

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

REGIONAL

WATER AND SANITATION PROJECT FOR METROPOLITAN CIUDAD DEL ESTE

(RG-L1134)

LOAN PROPOSAL

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REQUIRED
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OPTIONAL
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3. Joint Report on Multilateral Development Banks' Climate Finance
4. Financial sustainability analysis
5. Analysis of project compliance with the IDB Public Utilities Policy
6. Draft project Operating Regulations
7. Disbursement schedule
8. Draft progress monitoring report
9. Safeguard policy filter and safeguard screening form
10. Climate change
11. Regional integration
12. National Drinking Water and Sanitation Plan

ABBREVIATIONS

BOD	Biochemical oxygen demand
CFU	Colony-forming units
CORE	Cofinancing for Renewable Energy and Energy Efficiency program
DAPSAN	Dirección de Agua Potable y Saneamiento [Water and Sanitation Department]
DGEEC	Dirección General de Estadísticas, Encuestas y Censos Bureau of Statistics, Surveys, and Census
ERSSAN	Ente Regulador de Servicios Sanitarios [Sanitary Services Regulatory Authority]
ESA	Environmental and social analysis
ESMP	Environmental and social management plan
ESSAP	Empresa de Servicios Sanitarios del Paraguay [Sanitary Services Company of Paraguay]
ICAS	Institutional Capacity Assessment System
ICB	International competitive bidding
JICA	Japan International Cooperation Agency
LIBOR	London Interbank Offered Rate
MOPC	Ministerio de Obras Públicas y Comunicaciones Ministry of Public Works and Communications
NRW	Nonrevenue water
NTU	Nephelometric turbidity units
PCU	Project coordination unit
PNAPS	Plan Nacional de Agua Potable y Saneamiento [National Water and Sanitation Plan]
SCPP	Sistema de Contrataciones Pública de Paraguay Public sector procurement system of Paraguay
SIAF	Sistema Integrado de Administración Financiera [Integrated Financial Administration System]
SICO	Sistema de Contabilidad [Integrated Accounting System]
TBD	To be determined
WTP	Willingness to pay

PROJECT SUMMARY

REGIONAL

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(RG-L1134)

Financial Terms and Conditions						
Borrower: Republic of Paraguay			Flexible Financing Facility ^(a)			
			Amortization period:	24 years		
Executing agency: The borrower, through the Ministry of Public Works and Communications			Disbursement period:	6 years		
			Grace period:	6.5 years ^(b)		
Source	Amount (US\$)	%	Interest rate:	LIBOR-based		
IDB (Ordinary Capital):	115 million	57.5	Credit fee:	(c)		
Counterpart (JICA-CORE cofinancing): ^(f)	85 million	42.5	Inspection and supervision fee:	(c)		
Total:	200 million	100	Weighted average life:	15.13 years		
			Approval currency:	United States dollar		
Project at a Glance						
Project objective/description: The project's objective is to help overcome the regional challenge of preserving the quality of water resources in the Paraná River and Guaraní Aquifer System, and to improve the quality of life of the population in the districts of Ciudad del Este and Presidente Franco. Its specific objectives are to: (i) expand water and sanitary sewer services coverage and improve their quality in those districts, taking into account the impacts of climate change and appropriate management of transboundary water resources; and (ii) improve service-delivery management efficiency by reducing losses and implementing energy efficiency programs and a new service delivery model.						
Special contractual conditions precedent to the first disbursement of the loan: (i) entry into effect of the agreement between the Japan International Cooperation Agency (JICA) and the borrower governing the JICA cofinancing for the project; (ii) formation of the project coordination unit by appointing and/or hiring the members specified in paragraph 3.1; (iii) approval and entry into effect of the project Operating Regulations (optional link 6), in accordance with the terms previously agreed upon with the Bank; and (iv) signing of an interagency agreement between the Ministry of Public Works and Communications (MOPC) and the Sanitary Services Company of Paraguay (ESSAP), in accordance with the terms set out in paragraphs 3.4 and 3.5.						
Special contractual conditions for execution: (i) prior to awarding the first works contract of the project, the executing agency will have hired a consulting firm to provide technical and fiduciary support and a specialized technical operations advisor, presenting evidence to the Bank that the ESSAP operational management unit has been formed for metropolitan Ciudad del Este (paragraph 3.6); and (ii) prior to the start of works in the Itaipu service area, the executing agency will present evidence to the Bank that ESSAP has secured the necessary rights and authorizations to use the infrastructure and assets associated with that area's existing water and sanitation services, and to implement the respective works (paragraph 3.6). See the special contractual conditions in Annex B of the environmental and social management report (required link 3).						
Exceptions to Bank policies: None						
Strategic Alignment						
Challenges: ^(d)	SI	✓	PI	✓	EI	✓
Crosscutting themes: ^(e)	GD	✓	CC	✓	IC	✓

^(a) Under the terms of the Flexible Financing Facility (document FN-655-1), the borrower has the option of requesting changes to the amortization schedule, as well as currency, interest rate, and commodity conversions. The Bank will take operational and risk management considerations into account when reviewing such requests.

