



Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 28-Jan-2019 | Report No: PIDISDSC25572



BASIC INFORMATION

A. Basic Project Data

Country China	Project ID P168025	Parent Project ID (if any)	Project Name Public-private Partnership Project for Water Supply and Sanitation in Sichuan Province (P168025)
Region EAST ASIA AND PACIFIC	Estimated Appraisal Date Apr 08, 2019	Estimated Board Date Mar 16, 2020	Practice Area (Lead) Water
Financing Instrument Investment Project Financing	Borrower(s) People's Republic of China	Implementing Agency Jingyang Project Management Office	

Proposed Development Objective(s)

The project development objective is to improve water supply and sanitation services through a public private partnership in selected areas of Deyang Municipality.

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	150.00
Total Financing	150.00
of which IBRD/IDA	100.00
Financing Gap	0.00

DETAILS

Private Sector Investors/Shareholders

Equity	Amount	Debt	Amount
Government Contribution	20.00	IFI Debt	100.00
Government Resources	20.00	IBRD	100.00
Non-Government Contributions	30.00		



Private Sector Equity	30.00	
Total	50.00	100.00

Payment/Security Guarantee

Total		0.00
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Environmental and Social Risk Classification

Substantial

Concept Review Decision

Track II-The review did authorize the preparation to continue

Other Decision (as needed)

B. Introduction and Context

Country Context

1. Over the past forty years, China has experienced rapid economic growth, with gross domestic product (GDP) growing by an average of 9.6 percent per year from 1978 to 2015. Since the early 1980’s, China has been moving towards a market-based economy, resulting in rapid economic and social transformations that have lifted more than 800 million people out of poverty. Today, China has a population of 1.4 billion with an estimated GDP near to US\$12.3 trillion (in 2017). While gross income per capita reached US\$8,690 in 2017, officially making China an upper middle-income country, China still faces many economic and institutional challenges – especially in its less-developed western provinces and rural areas.
2. Urbanization has been a significant driver of growth and change in China but has also been uneven. China’s urban population rose from less than 20 percent of the total population in 1978 to 57 percent in 2016. However, most of this urban growth and development took place in larger, eastern cities, which benefited from improved infrastructure and public services, while many medium- and small-sized cities lag behind. Moreover, while rapid infrastructure development in China has helped to boost economic growth and reduce poverty, it has also had some negative consequences, including an unsustainable use of natural resources, damage to the environment, and a significant strain on financial resources.
3. China’s 13th Five-Year Plan (2016-2020) and policy commitments made at the 19th National Congress (October 2017) of the Communist Party of China include goals to further open the economy, rebalance toward market-based services and consumption, and pursue innovation and productivity improvements. China has also committed to improving equitable access to basic public services, developing sustainable infrastructure, and reversing environmental degradation and carbon emissions.



4. **Financing Challenges.** Local governments are facing constraints in the amount of additional debt they may incur and are seeking new financing strategies for WSS investments. After China's 1994 Tax Reform, local governments received lower levels of fiscal transfers from the central government and were responsible for a larger share of local spending, with their own funds. To finance rapid urbanization and development, local government relied increasingly on complex financing structures, often in the form of 'off-budget' loans, to finance their investments, leading to unsustainable levels of debt. The central Government of China (GoC) introduced legal constraints on local government spending and measures to improve local debt management¹.
5. **PPP.** GoC also began to actively promote Public Private Partnerships (PPPs) as an alternative procurement model for financing public infrastructure and services. The GoC recognized the potential role of PPPs in reducing the fiscal burden of local governments, while at the same time drawing on technical expertise, operational efficiency, and financing from the private sector. However, many of the PPP projects in China were neither structured optimally nor well-suited to the development challenge they were trying to solve, particularly in the rural WSS sector, as discussed below. China's Ministry of Finance (MOF) and the National Development and Reform Commission (NDRC) recognized these shortcomings, and in 2017 published a draft *PPP Law* to establish a new legal framework and processes for PPPs in China.
6. In early 2017, MOF and NDRC also sought support from the World Bank to develop demonstration PPP projects, drawing on international (and domestic) best practices to design more sustainable projects in key sectors, which could be used as templates to be rolled out elsewhere in China. The State Council of China reserved a total amount of US\$450 million IBRD loans to support four PPP demonstration projects.

