs, WwTPs and landfill sites).

During EA preparation, more than two rounds of public consultation and information disclosure have been conducted following the national requirements and the Bank's policies. The technique used for public consultation include questionnaires, focus group discussions, and interviews with key stakeholders. The full final EIA has been disclosed locally.

Ecological survey has been conducted during the EA process, which found no critical/sensitive natural habitats and no protected species of plants/animals in the project-affected areas. Since three of the WTP proposals plan to take water from natural rivers/creeks, this policy is triggered. The EA concluded that the project would not have the potential to cause significant conversion or degradation of natural habitats, and measures have been integrated into the project design and ESMP to mitigate the potential project impacts on local fishes to a minimum level.

Current information shows the proposed project are not located in forest areas. Therefore, this policy is not triggered.

The proposed project will neither procure pesticides nor result in the increased use of pesticides. This policy will not be triggered.

The EA survey found six hundred-year-old ancient trees and an ancestral temple adjacent to the proposed project sites. This policy is therefore triggered. A Physical Cultural Resources (PCR) management plan has been developed as part of the ESMP to avoid/mitigate the potential adverse impacts anticipated during project implementation.

In accordance with the ID mission's instruction, a social assessment exercise was carried out during project preparation.



		<p>The SA made detailed social investigation and confirmed that there was no presence of ethnic minority groups in the project area of influence, though there were some scattered ethnic minority populations mingling with the Han Chinese households. Therefore, this policy is not triggered.</p>
		<p>According to the project feasibility studies and design completed during project preparation, there are construction or/and extension of six water supply plants and a wastewater treatment plan, as well as 15 pipeline networks in the seven participating counties under project components 1 and 2. These construction and extension will acquire land permanently and occupy land for civil work temporarily, and this policy is hence triggered.</p>
Involuntary Resettlement OP/BP 4.12	Yes	<p>A social assessment (SA) was carried out by sociologists and resettlement experts, and based on the SA findings, resettlement investigation and consultation were unfolded among local communities to be affected by the construction components in the seven counties. as a result, seven individual RAPs were developed for the counties one for each, and based on the individual county RAPs, a Consolidated RAP was compiled to summarize the overall resettlement under the project as a whole.</p>
Safety of Dams OP/BP 4.37	Yes	<p>The site survey identified ten existing reservoirs upstream of the proposed water supply subprojects. This policy is therefore triggered considering their potential impacts on the safety of proposed interventions. The dam safety assessment has been conducted during project preparation and necessary remedial work and safety-related measures have been recommended and included in the ESMP for future implementation.</p>
Projects on International Waterways OP/BP 7.50	No	<p>The project doesn't involve any international waterway.</p>
Projects in Disputed Areas OP/BP 7.60	No	<p>The project area is not in the disputed area.</p>



KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT

A. Summary of Key Safeguard Issues

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

Environmental:

Environmental Assessment (OP4.01). The policy is triggered and the project has been classified as Category B. During project preparation, an Environmental Impact Assessment (EIA) and a standalone Environmental and Social Management Plan (ESMP) were developed for the project (including both physical investments and TA subprojects) as the environmental safeguard instruments based on the Chinese legal and policy framework, the applicable World Bank's safeguard policies and Environmental, Health and Safety (EHS) Guidelines.

The environmental assessment concluded that no large-scale, significant and/or irreversible environmental impact was anticipated with the project implementation. Instead, the project as a whole was substantially positive from environmental perspective. The construction and rehabilitation of proposed WTPs will increase the water supply capacity of 245,600m³/d in six counties of Jiangxi Province, and the rehabilitation of water supply pipeline network is expected to result in the reduction of non-revenue water by 38929.5m³/d. A total population of 2.95million in 362 villages of 44 towns/townships will benefit from the water supply subprojects in the seven project counties. The full operation of proposed WwTP will reduce the discharge of pollutants into local river, e.g., 138.7t/a for COD, 73t/a for BOD₅, 12.4t/a for NH₃-N and 0.73t/a for TP.

Negative environmental impacts expected from the proposed project are mainly site-specific and limited to the construction phase, including dust, noise, wastewater, soil erosion, traffic disturbance and disposal of construction waste, etc. For operation phase, the anticipated adverse environmental impacts are mainly related to the generation of noise, odor, effluent and sewage sludge by the 2000m³/d town-level WwTP.

Physical Cultural Resources (OP 4.11). The EA survey found six hundred-year-old ancient trees near the proposed routes of water supply pipelines (with the distance of 8-15m, respectively in Yongxin, Nanfeng and Leping), and the construction activities may have indirect impacts on the growth of these trees. In addition, there is an ancestral temple located about 30m away from the proposed Zhajin WwTP, and the regular ancestor worship services there may be affected by the WwTP's construction and operation.

Safety of Dams (OP 4.37). During project preparation, ten existing reservoirs upstream were identified as relevant to the proposed water supply subprojects, which may have potential impacts on the safety of proposed investments.