^(b) Under the flexible repayment options of the Flexible Financing Facility, changes to the grace period are permitted provided that they do not entail any extension of the original weighted average life of the loan or the last payment date as documented in the loan contract.

^(c) The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable policies.

^(d) SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).

^(e) GD (Gender Equality and Diversity); CC (Climate Change and Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

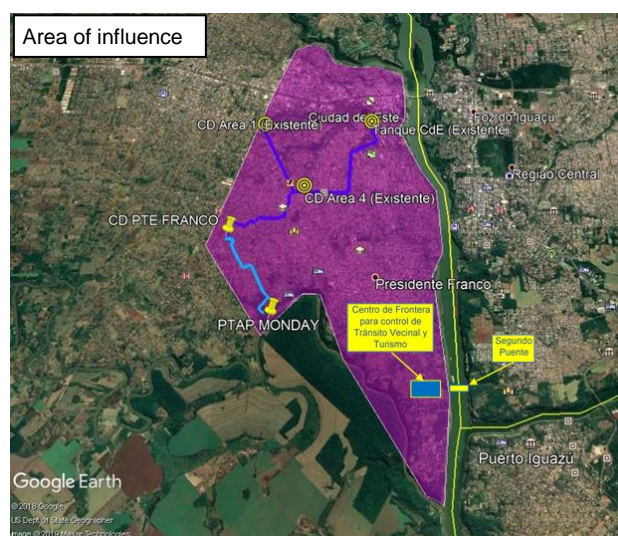
^(f) Joint cofinancing under the Cofinancing for Renewable Energy and Energy Efficiency (CORE) framework agreement between the Bank and JICA, signed 16 March 2012, as amended. The JICA cofinancing should be approved by the first quarter of 2020.

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem addressed, and rationale

1. Regional and integration context

- 1.1 The districts of Ciudad del Este and Presidente Franco are located in eastern Paraguay, on the country's border with Brazil and Argentina. They are separated from those two countries by the Paraná River, an international watercourse with a watershed covering an area of approximately 2.6 million square kilometers.
- 1.2 These countries share the Guaraní Aquifer System, one of the world's largest underground reservoirs of fresh water, of which an estimated 71,000 square kilometers are located in Paraguay. Over half of that area is characterized as a shallower, somewhat exposed unconfined aquifer and recharge area, making it vulnerable to the risk of pollution by infiltration.
- 1.3 The aquifer and river form a hub of regional integration and development, where border cities share historical and sociocultural processes, and economic interactions facilitated by large binational works, such as the Itaipu Dam. Tourist activities, such as beaches for recreation and fishing; irrigation; and the Guaraní Aquifer System's hot springs lead to high levels of interaction among flows of people. Likewise, with the construction of the new bridge between Brazil and Paraguay, to be financed by Itaipu Binacional, and the establishment of a freight transportation logistics hub and border center to control crossings and tourist traffic from neighboring countries, by 2026 traffic flows over the new bridge are expected to include 1,268 trucks transporting more than 3.6 million tons of goods; 124 passenger buses; and 9,027 light vehicles,¹ which will require basic services like water and sanitation that do not currently exist in the area.
- 1.4 The potential pollution of these transboundary water resources from wastewater entering the aquifer due to poor septic tank maintenance and discharges of untreated wastewater into the river exacerbates health and environmental problems, especially as regards the generation of greenhouse gases and pollution of the Guaraní Aquifer System. The ability to effectively address this situation will require a cross-border approach.



¹ Final design of access roads to the second Bridge over the Paraná river, Poyry-Electroconsult consortium, 2012.

- 1.5 In an effort to target water resource management, the countries have signed international agreements and established binational agencies. The Argentine, Brazilian, Paraguayan, and Uruguayan governments signed an agreement in 2010, under which they committed to promoting the conservation and protection of the Guaraní Aquifer System, to ensure its multipurpose, rational, sustainable, and equitable use. However, since the agreement was not ratified by all four States until March 2018, the Guaraní Aquifer Commission has not yet been formally set up. This regional organization was defined in the agreement as the entity that will manage potential conflicts over the use of the aquifer and promote cooperative knowledge and management projects to improve its management. Protocols on the hydroelectric use of the Paraná River have been signed with Entidad Binacional Yacyretá and Itaipu Binacional. In addition, international agencies such as the Intergovernmental Committee on the Paraguay-Paraná Waterway and the Joint Commission for the Paraná River have encouraged actions to promote commercial shipping and have fostered transboundary water resources environmental conservation activities. These cooperative efforts, in addition to the ones included in this operation (paragraph 1.30), will be supported through an international waters and water security initiative that the Bank has been implementing in an effort to develop technical and institutional capacity for managing transboundary water resources (and aquifers). They will also provide support for binational dialogue to promote agreements and treaties for managing transboundary water resources, and form strategic partnerships with key partners with a view to exchanging experiences, developing knowledge products, and channeling financial resources.
- 1.6 Along these lines, the Paraguayan government is planning investments to expand sewer and wastewater treatment system coverage in metropolitan Ciudad del Este, to help mitigate the impacts on the quality of the transboundary water resources. This project will finance the first stage of water and sanitation works, thereby contributing to the conservation of transboundary water resources, fulfilling international integration agreements, and reducing any potential conflicts among the countries over these resources.