Sectoral and Institutional Context

7. Globally, it is estimated that 2.3 billion people around the world still don't have access to basic sanitation facilities, and more than 660 million people rely on unimproved water sources or surface water. This can cause diseases like cholera, diarrhea, and dysentery which kill hundreds of thousands of people every year. Water supply and sanitation also play an important part in overall development of human capital through its impact on health and education outcomes and preventing childhood stunting. Childhood stunting impairs the development of brain function and limits ability of children to learn and develop their human capital.
8. Improving water and sanitation (WSS) in peri-urban and rural areas around China's medium- and small-sized cities is an important national development goal prioritized in the National 11th, 12th, and 13th Five-Year Plans for Social and Economic Development. China currently spends about US\$98 billion annually for improvements in water and sanitation (WSS). China has made great progress in access to improved urban WSS since 1990. Between 1990 and 2015, water supply coverage in urban areas improved significantly from 67 to 95 percent, while access to wastewater and sanitation services in urban areas improved from 24 to 65 per cent. Progress in rural areas has been significant, but there is still room for improvement: access to an improved water supply increased from 56 to 73 percent, while only eight percent of rural domestic sewage was collected and properly treated, leading to environmental pollution and dangers to health. China's rural population accounted for 44 percent of the total populace in 2016.

¹ Refer to Article 35 of the Budget Law of the People's Republic of China, and a document issued by the State Council (Guofa No.43, 2014). http://www.gov.cn/zhengce/content/2014-10/02/content_9111.htm



9. Bank experience in China indicates that WSS services in rural and peri-urban areas face particular challenges, including: (i) *Inappropriate Design and Unsustainable Operations*: water and sewerage treatment plants tend to be over-designed and/or overly-complex due to over-optimistic forecasting of rural water-use that fails to account for the patterns of migration away from rural areas, and because high-tech urban treatment technologies are often used. This can burden systems with unaffordable facilities. (ii) *Unsustainable Finances*: in rural areas, operating revenues for sanitation are low because tariffs are low, and many rural residents are not willing or able to pay. This, combined with over-designed and high cost treatment facilities, means that the services are not financially sustainable and require government subsidy. (iii) *Focus on construction rather than operation and maintenance*: this lack of financial sustainability leads to limited budgeting for maintenance and repair, resulting in a lack of physical sustainability and a cycle of 'build-neglect-build'. (iv) *Few utility models*: WSS is typically managed by separate district-level bureaus and with limited focus on customer service or on developing a business. There are very few combined utilities for WSS serving peri-urban and rural areas. (v) *Household Connections are Incomplete*: in particular for rural sanitation, focus is on building treatment facilities, with less focus on connecting households, leading to under-utilization and failure of treatment plants due to insufficient inflow.

Relationship to CPF

10. The proposed operation is aligned with the 2013-2016 World Bank Group Country Partnership Strategy (CPS) for China which has three main pillars: support of greener growth, promotion of more inclusive development, and advancement of mutually beneficial relations with the world. The proposed project supports these pillars through measures to reduce discharges into the environment and improve and expand water and wastewater services in rural areas and to promote access to water and sewerage networks. The project scope focuses on shared prosperity by improving services to the poorer, underserved residents of rural Sichuan province, who through the project investments will benefit from improved quality of life, reduced illnesses, reduced ecosystem degradation, and a cleaner environment to boost local economic development.
11. This project is also in line with the GOC priorities as set out in the National 11th, 12th, and 13th Five-Year Plans for Social and Economic Development, referred to above.

C. Proposed Development Objective(s)

12. The project development objective is to improve water supply and sanitation services through a public private partnership in selected areas of Deyang Municipality.

Key Results (From PCN)

13. The achievement of the PDO will be measured through the following possible outcome indicators:
- i. Service provider in compliance with defined operational service standards set out in the PPP agreement
 - ii. Number of people benefited from improved water supply service
 - iii. Number of people benefited from improved sanitation service



iv. Operating Ratio for water supply and sanitation facilities (operating revenues / operating expenses)

The definition of “improved sanitation” can be either: i) a new household connection to a sewer, in the more densely populated peri-urban areas; or ii) improved collection and removal of septage in the more remote rural areas. The definition of “improved water supply” can be either: i) a new household connected to a piped water supply system; or ii) moving from a groundwater to surface water source for a household that already has a piped water connection.