Social:

Due to construction of 6 water supply plants, a water treatment plant, and 15 water/sewage pipeline network under the project, land acquisition or/and temporary land occupation are envisaged in the project design. In the seven participating counties, a total of 285 mu of permanent land acquisition is to be entailed by construction or/and extension of the plants (while some other plants will be repaired and rebuilt in situ). In addition, about 989 mu of temporary land occupation will take place for construction of pipeline networks.



Because the plants and pipeline networks will be scattered in the large areas in the seven counties, the associated involuntary taking of land would have impacts on 49 townships and 277 villages, though the amount of land taking in each of the villages is limited. On the whole, 1,242 people in 332 households of the project counties will be affected by land requisition, and 2,085 people of 485 households affected by temporary land occupation. There won't be any population relocation caused by the project activities.

Apart from the key safeguard issue of land requisition, there also is some potential laborers' influx impact entailed by construction of the water supply plants. Overall, there might be a need of about 1,020 workers and technicians for the plant construction in the project areas of the seven participating counties, and 27 percent of the workers would be the influx laborers and 75 percent would be employed locally. Therefore, impact of about 250 influx workers on local communities is concerned under the project.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

The proposed project is designed to improve the level of water supply in the project areas, and the wastewater management subproject in Zhajin Town of Xiushui County will demonstrate "complete" wastewater management and serve as a useful model for future scaling-up of wastewater management services in the rural areas of Jiangxi province.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

During project preparation, comprehensive alternative analysis was undertaken as part of the project identification and design. Different options have been analyzed and compared in regard to with/without project scenario, water sources selection, pipeline routing, WTP/WwTP siting and treatment process, and the decision was made by integrating technical, economic, environmental and social considerations.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

Environmental:

The environmental assessment for the project was conducted following relevant national laws and regulations, as well as the Bank's safeguard policies and EHS guidelines. EA instruments prepared for the project consist of: (i) an Environmental Impact Assessment (EIA); and (ii) an Environmental and Social Management Plan (ESMP), including the Environmental Code of Practice (ECOP) for contractors and a Physical Cultural Resources (PCR) Management Plan.

The EIA report thoroughly addressed the potential environmental and social impacts anticipated with the project. Based on the EIA findings, adequate measures have been developed in the project ESMP to avoid, minimize, mitigate and compensate the potential adverse impacts. The proposed subprojects include five urban WTPs (in urbanized county seats), two rural WTPs, a town-level WwTP and their associated pipeline network, and similar environmental impacts are anticipated during construction. Therefore, a set of Environmental Codes of Practice (ECOP) has been developed as part of the ESMP for future contractors and operators, which will be incorporated into bidding documents and contracts to ensure effective implementation of generic environmental mitigation measures. In addition, a water and soil conservation plan was developed for the project to cope with soil erosion impacts during construction, from which the key conclusions and recommendations have been integrated into the ESMP. The ESMP also includes the county-specific environmental monitoring programs for both construction and operation phases to follow up the effects of implemented mitigation measures during construction and the subproject's environmental compliance during operation.



Physical Cultural Resources (OP 4.11). As part of the ESMP, a PCR management plan has been developed to specify mitigation measures to avoid, minimize and compensate the anticipated project-related impacts during construction and operation on identified physical cultural resources (ancient trees and ancestor temple). Furthermore, chance-find procedure is also included to ensure the relics, which could be discovered during construction, to be protected properly according to relevant policies and regulations of China and the Bank.

Safety of Dams (OP4.37). During project preparation, the dam safety assessment was conducted for the ten identified project-relevant dams to inspect and evaluate the past performance and current safety status of the dams and evaluate the O&M procedures. A number of measures were identified to upgrade the existing dams to an acceptable safety standard, of which the best international practices were considered and incorporated. They have been reviewed by the Bank and are incorporated in the ESMP. During implementation, the PPMO will prepare Annual Dam Safety Action Plans and provide relevant dam safety information to the dam safety expert and the Bank and arrange field trips when necessary to review the safety status of relevant dams and take remedial action if necessary.

Project preparation and implementation have been delegated to Jiangxi Provincial Water Resources Department (PWRD), under which a Provincial Project Leading Group (PPLG) and Provincial Project Management Office (PPMO) have been established for overall project coordination. An adequately staffed and funded Provincial Project Implementing Unit (PPIU) has been housed in the Provincial Water Investment Group (PWIG) to be responsible for day-to-day project management and implementation. Jiangxi Province has experience from previous work on the Bank supported project. A fully resourced and experienced expert group consisting of technical specialists for finance, procurement, rural water supply and sanitation, and safeguard has been established under the PPIU to provide technical support to the project, and qualified safeguard consultants have been/will be hired to assist with the preparation and implementation of safeguards instruments. At county level, all seven project counties will have their own Project Leading Groups (GLPs) and PMOs respectively. Since the counties have limited experience of managing World Bank-financed projects, the Bank will provide necessary training on safeguard policies during project preparation and implementation.

Social:

In view of land requisition and temporary occupation in the seven participating counties, each of them prepared individual RAP to address the resettlement impacts and compensation measures for livelihood rehabilitation, with assistance from a social team of Hohai University. The individual RAPs were finally consolidated in a summary RAP for the project as a whole.