2. Local context

- 1.7 According to Bureau of Statistics, Surveys, and Census (DGEEC) projections for 2019, the four districts that make up the metropolitan area of Ciudad del Este (i.e. Ciudad del Este, Minga Guazú, Hernandarias, and Presidente Franco) have a population of 572,350, forming the country's second-largest urban cluster (compared to the 290,000 inhabitants of Foz de Iguazú, Brazil, and nearly 100,000 of Puerto Iguazú, Argentina).
- 1.8 **Piped water service in metropolitan Ciudad del Este is insufficient and poor quality.** The area's 255 service providers² only cover 48% of the population.³ The systems administered by Itaipu Binacional and ESSAP (Sanitary Services Company of Paraguay) supply approximately 22% of the population and the small-scale providers,⁴ 26%. The remaining 52% get their water from artesian wells on their property.⁵

² Of the 255 providers, over 90% serve fewer than 1,000 users. This fragmentation leads to low levels of efficiency and varied service quality. The evidence for inefficiencies due to fragmentation is analyzed in "*Ferro y Lentini, 2011, Economías de escala en los SAP y alcantarillado.*"

³ Caldetec. "Relevamiento y Catastro de Prestadores y Usuarios del Servicio Público y Privado, relacionado a la Provisión de SAP y alcantarillado en el AMCE." 2014–2015.

⁴ Private water providers, sanitation boards, and neighborhood committees.

⁵ Caldetec Ingeniería S.R.L., 2015, op cit.

- 1.9 Water service operators have insufficient levels of continuous water service,⁶ pressure,⁷ and quality.⁸ The systems supplied by groundwater from shallow wells are vulnerable to periods of drought or intense heat, while the ones supplied by deep wells present risks to the Guaraní Aquifer System as they lack protection against the filtration of pollutants. The ESSAP and Itaipu systems are also vulnerable, since their main source of water catchment/uptake, Lago de la República, fluctuates significantly (e.g. in periods of drought/dry season, decreases by up to 30%), restricting the water supply.⁹
- 1.10 **Sewer system coverage in metropolitan Ciudad del Este is limited and wastewater treatment nonexistent.** The sewer system barely covers 7% of the population—some 15,000 households—in the downtown metropolitan Ciudad del Este, in addition to some dwellings in Itaipu. The rest of the population relies on individual solutions, including septic tanks (90%) and discharging wastewater in the streets¹⁰ or watercourses. Due to poor maintenance,¹¹ septic tank wastewater seeps into and contaminates the shallow aquifers of the Guaraní Aquifer System recharge area, used to supply drinking water.¹² Because there are no wastewater treatment plants, all wastewater collected by ESSAP and Itaipu is discharged untreated,¹³ adversely impacting the receiving watercourses.
- 1.11 **Water and sanitation services are poorly managed.** Although ESSAP operational data for Ciudad del Este are not available, in the aggregate, nonrevenue water (NRW) makes up 50% of the supply; for cities outside the country's metropolitan areas, this figure rises to 67%, much higher than regional averages.¹⁴ Although no data are available to calculate this indicator for other water service operators, it should decrease with works to subdivide distribution networks (sectorization), pressure modulation, and individual and master metering,¹⁵ all of which are activities that will directly impact unmet demand. With regard to energy efficiency, the water services operated by ESSAP and Itaipu in 2018 consumed

⁶ Private water providers have the highest percentage of users with continuous service (70%), while the neighborhood committees have the lowest, with only 48% of users enjoying 24-hour service. In addition, 11%, 7%, 24%, and 25% of the ESSAP, Itaipu, sanitation board, and neighborhood committee users, respectively, have water service fewer than 12 hours per day.

⁷ The intermittent nature of the service can affect the water quality. IDB Technical Note. [Intermittent Supply in the Context of Efforts to Improve Piped Drinking Water Supply in Latin America and the Caribbean: Lessons from a Case Study in Arraiján, Panama](#), Nelson, Kara and John Erickson.

⁸ The quality of the water provided is poor. All told, 71% of providers do not comply with the potability and quality requirements established by ERSSAN, and more specifically, the bacteriological and total coliform requirements (3 CFU/100). Furthermore, turbidity in the metropolitan area of Ciudad del Este exceeds the levels recommended by the World Health Organization (less than 1 NTU). This suggests that most of the systems have maintenance, cleanliness, and chlorination problems (Caldetec, 2015).

⁹ Nippon Koei LTD, 2009. Study of a project to improve the drinking water and sewer systems in the Ciudad del Este region.

¹⁰ All told, 2% of households in the metropolitan area of Ciudad del Este dispose of their wastewater in the streets and 1% in the yard (socioeconomic survey 2018).

¹¹ Failure to periodically remove sludge and waterproof wells.

¹² Evidence of the impact of contamination from individual wastewater systems on subsoil and groundwater. [Groundwater and its Susceptibility to Degradation](#). UNEP 2003.

¹³ Castalia Deloitte, 2018. Feasibility and business structuring study of the concession agreement for the drinking water and sewerage systems in the districts of the metropolitan area of Ciudad del Este.