C. Theory of Change

14. In line with the PDO, the activities of the project will focus on improving the quality of water supply and increasing water supply coverage, improving sanitation services and increasing coverage, and with a focus on improving operation and maintenance of the WSS systems. These will be achieved by establishing a modern WSS Utility to deliver services. Annex 1 shows a schematic diagram for the project theory of change.

D. Concept Description

Project Context

15. **Sichuan Province** is a southwest province with a population of 83 million people. Its GDP in 2017 was RMB 3.698 trillion (US\$ 535 billion), with an estimated annual growth rate of 8 percent. Although it has one of the largest economies in western China, its per capita GDP (US\$ 6,460 per person) was ranked 22nd out of 31 provinces. As typical with provinces in China, the rural population is declining as the younger generation is attracted to urban areas. In the Three-Year Action Plan for Urban Sewage Treatment Facilities Construction (Three-Year Action Plan)², Sichuan planned to construct 1,238 wastewater treatment facilities and complete a planned investment of RMB 38.8 billion (US\$ 5.63 billion) to improve wastewater management.
16. **Jingyang District** (Jingyang) is the main district of Deyang City, located in the northeast edge of the Chengdu Plain in Sichuan Province. This region is situated amidst the upper tributaries of the Yangtze River, and is a priority area for pollution control and water quality improvement. The total population of Jingyang is over 750,000, with about 350,000 living in rural areas. In 2016, the district had total economic output of RMB 298 billion. Despite some rural water and environmental protection projects in the 2000's, accelerating urban construction and development pose significant challenges to the local water environment in Jingyang.
17. **WSS in Jingyang.** The water supply systems in Jingyang are owned and managed by the Water Authority Bureau (WAB) of Jingyang District Government (JDG). These systems are small-scale and scattered, with incomplete pipe networks and low coverage rates. As is the case elsewhere in China, even though these systems are relatively new (having been largely re-built after the 2008 earthquake), the focus has been on facility construction, and there has been limited focus on (and funding allocated for) operations and maintenance, and service delivery. This makes the systems unsustainable in the long term. Furthermore, while approximately 70 percent of the population in the project area has access to a piped water supply system (211,600 people), the quality of supply is not reliable. The water source is mostly shallow-acquirer groundwater, along with some local reservoirs. Water quality also poses health concerns. Shallow-acquirer groundwater can be easily contaminated, and geologically-born iron and manganese content in the groundwater exceed standards. Water quality testing is sporadic, and

² Three-year Action Plan for Urban Sewage Treatment Facilities Construction in Sichuan Province, issued by Sichuan Provincial Department of Housing and Urban Rural Development



the district lacks equipment and personnel. Surface drinking water source areas are not properly protected from encroachment and pollution, posing further risks to drinking water hygiene and safety.

18. Sewage and sanitation management in Jingyang District is the responsibility of the Urban Construction Bureau (UCB) of JDG. Only 15 percent of the population in the project area is connected to a formal sewer system (43,350 people). The capacity of sewage treatment is insufficient in the towns and rural areas. Currently only four WWTPs serve four out of the 11 towns in the project area. The WWTPs all reportedly meet Class 1A standards but suffer from over-design due to over-optimistic demand projections and low levels of connections to households, leading to inefficient operations and insufficient inflows. Other households have septic tanks (of which most are functioning), or wastewater is discharged directly into nearby rivers without treatment – leading to environmental pollution in the immediate area, and broader public health risks downstream as polluted water flows into the river system.
19. The National 13th Five-Year Plan for Development and Reform of Water Resource priorities the need of enhancing rural water supply security and requires that, by 2020, 80% of the rural population will be provided with access to a safe piped water system. Sichuan’s Three-Year Action Plan also requires that, by 2020, sewerage from 50% of administrative villages in Sichuan Province should be collected and treated. The project seeks to make WSS in Jingyang more sustainable with a focus on service delivery and improved water sources so that the number of households benefiting from a safe piped supply is increased.
20. The current average piped water tariff is RMB 1.81 per m³ (USD\$ 0.26) and the actual operating cost is around RMB 1.45 per m³. Piped water revenues cover operating and some capital expenses. The rural wastewater treatment fee is RMB 1.29 per m³ (USD\$ 0.19), well below cost recovery. The collection rate for water and wastewater tariffs is around 90% (in towns), non-revenue water levels are still being estimated. All service level and tariff rate data will be validated during preparation in the project Feasibility Study Report (FSR).