All the RAPs were made on the basis of strict investigation in the affected villages and rounds of consultation with affected households. They contained the resettlement impact inventories and analyses, compensation measures and arrangement for livelihood rehabilitation in accordance with the relevant national regulations and the bank safeguard policy OP4.12. Fulfillment of the RAPs will ensure achievement of restoration and improvement of PAP's living standards.

The project entity and its subordinate units in the counties had their experience for safety of resettlement in overall China social context, but were not necessarily very much acquainted with the Bank policy requirements. However, the Bank team and resettlement experts provided them with instruction and training including both theoretical studies and on-the-spot exercise in this regard during project preparation, and will continue the assistance during project implementation by means of either frequent interaction, supervision, or regular monitoring by resettlement external agency as regulated in the RAP.



In addition, in view of potential impact by influx of laborers, the project set up regulations with its contractors of plant construction, including trainings for workers' working and living safety in and outside the construction sites, and the disciplines for their sensitive engagement with and harmonious behavior toward local communities in line with the code of conduct in the Bank procurement guidance. All these regulations were established also in conformity with the provincial and county decrees and policies on safe production and social stability. Meanwhile, in order to achieve the project objectives, a Beneficiary Participation Manual (BPM) was developed for participatory management of water service and behavior change campaign of local villages, such as enhancing consciousness of public hygiene, growing women's roles, and assessing affordable water charges, etc., so as to ensure the community ownership of project operation and sustainable development in the future.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Environmental:

The key stakeholders have been identified during environmental screening to ensure the implementation of effective and meaningful public consultation for the project. More than two rounds of public consultations were carried out during EA process, respectively in November 2016, April 2017 and September 2017. The project information was disclosed at project-affected communities and government websites before each round of consultation. The techniques used for the public consultation include surveys using public opinion questionnaires, focused group discussions, public meetings with key stakeholders and interviews with some project-affected persons. The key environmental issues found during the consultation include noise, construction dust, odor, effluent and sludge disposal of WWTP etc., The EIA and ESMP incorporated the issues raised during consultation and the countermeasures to address the concerns of consulted people. The EIA and ESMP were disclosed at the WB external website on Nov. 27th, 2017.

Social:

The project would cover 534 villages in 47 townships (plus a state farm) of the seven participating counties in Jiangxi province, and about 2.99 million people will directly benefit from the project by enjoying better quality of water services. Against the background of broad dissemination of project information among all the townships and villages through village representative meetings, rural posters, leaflets and local medias, a project social assessment (SA) was conducted by a social expert team during the time-period from December 2016 to May 2017, with intensive fieldwork and sample surveys among the target villages, about 12 percent of the 534 villages, soliciting and consulting with local people through village meetings, focus groups, interviews of informants and households, and questionnaires. The SA exercise helped ensure the project social objective to maximize and sustain project benefits that are widely expected and fairly shared by local populations, especially women and groups of people with poor water services and sanitation.

Moreover, as identified and highlighted by the SA exercise, the project paid closer attention to its negative impact caused by land requisition for plant construction. To mitigate the impact, a resettlement team in cooperation with local authorities carried out detailed impact surveys and repeated rounds of consultation in all of 277 villages to be affected by land acquisition or/and temperate land occupation. The resettlement team measured the impact of involuntary taking of land in front of each of the villages and 332 households who would lose some contracted land, and discussed with them in detail the impact inventories, compensation and restoration measures, and finally reached agreements signed by the affected people. On this basis, the team helped each of the counties prepare their individual Resettlement Action Plans (RAPs), and did due diligence reviews as well for potentially linked projects in these



counties as necessary. The RAPs were disclosed in the affected village communities and in the county libraries, as well as on the project internet and WB website.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other

Date of receipt by the Bank	Date of submission for disclosure	For category A projects, date of distributing the Executive Summary of the EA to the Executive Directors
24-Nov-2017	27-Nov-2017	

"In country" Disclosure

China
24-Nov-2017

Comments

Resettlement Action Plan/Framework/Policy Process

Date of receipt by the Bank	Date of submission for disclosure
22-Nov-2017	27-Nov-2017

"In country" Disclosure

China
22-Nov-2017

Comments

C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

OP/BP/GP 4.01 - Environment Assessment

Does the project require a stand-alone EA (including EMP) report?

Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?

Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?

Yes



OP/BP 4.04 - Natural Habitats

Would the project result in any significant conversion or degradation of critical natural habitats?

No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?

NA

OP/BP 4.11 - Physical Cultural Resources

Does the EA include adequate measures related to cultural property?

Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?

Yes

OP/BP 4.12 - Involuntary Resettlement

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?

Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?

Yes

OP/BP 4.37 - Safety of Dams

Have dam safety plans been prepared?

Yes

Have the TORs as well as composition for the independent Panel of Experts (POE) been reviewed and approved by the Bank?

NA

Has an Emergency Preparedness Plan (EPP) been prepared and arrangements been made for public awareness and training?

Yes

The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?

Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?

Yes



All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?

Yes

Have costs related to safeguard policy measures been included in the project cost?

Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?

Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?

Yes

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APPROVAL

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