¹⁴ According to the 2013 Annual Report of the Benchmarking Regional Working Group, in nine countries of Latin America and the Caribbean, NRW makes up 41.5% of supply; a rate of 30% is considered good management and 50% is considered poor.

¹⁵ In [Estudo de Metodologias para Avaliação de Submedição de Hidrômetros Domiciliares em Sistemas de Água \(2008\)](#), Da Silva N. R. shows that individual metering led to a 10% reduction in average monthly consumption.

4,000 megawatt-hours—equivalent to 0.53 kilowatt-hours per cubic meter of water produced. Spending on electric power has increased 52% over the last two years, due to rate adjustments made by the National Electricity Administration in 2017 (15%) and increased pumping in dry seasons. To improve operational efficiency, electricity use and NRW—and their associated costs—must be reduced. International experience shows that reducing use by 5% to 20% by replacing motors, pumps, and the drive system, and by reducing NRW.¹⁶ Furthermore, ESSAP does not keep separate accounts that would make it possible to disaggregate the costs of providing services by subsystem, but rather applies a single rate schedule for the entire country. It uses a two-part pricing structure, which includes fixed and volumetric charges, the latter in increasing segments to provide incentives for the rational use of water. Rates are differentiated by user category—i.e. residential and nonresidential—and include a reduced (subsidized) rate for vulnerable users and/or those with limited ability to pay; however, the way the subsidized residential rate and its beneficiaries are determined is not specified in detail. Sewer system service rates are proportional to water rates. A study of costs, rates, and subsidies for the target area is expected to be financed with technical-cooperation resources.

- 1.12 The foregoing issues reflect the lack of comprehensive, regionalized planning of services, exacerbated by low levels of operational and commercial efficiency,¹⁷ impacting service sustainability. ESSAP has been unable to consolidate a relevant position in metropolitan Ciudad del Este as a result of its centralized administration and its low and irregular allocation of resources. Hence, there is an opportunity to promote a service delivery model based on regional operational units, with appropriate corporate governance, service quality, and specific, objective efficiency targets that, in the medium term, will serve all of metropolitan Ciudad del Este and the nation as a whole.
- 1.13 Coverage and quality gaps adversely impact the delivery of water and sanitation services and are indicators of exposure to health risks, and consequently, quality of life. This is significant as there is a positive correlation¹⁸ between environmental quality,¹⁹ health,²⁰ and access to water and sanitation services.
- 1.14 **Sector's institutional framework.** The regulatory framework for the water and sanitation sector establishes that the executive branch, through the MOPC, is responsible for formulating policy, and the Sanitary Services Regulating Authority (ERSSAN) is responsible for regulating and supervising all service operators. The framework also specifies that the executive branch has ownership of the services—i.e. the capacity and obligation to provide them. Therefore, it can provide them through ESSAP, delegate them, or award concessions, permits, or licenses for third-party operators.

¹⁶ Pedraza A., R. Riquelme, and P. Méndez. [Energy Efficiency in Water Utilities: The Case of Guyana](#).

¹⁷ They contribute to the poor efficiency, infrastructural weaknesses (lack of master and individual metering and sectorization), lack of information (such as on NRW), lack of adequate, up-to-date systems (infrastructure and customer roles, asset- and pressure-management plans).

¹⁸ Documented in numerous studies, such as the ones summarized by Breneman, et al. (2002).

¹⁹ [Rodríguez-Jeangros et al. \(2008\)](#) models the effect of wastewater treatment plants on the Bogotá River.

²⁰ The probability of contracting waterborne diseases decreases when water and sanitation services are in place; this directly redounds to a reduction of child mortality, as shown in studies by [Wagstaff and Claeson \(2004\)](#) and [Schady \(2015\)](#). [Conte Grand, M. and G. Coloma \(2009\)](#) found a significant correlation between increased water and sanitation coverage and decreased mortality.