Project Overview

21. The project will combine responsibility for WSS under one institution, a water utility SPV, either formed by JDG or by a private party. The project will support the design and implementation of a modern utility that delivers a full range of WWS services, improves quality of WSS services, increases household connections for water supply and improved sanitation, and reduces effluent pollution to the surrounding water courses. There will be a focus on sustainability of services and infrastructure, ensuring that there is routine operation and maintenance of assets, with strict performance indicators for the service provider, and that there is a path to cost recovery for capital expenditures (capex) as well as operational expenditures (opex), for water and sanitation, and in conjunction with regulatory reforms.
22. The project will support investments in physical assets, such as: construction or upgrading of sewage plants, water supply plants, and pipe networks; protection of drinking water sources; and development of a smart water management platform. The project will also support technical assistance and capacity building activities for the utility and local government to ensure that long term planning is put in place, such as asset management, business planning, a tariff setting methodology, as well as routine monitoring and testing of performance. Under the project, the piped water supply coverage rate will be increased from 70 percent to at least 85 percent. Households currently receiving an existing piped supply will benefit from a safer water source. The sanitation coverage rate will be increased from 15 percent to at least 65 percent, through connection to sewers or improved sanitation, collection, and treatment. The construction of additional sewage treatment capacity will reduce the levels of raw effluent being discharged into the environment, with reduced pollution and a positive impact on



public health. The project will also be sized to allow for efficient operations and will seek to develop an action plan towards full operational cost recovery. This will serve as a replicable template for delivery of rural WSS in China, where there are limited examples of full-service delivery models and cost recovery for sanitation services. A FSR with technical designs is being prepared by JDG and their FSR consultant which will collect current data and look at feasibility of different design options.

23. The project was selected by MOF and NDRC to be delivered in the form of a PPP and as a demonstration model. It will be the first water sector PPP project supported by the IBRD (World Bank) in China. The World Bank has been asked to develop and demonstrate an innovative PPP approach, drawing on global and domestic best practice in WSS, which, if successful, could be replicated throughout Sichuan Province and more broadly in China.
24. During preparation, a transaction advisor will work with JDG and the FSR consultant to finalize the design of the PPP structure and transaction documents. A competitively selected private operator will enter into a PPP arrangement with JDG; and the operator will be responsible for WSS in the service area.
25. The modality of how the loan will be passed onto the project entity (i.e. loan, equity, capital subsidy, etc.; and whether paid to the PPP or to the JDG) are still being analyzed and discussed. Given the implications of JDG's highly leveraged debt situation, it is anticipated that the entire IBRD loan will be on-lent to the PPP partner.
26. **PPPs in Rural WSS.** Rural WSS in China is typically provided by local governments, using conventional models of public finance and procurement. With the new national-level objectives launched in 2015, projects for both urban and rural WSS increased significantly and the market for PPPs in the WSS sector has grown exponentially, attracting both domestic and international players. According to data from the China Public Private Partnership Center (CPPC)³, in 2016 of the RMB12.5 trillion in total PPP investment, about 25 percent was water related⁴, and growing. Moreover, in 2016, China's MOF released a notice mandating that all new water and wastewater treatment projects should use a PPP procurement model. Most of these water sector PPP projects have been in urban settings, and not in the under-served peri-urban and rural areas. WSS PPP projects in rural areas typically face bankability issues due to non-optimal risk allocation between the government and private sectors; over-sizing; focus on construction of treatment assets and less on distribution, operation and maintenance, connecting the infrastructure to households and service delivery.
27. **Project PPP Structure, Procurement, and Allocation of Public and Private Risks.** It is currently assumed that, under the PPP Agreement, the JDG will delegate key functions of the UCB and WAB of JDG to the PPP service provider, which will likely form an integrated utility for WSS. The PPP agreement will include key performance indicators to be met by the PPP provider so as to ensure the sustainability of investments, ensure service delivery, and ensure effluent standards are met. The JDG counterpart to the PPP and other public stakeholders will play key roles in regulating the sector, ensuring implementation of policy and regulations, monitoring performance, and conducting business and asset management and planning. The project will support an extensive capacity building program for the public counterparts. The structure and ownership of the PPP WSS Utility is still under consideration. Goals for structuring the PPP include: a) designing a PPP package that attracts interest from private sector players with strong service delivery experience, and b) allocating risks to the party best positioned to bear those risks. Design of the PPP structure, contract documents, and transaction process is being led by the Bank