3. Rationale, knowledge, and alignment

- 1.15 **Rationale for the proposed interventions.** The aforementioned issues and their potential negative impacts on transboundary water resources such as the Paraná River and Guaraní Aquifer System necessitate an investment plan that will help: (i) improve and standardize the quality and efficiency of water service; (ii) expand water and sanitation service coverage, especially sewerage and wastewater treatment; and (iii) strengthen governance of the sector and transboundary water resources, as well as operational efficiency and financial sustainability of operators. Overcoming these challenges will require an investment of roughly US\$1.3 billion,²¹ and a new and financially sustainable region-based service delivery system. Accordingly, a program is needed that would be implemented in stages, with plans for the progressive expansion of services. This project corresponds to the first stage of that program, and will primarily focus on the most densely populated areas of Ciudad del Este and Presidente Franco, as well as areas with the most serious health risks due to the lack of sewer systems and the presence of nitrates above the allowable limits. Under this operation, the master plan for the metropolitan Ciudad del Este will be updated and the subsequent stages of the program will be designed. Further, this project will first optimize the existing ESSAP and Itaipu systems to reduce NRW and improve the energy efficiency, availability, quality, and continuity of drinking water services, while building the new infrastructure for expanding services, prioritizing areas unserved by ESSAP and Itaipu. Upon consolidating these stages, the project will begin a dialogue process with neighboring service operators with the greatest service deficiencies, with a view to incorporating their service delivery areas into the new system.
- 1.16 **Bank's sector knowledge.** The Bank has financed several similar operations in Paraguay and the region, generating knowledge and technical capacity to design interventions that seek to expand water and sanitation coverage as well as the comprehensive management of transboundary water resources. Examples of operations in Paraguay include the Integrated Sanitation Program of Asunción (loans 3393/OC-PR and 3394/BL-PR), the Water and Sanitation Program for the Chaco Region and Intermediate Cities in the Eastern Region of Paraguay (loan 2589/BL-PR), and the Water and Sanitation System Construction Project for Small Cities and Rural and Indigenous Communities in Paraguay (loan 3601/OC-PR). Examples at the regional level include the Lake Titicaca Cleanup Program (loans 3730/BL-BO and 3731/OC-BO), Comprehensive Sanitation Program for the Cities of the Uruguay River Basin – Province of Entre Ríos (loan 4822/OC-RG), and Management of Water Resources in the Pilcomayo River Watershed (technical-cooperation operations ATN/LA-17190-RG, ATN/MA-17191-RG, and ATN/OC-17192-RG), the latter of which promotes the management of transboundary water resources. Furthermore, the technical-cooperation operation Support for the Preparation of the Project of Potable Water and Sewer System for the Districts of Ciudad del Este, Presidente Franco, Hernandarias, and Minga Guazú of the Department of Alto Parana (operation ATN/JF-15905-PR) financed feasibility studies whose information and lessons served as a foundation for structuring this operation. With regard to improved service management, the design of this operations draws on the results of the technical-cooperation operations Transparency and Information Management in the Water and Sanitation Sector (operations ATN/AA-17281-RG and ATN/MA-17280-RG), which support ESSAP, ERSSAN, and the Water and Sanitation Department (DAPSAN) in designing and implementing integrity and corporate governance policies, mechanisms, and practices. Further, funds from an

²¹ Castalia Deloitte, 2018.

operational support technical-cooperation operation currently in preparation will finance the updating of technical studies, the structuring of a performance-based contract for the specialized technical operations advisor, and the identification of local productive development activities in the project's area of influence.

- 1.17 **Local productive development.** Nonreimbursable resources will be used to support ESSAP in preparing a plan for Ciudad del Este that promotes the development of functional competencies for job and entrepreneurial opportunities targeting the unskilled labor force, through training programs in: (i) operation and maintenance of water and sanitation systems; (ii) plumbing and construction of household connections, as well as through (iii) plumber certifications on the preventive and corrective maintenance of home water systems.²²
- 1.18 **Lessons learned.** Lessons identified in evaluating and executing similar operations in Paraguay and in the region were incorporated into the preparation of this project, namely: (i) ensuring adequate coordination among the executing agency, service operator, and other institutions involved in executing the works (municipal or environmental permits) makes it possible to take action to start the project on time and adhere to the execution schedule; to that end, the stakeholders will sign agreements specifying their respective responsibilities (paragraph 3.5); (ii) strengthen the capacities of the executing agency by incorporating, as necessary, technical, socioenvironmental, and project management specialists with experience supervising and executing similar projects; to that end, an institutional capacity analysis was performed and the project will provide funds for incorporating these specialists (paragraphs 3.1 and 3.3); (iii) allow at least six years for project execution, given the average amount of time needed for budgetary and procurement processes in Paraguay; this will substantially reduce the probability of requests to extend the term for final disbursement; and (iv) for procurement, use the design and build of works modality to limit the probability that changes to the design will be proposed during execution as a result of the time lag between the completion of the designs and the start of the works.
- 1.19 **Government strategy.** In 2018, the Paraguayan government of Paraguay passed the National Water and Sanitation Plan (PNAPS) ([optional link 12](#)), indicating the following priorities and strategies for universalizing water and sanitation services and modernizing the sector: (i) institution-strengthening and reorganization; (ii) financial and subsidiary regulation; (iii) universalization of services and sustainability of water and sanitation systems. This operation is aligned with the PNAPS and is one of the priority strategic projects for increasing water and sanitation coverage. Furthermore, it finances nonstructural interventions (paragraphs 1.30 and 3.3) to improve administration of the services and foster their financial and operational sustainability. It is also consistent with the lines of action set forth in the Guaraní Aquifer System Strategic Action Plan²³ and in the international agreements (paragraph 1.5), since it will expand technical and scientific knowledge on transboundary water resources and encourage the exchange of information and management practices. This project is also consistent with the National Water and Sanitation Plan of the Argentine government, which establishes the objective of achieving

²² These aspects confirm the project's classification as a national subsidiarity integration operation, pursuant to document GN-2733, whose point 2.2 establishes local development in a border area as an example of this type of operation.

²³ The Strategic Action Plan was one of the principal outputs of the "Plan for the Environmental Protection and Sustainable Development of the Guaraní Aquifer System." It establishes the principal advancements, outputs, and management priorities for each country for the sustainable management of the groundwater.

100% coverage of drinking water service and 75% coverage of sewer service in urban areas by 2019; as well as with Brazil's National Basic Sanitation Plan, with the aim of providing universal access to these services by 2033.

- 1.20 **Bank's strategy with the country.** The project is aligned with the IDB Group Strategy with Paraguay 2019-2023 (document GN-2958), under the strategic area "productive and resilient infrastructure" and the objective "improve the coverage and quality of infrastructure," since it will finance the expansion and improvement of water and sanitation services. The project also aligns with the IDB Group Country Strategy with Argentina 2016-2019 (document GN-2870), by contributing to the strategic area "poverty and inequality reduction," whose objectives include "improve the habitat and access to basic services, particularly in lower-income regions," and with the IDB Group Country Strategy with Brazil 2019-2022 (document GN-2973), specifically with the objective "narrow infrastructure gaps" under the government objective "foster and promote investments in water security and improve water management to ensure good health conditions for the population and contribute to spring preservation and mediation." Lastly, the operation is aligned with the crosscutting challenges of environmental sustainability and climate change set out in the IDB Group country strategies with Argentina and Brazil, by promoting measures to strengthen the management of transboundary water resources and reduce their contamination (paragraph 1.25). The operation is included in the update to Annex III of the 2019 Operational Program Report (document GN-2948-2).
- 1.21 **Strategic alignment.** The project complies with the Guidelines for the Classification and Validation of Operations Eligible for the GCI-9 Regional Cooperation and Integration Lending Priority (document GN-2733), which defines integration operations as "national or regional operations that contribute to a greater integration of the Latin American and Caribbean countries into the regional and/or global economy." Pursuant to the guidelines, operations may be classified as national subsidiarity if: "(i) they contribute to the alignment of domestic investments with cross-border objectives; and (ii) their goal is to support, at the national level, investments that are related to a regional plan, program, or initiative."²⁴ The project is also consistent with the Sector Strategy to Support Competitive Regional and Global Integration (document GN-2565-4), in that it contributes to the thematic intervention area "functional cooperation and regional public goods," by promoting regional cooperation practices that add value to a national intervention to protect water resources, adapt to and mitigate climate change, and prevent natural disasters. Furthermore, the operation is consistent with the Institutional Strategy 2010-2020 (document AB-3008) and is aligned with the development challenges of (i) social inclusion and equality, by financing increased coverage of water and sanitation services and a plan of incentives for establishing connections for users with low payment capacity (paragraph 1.30); (ii) productivity and innovation, through the improvement of urban conditions and the quality of the infrastructure, which will encourage economic growth and the use of innovative management arrangements (paragraph 1.26); and (iii) economic integration, due to its contribution to improving the environmental quality of transboundary water resources. The operation also aligns with the crosscutting areas of: (i) institutional capacity and the rule of law, since it finances activities to build ESSAP management capacity and sector governance (paragraph 1.30); (ii) gender equality and diversity, since it seeks to provide incentives for incorporating the gender approach at ESSAP (paragraph 1.23), and it will draft and implement a plan for the inclusion of persons with disabilities

²⁴ In this class of projects, the Bank's function is limited to intervening in one country only, and the Bank does not participate in the broader regional or global plan (hence the national subsidiarity) (document GN-2733).

(paragraph 1.30); and (iii) climate change and environmental sustainability, since it will finance measures to reduce NRW and help reduce greenhouse gas emissions through investments in wastewater collection, treatment, and disposal, and the new, more energy efficient drinking water system.²⁵ With regard to adaptation, the designs for catchment in the Monday River take climate change into account, in terms of variations in the frequency and scale of flood events caused by extreme rain events. Approximately 39.09% of operation resources are invested in climate change mitigation and adaptation activities, in accordance with the joint methodology of the multilateral development banks for tracking climate-change adaptation finance ([optional link 3](#)). These resources contribute to the IDB Group's goal of increasing financing of climate change-related projects to 30% of all operation approvals by year-end 2020.

- 1.22 The project will also contribute to the Corporate Results Framework 2016-2019 (document GN-2727-6) through the indicators "households with new or upgraded access to sanitation," "households with wastewater treatment," and the indicators of support for cross-border projects, as it supports implementation of a regional agreement. Moreover, it is consistent with the dimensions of success and lines of action set forth in the Water and Sanitation Sector Framework Document (document GN-2781-8), namely, universal access and improved quality of services and social and environmental sustainability, and it is aligned with the Strategy of Sustainable Infrastructure for Competitiveness and Inclusive Growth (document GN-2710-5), especially with the priority area of action of supporting the construction and maintenance of environmentally and socially sustainable infrastructure that help improve the quality of life. It also includes measures that align with the general framework for sustainable infrastructure,²⁶ with regard to the four dimensions of sustainability: (i) economic (paragraph 2.9) and financial (paragraph 2.13), through the implementation of measures for local economic development and the provision of services for local communities, and the incorporation of measures for maintaining the works over the course of their useful life; (ii) environmental, including the promotion of the appropriate management of the risks and impacts of wastewater and soil pollution, as well as the sustainable use of water sources; (iii) social, given the focus on promoting gender equality, the economic empowerment of women, and engagement with interest groups in the project cycle, especially in decision-making processes; and (iv) institutional, by strengthening institutional capacity for service management (paragraph 1.30). Lastly, the operation aligns with the expansion of the CORE framework agreement signed between JICA and the Bank.