³ See the CPPC website: <http://www.cpppc.org/en/index.jhtml>. Of the 10,500 total number PPP projects in China in 2016, around one-third were water related; and among those projects, 25 percent were for wastewater treatment, 14 percent were for water supply, and 12 percent were for pipeline networks.

⁴ <http://www.chinawaterrisk.org/resources/analysis-reviews/water-ppps-to-lead-in-china/>



and IFC teams (see below). Three possible options for structuring the ownership of the PPP include: (i) a Special Purpose Vehicle (SPV) wholly owned by the PPP partner and paid via a fee from JDG; (ii) a SPV formed by the district government, where the PPP partner has an ownership share and is paid to provide services; and (iii) a SPV established by the PPP partner, who is paid for services, and where JDG has a minority ownership stake. These options will be further developed and tested during project preparation.

28. The PPP structure and agreement will define the responsibilities of the WSS Utility develop under the project, including: the ownership structure of the service provider; the scope of the PPP service area (and whether the service provider or the district will cover the more remote areas); the level (if any) of the concession fee to be paid by the service operator for use of existing assets; the tariff structure and subsidies expected; the responsibility for connecting new households; and the allocation of responsibilities between JDG and the PPP provider for billing, collection, customer service, etc. International and domestic precedents for PPP contracts in rural and per-urban WSS will be analyzed during preparation (e.g. output based contract) to achieve the optimal structure.
29. Economic viability of the project overall, and the PPP WSS Utility in particular, will be key for the project design. The preliminary cost estimates from the original FSR presented high per capita cost that raise concerns for economic and financial viability. Through the preparation of the project, the economic and financial viability will be ensured through possible reduction in costs, inclusion of new components that may bring additional benefits, and allowing flexibility in the contract for the bidders to provide least-cost solutions. Such activities carried out during preparation can also be examples used in the replication of the project model to other rural sanitation projects in China and other countries. Given the high costs, it is expected that the private sector will ultimately be paid through collected tariffs and subsidies; however, the project will make attempts to reduce the subsidies as much as possible. Efforts are currently underway to revise the FSR and establish reasonable demand forecasts so as to optimize the size of investments and reduce investment costs for the project activities (see the Economic and Financial Analysis section below). Project and PPP structure design will also be informed by robust financial analysis (also described below). An openly competitive PPP procurement approach will allow JDG to benefit from private-sector innovations and efficiencies (in design, construction, operations, etc.) as well to provide transparency in WSS financial operations of the utility (i.e. open PPP contract and the use of subsidies, etc.).

Project Components

30. The following components are under discussion with the borrower, with specific details still to be confirmed:
31. **Component 1: Improving WSS Services in Peri-Urban and Rural Areas of Jingyang District (Estimated Cost: US\$147 million; IBRD loan: US\$97 million).** This component has three key activity areas, details of which will be finalized during project preparation:
 - **Establishment of a modern WSS Utility:** support the establishment of systems and equipment to enable full-service WSS delivery. An entity will be established (either by the private operator or by the district) that will take on the functions of a utility, and be responsible for: service delivery, long-term asset management, efficient and optimized system operations; customer interface and customer service; billing, accounting, and administration; as well as the core responsibilities of WSS service provision and water quality compliance. It will also include an integrated smart water management platform for use by the utility to monitor, manage, and operate the assets.
 - **Support for Engineering Works for:** (i) increased access to improved sanitation - through construction of rain and sewage pipe networks, connections of households to sewers, collection and treatment of septage from septic tanks and improved and increased wastewater and septage treatment capacity; (ii) increased access to



improved piped water system - through consolidation and upgrading of water treatment plants , protection of drinking water source sites and water intakes/wells and construction of pipe networks. [The project may also support financing of any O&M subsidy in the early years.]