- 1.23 **Diagnostic assessment and gender actions.** ESSAP staff members were surveyed²⁷ to learn about their views on gender and identify discriminatory practices and training needs. Thirty individuals, 68% of whom were female, completed the survey. All told, 39% replied that the company is not doing enough to discourage expressions of inequity and discrimination; 28.6% stated that the company does nothing in that regard; and 50% considered that the company does not mainstream gender enough in its practices. Furthermore, 69% did not know if the company had a gender strategy and 61% had not participated in the company's gender activities; the company does not have a measurable action plan or infrastructure such as changing tables or separate, proper

²⁵ The simulation and comparison of greenhouse gas emissions in year 6, with and without the project, show that the project could lead to a reduction in emissions of more than 7,000 tons of CO₂ equivalent annually.

²⁶ [Technical note IDB-TN-01388](#).

²⁷ The survey was completed by 1.4% of ESSAP's 2,104 full-time employees.

bathroom facilities. However, 93% considered that it would be very useful to form a gender working group.

- 1.24 **Persons with disabilities.** ESSAP complies with Law 2,479-2004 and Decree 6,369/11, which establish procedures for including persons with disabilities in the workforce. At present, 1.2% of ESSAP employees have a disability (auditory, physical, intellectual, visual). ESSAP does not have an inclusion plan, but its officials are being trained in the aforementioned legislation. This operation will help establish an inclusion plan and support the implementation of the specified activities, as well as design considerations to facilitate access for persons with disabilities.
- 1.25 **Climate change.** Several studies on climate change projections for southern South America differ on the issue of precipitation; some predict a significant increase in the annual average while others forecast a decrease. Despite this disagreement, the simulations performed do concur that the average annual temperature will gradually and undeniably increase, and that extreme events will intensify in the Ciudad del Este region. Specifically, more intense precipitation is expected during the rainy season and reduced precipitation is expected during the dry season. Even so, the Paraná watershed will continue to receive, on average, high levels of precipitation compared to the rest of the country. In this context, the design of the water delivery infrastructure to be financed will include an analysis of changes in the river's flows, following a methodology that can be replicated in other projects and based on the use of an algorithm that generates rains and parametric rain-runoff functions for the watershed. This analysis is important for the rainy season, by ensuring that the project's infrastructure will be located outside flood zones ([optional link 10](#)). Its analysis will be based on a numerical simulation using the Hydro-BID Flood platform.
- 1.26 **Innovation.** The project provides for: (i) technical support during the execution of the works and the subsequent operation thereof by a specialized operator, under a fixed and variable results-based payment modality; (ii) remote monitoring arrangements (drones, cameras, and photographs), to promote social control, transparency, and accountability; (iii) the incorporation of energy-efficient technologies in the electromechanical equipment; (iv) the use of trenchless technology for laying networks in areas with high levels of traffic and business activity, which will reduce the social and environmental risks and impacts; (v) the use of Hydro-BID Flood on the Monday and Paraná rivers (paragraphs 1.25 and 2.8, respectively); and (vi) new digital technologies for managing ESSAP operational, commercial, and cadastral information, and cyber security.
- 1.27 **Alignment with the Public Utilities Policy (document GN-2716-6).** The project and national sector objectives are consistent with the principles of the Public Utilities Policy and satisfy its financial sustainability and economic evaluation conditions. ESSAP's financial position is solid, which has enabled it to cover all of its costs and financial obligations; its financial forecasts indicate that this trend will continue going forward (paragraph 2.13). The works to be financed by the project are socioeconomically viable (paragraph 2.9). ESSAP has a reduced rate for low-income and vulnerable populations. Moreover, a study of ESSAP's costs, rates, and subsidies is planned (paragraph 1.11), and its institutional framework is satisfactory, duly separating duties and responsibilities (paragraph 1.14) ([optional link 5](#)).
- B. Objectives, components, and cost**
- 1.28 **Objective.** The project's objective is to help overcome the regional challenge of preserving the quality of water resources in the Paraná River and Guaraní Aquifer System, and to

improve the quality of life of the population in the districts of Ciudad del Este and Presidente Franco. Its specific objectives are to: (i) expand water and sanitary sewer services coverage and improve their quality in those districts, taking into account the impacts of climate change and appropriate management of transboundary water resources; and (ii) improve service-delivery management efficiency by reducing losses and implementing energy efficiency programs and a new service delivery model.