- **Support for Citizen Engagement:** The project will finance activities for citizen engagement and participation to share project information with beneficiaries, solicit feedback on project designs, and educate local residents on the benefits and value of improved WSS services. Activities such as workshops, surveys, training, and citizen committees will help to raise awareness and encourage the residents to connect their households to the water and wastewater systems, and to pay affordable water/wastewater tariffs. Tariff rates will be designed to protect low-income households by working with the government to exempt a baseline monthly volume of water supplied from tariffs for those households.
32. **Component 2: Technical Assistance (TA) for PPP Scale Up, Capacity Building, and Project Management (Estimated Cost: US\$3 million; IBRD loan: US\$3 million).** This component has two key activity areas, namely:
- **Technical Assistance for Water Sector PPP Scale Up:** support of technical assistance activities to study and inform the regulatory factors and mechanisms to scale up the PPP approach developed under the project to other areas across Sichuan and China. Specific TA activities include: (i) a study and roadmap for reaching financially sustainable and affordable rural WSS tariff rates, and appropriate rural effluent discharge standards⁵; (ii) a comprehensive study of Chinese and international experience with PPP in the WSS sector, with recommendations for China (including: review of existing case studies and new case studies on projects in China); (iii) review of and recommendations for the existing NDRC and MOF PPP policy and guidance documents on PPP; (iv) preparation of PPP template documents to be used in the scale-up and replication of the project approach across Sichuan province and elsewhere in China (e.g. model contracts, bidding documents, project management tools, etc.); and (v) dissemination activities to share project experience at provincial and national levels.
 - **Capacity Building and Project Management:** The public counterpart to the PPP will have key functions that are not delegated to the PPP operator, including implementation of WSS policy and regulations, regulatory oversight of the PPP operator, business planning, tariff setting, and long-term asset management and planning. The project will include capacity building activities to support these functions, such as training in project management, regulation, business planning and asset management planning, study tours of successful water sector PPP projects in China and abroad, training and workshops in project/utility technical and financial management, and training in PPP procurement processes. Project management and implementation support will include: consulting services to enhance engineering design, construction supervision, and environmental and social management; establishment and operation of a monitoring and evaluation system, training and acquisition of office equipment, vehicles, other operating resources. The reports and templates will in turn serve as global public goods to highlight best practice in how the private sector can support governments to manage the increasing challenges of pollution and connecting households in rural and peri-urban areas.
33. **Project Cost and Financing.** According to the original FSR, the total scope and cost of this project is expected to be US\$150 million; however, the FSR is being revised and the total cost estimate will also be revised. The project will be co-financed with funding from the IBRD loan, the contribution from the partner entity selected through the PPP procurement process, and the contribution from JDG counterpart funding. As noted, the current project cost estimates are considered high, particularly on a per-capita basis, and particularly for the viability of the PPP

⁵ The World Bank and Ministry of Housing and Urban Rural Development (MOHURD) have been working on a policy note regarding rural wastewater discharge standards, which will formulate opinions and recommendations accordingly.



WSS Utility. During preparation, the FSR consultant and the transaction advisor will look to optimize investments, reduce costs and ensure project viability (e.g. using more accurate demand projections to size assets, utilizing existing assets, selecting lower-cost appropriate technologies and developing strategies to ensure sustainability of finance). The Economic and Financial Analysis have further details on reducing investment and lifecycle costs and ensuring PPP financial viability.

34. **Maximizing Finance for Development.** The proposed use of IBRD Loan (US\$100 million) to support a US\$150 million rural WSS project embraces the Maximizing Finance for Development (MFD) approach. The MFD approach helps countries to maximize their development resources by inviting commercial finance and sustainable private sector solutions that provide value for money and reserving scarce public financing for those areas where private sector engagement is not optimal or available. It is anticipated that up to US\$30 million in private finance could be raised to support the project through the PPP approach, subject to further due diligence (see further details below).
35. **Gender.** Gender tagging for this project is yet to be decided. During site visits to date, the project team and social specialists have not observed a gender gap in WSS services. However, during project preparation, a full social assessment, including a gender analysis, will be carried out as part of the ESIA to identify any gap areas and make recommendations. In this process, women will be consulted in gender-disaggregated groups to ensure their specific needs will be reflected in the design and implementation of the project. A gender-related indicator will be included in the results framework. Specific gender activities will be defined after the social assessment. In this project it is not expected that gender-based violence (GBV) will be an issue, but any GBV risks will also be identified in the social assessment.
36. **Citizen Engagement.** The project will implement the Bank's new ESF and will include a Beneficiary Feedback (BF) indicator in the results framework. Moreover, citizen engagement in project design and implementation is seen as a key to the success of the project. As noted, a common challenge for rural sanitation systems in China is connecting households to sewers. In this project a citizen-oriented design approach will be taken: i) current and future customers will be consulted during project preparation, ii) opportunities will be identified for residents to participate in construction activities, iii) community members will be a key part of ongoing system O&M, and iv) feedback and grievance mechanisms will be put in place. These citizen engagement activities will be clearly defined, with clear roles for government, the private operator and community members, during project preparation. A robust citizen engagement mechanism will be included as a key performance indicator in the PPP agreement.
37. **Climate Change.** It is expected that during project preparation, the team will investigate and analyze sector-specific climate co-benefits as well as assess the influence of the Shadow Price for Carbon (SPC) on the project economic rate of return (EIRR). Consistent with Bank methodology and reporting requirements, the team will identify and quantify potential climate co-benefits from project activities. For climate adaptation, co-benefits may include: i) climate change forecasts on water availability and water security in the water supply source study; and ii) early screening of proposed facility locations for flooding risks. For climate mitigation, co-benefits may include: i) estimation and reporting of possible net methane (CO₂e) reductions as a result of WW treatment process changes (compared to current practice); and ii) alternatives analysis or energy audits for possible energy efficiency improvements at new/rehabilitated water and wastewater facilities. Incorporating the SPC in the project economic analysis will follow Bank methodologies and project experience, calculating the EIRR under



three scenarios: i) excluding GHG emissions; ii) including GHG emissions with low SPC; and iii) including GHG emissions with high SPC.

Value added of the Bank's support

38. The project was specifically requested by MOF and NDRC to leverage the global experience across the World Bank Group in support of innovative solutions to the challenges of sustainable financing in the provision of water supply and sanitation services in China. The project will benefit from the experience of the World Bank and the IFC PPP Advisory team (IFC C3P)⁶, as well as the Global Infrastructure Facility (GIF)⁷ and the Global Water Security and Sanitation Partnership⁸. This experience will combine to provide comprehensive support to design, implementation and capacity building – including for project preparation and the PPP transaction advisory support – to ensure the project serves as a model for other PPP projects in the water and wastewater sector across China and more globally. The World Bank has extensive experience in sustainable WSS projects in China and elsewhere, through IDA and IBRD, and a global knowledge network of innovative water solutions. IFC C3P has extensive global expertise in providing transaction advisory services for PPPs and will specifically support the local government and the FSR consultant to conduct robust demand analysis, due diligence, design of the PPP structure, preparation of bidding documents, market sounding, and overall support through procurement. The GIF will provide financial support and technical assistance to JDG in definition of the PPP, as well as through preparation and structuring of activities. This includes a grant for preparation and the potential for a reimbursable grant to fund World Bank and IFC activities related to project preparation and transaction services. Specifically, the proposed project will focus on three value additions: (i) enhancing institutional capacity; (ii) supporting global public goods; and (iii) introducing innovations into the water supply and sanitation sector.
39. **Strengthening Institutional Capacity.** While PPP has become a powerful instrument to address financing challenges for development, lessons learned from many other PPP projects in China show that the capacity of the governments, in particular at the county and district levels, need substantial improvement in the design and management of PPPs. The proposed project will support JDG, in collaboration with WBG teams, to strengthen its institutional capacity throughout project preparation and implementation. The model of institutional strengthening for PPPs gained from the proposed project (in particular the regulatory aspects of PPP contract management) will have the potential to be replicated across the 2,854 counties and districts in China and will serve as a model for closing the water supply and sanitation gap and advancing the SDGs globally.
40. **Supporting Global Public Goods.** Improved models for the delivery of water supply and sanitation services have the potential to make a substantial contribution to global welfare. The project will inform best practices in PPP in WSS that can serve as an example internationally on how to use the private sector to improve service delivery and connectivity, move towards achievement of the Sustainable Development Goals and create sustainable utilities in rural and peri-urban settings. Whilst there is extensive literature on the use of the private sector in urban WSS settings, and very small scale rural projects, there has been less focus on how to ensure holistic service delivery in WSS in peri-urban areas, how to achieve cost recovery for sanitation in these areas and to ensure that households connect to these services. This project will draw together international and domestic experience in

⁶ IFC is the largest global development institution focused on private sector development and public private partnerships (PPPs)

⁷ GIF is a trust fund administered by the World Bank among governments, multilateral development banks, and financiers that provides funding and expertise to governments in bringing well-structured and bankable infrastructure projects to market.

⁸ The GWSP is a multi-donor trust fund administered by the World Bank's Water Global Practice that supports client governments to achieve the water-related SDGs through the generation of innovative global knowledge and the provision of country-level support.



PPP in WSS to develop approaches to meet the challenges of peri-urban areas. It will present an opportunity to innovate, tapping the resources and expertise of the private sector, and to allocate risk to the party most suited to manage the risk.

41. **Innovations.** The proposed project presents an opportunity to innovate, leveraging the resources and expertise of the private sector, and explore risk allocation models suited to provision of sustainable water supply and sanitation services. New innovations being proposed include: (i) **A Model PPP Approach for Innovative Service Delivery and Procurement** that responds to the request from MOF and NDRC to develop a best-in-practice PPP approach for the delivery of high-quality and sustainable WSS services by establishing a fully functioning utility-like SPV that can be scaled up as an alternative for water sector infrastructure and service delivery projects in peri-urban and rural areas; (ii) **Tailored Recommendations for PPP Reform** that contribute to the ongoing PPP reforms at the national level (including through the MOF PPP led group; the China PPP Center (CPPPC); the draft PPP Operation Guidelines, PPP Contract Guidelines, Procurement Regulations for PPP Projects; the PPP project database and other channels) and significantly influence the development of rural WSS PPPs; (iii) **An Integrated Approach for Rural Wastewater Management** that combines non-structural elements on tariff collection, rural-appropriate technology selection, and citizen-oriented design with the traditional structural elements of wastewater infrastructure and construction to provide an integrated, long-term approach that will avoid the failures of many rural water and wastewater projects. Additionally, the project will apply low-cost WSS technology solutions, with lower overall investments and lower lifecycle costs, that are appropriate and affordable for low-capacity rural systems; and, (iv) **Provide a Model for Maximizing Financial Resources** by leveraging Bank and local counterpart funding to attract additional sources of private-sector financing, through an open, competitive and transparent PPP procurement process.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No



Summary of Screening of Environmental and Social Risks and Impacts

Although the specific information of the physical investment on the drinking water and wastewater facilities, i.e. capacity and location, are unknown, it is clear that the total size of the project is to be medium. An initial visit to the project sites and early discussions with key stakeholders suggested that impacts described in ESS5 (restrictions to land and other income sources) is at moderate scale, involving small patches of land acquisition of a few hundred square meters and possible resettlement to allow construction of water supply facilities. There are existing facilities invested by both public and private players, such as 3 waste water treatment plants currently being constructed by different companies, and 34 water supply stations/centers will be consolidated. The environmental baseline in the project area is overall not sensitive or vulnerable, with project implementation expected to affect mainly areas with existing human habitat and infrastructure footprints. Overall, the project will have positive environmental and social benefits in terms of reducing the water-borne diseases and water pollution in receiving water bodies by providing clean drinking water and collecting and treating the wastewater. The environmental impacts are moderate, site-specific, predictable and/or reversible. These adverse impacts can be readily and reliably managed through the environmental mitigation hierarchy. Per the Environmental and Social Directive, the environmental risk for this project is classified as Moderate. The client has good experience and adequate capacity in managing environmental issues associated with the wastewater and water facilities at the size commensurate with this project. The client has allocated funds to hire professional institutions for FSR, EIA and social documents and assigned qualified staff to work in the PMO to deal with environmental issues on daily basis during the cycle of the project. So the environmental risk on the capacity of the borrower is moderate. The client's internal management structure in relation to water supply and waste water treatment is complex, calling for coordination among different agencies, a challenge faced by most previous projects in China. A few key stakeholder agencies, such as labor bureau and administration of workplace safety, are missing from the currently identified and invited list by the PMO. There are over 90 staff employed by these facilities, who are key stakeholders to be consulted.

Note To view the Environmental and Social Risks and Impacts, please refer to the Concept Stage ESRS Document.

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