- 1.29 **Component 1: Works and oversight (US\$188 million).** This component includes: (i) for water: water catchment/uptake system in the Monday River and a water treatment plant with capacity of 500 liters per second; four pumping stations; 8.5 kilometers of force main pipeline; and three new water distribution centers (Presidente Franco, Area 4, and Ciudad del Este) with capacity of 10,000, 4,000, and 300 cubic meters, respectively; 860 kilometers of distribution network pipeline; 25,000 household connections; 30,000 individual meters; optimization of ESSAP and Itaipu existing water supply systems, to include NRW and energy efficiency programs; and rehabilitation of the water distribution systems of other service operators, to be gradually and progressively incorporated into the ESSAP-operated system; (ii) for sanitation: four pumping stations; wastewater treatment plant (preliminary treatment) with capacity of 500 liters per second and underwater discharge pipeline; 250 kilometers of new sewer networks; 30 kilometers of collectors; 31,250 new household connections; and rehabilitation of ESSAP and Itaipu collection systems. This component also includes financing for works oversight, land acquisition,²⁸ and environmental and social management plan implementation.
- 1.30 **Component 2: Management of services and transboundary water resources (US\$7 million).** This component includes support for the work of the ESSAP operational management unit²⁹ for metropolitan Ciudad del Este, by engaging a specialized technical operations advisor³⁰ (paragraph 3.3) to provide the following services: (i) training of technical staff with the aim of improving the technical, operational, and commercial management of the services; (ii) roll out of new technologies (e.g. process, analytical, and digital) to improve cadastral, commercial, and operational management; (iii) prepare studies and designs for subsequent stage works, to include climate change considerations; and (iv) analysis of alternatives, studies, and designs for adding new service areas. The component will also prepare a water and sanitation master plan for metropolitan Ciudad del Este; implement a communications strategy; draft an inclusion plan for persons with disabilities; develop a gender strategy to include training and violence-prevention activities, adaptation of infrastructure and work areas, and the expansion of job opportunities for women and considerations for female users of ESSAP services; create a gender issues unit, and develop a plan of incentives for facilitating connections³¹ to the new systems. Moreover, to promote transboundary water resources

²⁸ The component includes the acquisition of land for specific pumping stations and distribution centers. As a precondition for the financing of such procurement, the borrower will demonstrate that the appraised value of the land reflects market prices, as set forth in the Bank policy on eligible expenses (document GN-2331-5).

²⁹ The project identified the need and advisability of setting up an operational management unit. Its administrative and legal structure will be determined on the basis of studies to be financed with nonreimbursable Bank resources.

³⁰ A high-performance water and sanitation services company will be contracted, through a competitive process, to support the consolidation efforts of the operational management unit.

³¹ Households below the poverty line (23%) may receive a direct subsidy for connection, estimated to cost an average of G 900,000. The plan offers other incentives for low-income households that would have difficulty paying for connections in one lump sum, including payment plans and waiving the ESSAP connection fee.

management, the component will finance: (i) a “water diplomacy” plan³² designed to improve cooperation and the shared management of water resources among the watershed countries, by standardizing and developing legal, regulatory, and information tools; and (ii) a study to identify opportunities for cooperation on the efficient use of water resources, from the perspective of the link between water, energy, and food.³³

- 1.31 In addition, the project provides for US\$5 million to be used for: (i) administration of the project, to include hiring a consulting firm to provide technical and fiduciary support; (ii) monitoring and evaluation; and (iii) external financial audits.

C. Key results indicators

- 1.32 The results matrix (see Annex II) lists the project’s outputs and outcomes. Table I-1 summarizes the key indicators.

Table I-1. Key indicators

Outcome indicator	Unit of measurement	Baseline ^(*)	Target
Volume of wastewater properly discharged into the Paraná River	Liters per second/s	0	420
Households with upgraded drinking water services in Ciudad del Este and Presidente Franco	Household	0	32,151
Households with water service in Ciudad del Este and Presidente Franco	Household	32,151	52,464
Households with access to sewer services in Ciudad del Este	Household	14,571	47,687
Households whose wastewater is treated in Ciudad del Este	Household	0	41,378
Annual energy consumption per cubic meter of water supplied	Kilowatt hours per cubic meter	0.53	0.48

(*) The baseline corresponds to the year 2019.

- 1.33 **Beneficiaries.** The project’s main benefits are associated with improvements in urban environmental quality for the Ciudad del Este (approx. 75,500 households) and Presidente Franco (approx. 25,400 households) districts, especially in terms of sanitary conditions, to be measured as the number of persons with access to the wastewater treatment system; and in terms of water security, to be measured as the number of persons with upgraded quality and access to water service. The project’s direct beneficiaries will be approximately 210,000 inhabitants (52,000 households). Its indirect beneficiaries will be the entire population of metropolitan Ciudad del Este (572,350 people), approximately 390,000 residents of the tri-border region in Foz de Iguazú and Puerto Iguazú, and the approximately 586,000 people³⁴ who cross the border annually. It will also benefit ESSAP, through interventions to improve the company’s planning and operational management capacity.

³² A pilot study based on the Blue Peace Index methodology is proposed (Swiss Cooperation, Delft, University of Geneva).

³³ Based on the methodology developed by the United Nations Economic Commission for Europe and the European Commission Joint Research Centre.

³⁴ Paraguay Migration Authority, 2018.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 **Modality and financial structure.** This operation is structured as a specific investment loan for a total of US\$200 million, of which up to US\$115 million will be financed from the Bank's Ordinary Capital, and up to US\$85 million from counterpart resources (JICA-CORE joint cofinancing). Under the CORE joint financing modality, the borrower signs separate loan contracts with the Bank and JICA to finance the project's shared works, goods, and services, in a proportion to be agreed upon by the parties. The Bank acts as project administrator under the joint financing structure, providing oversight services pursuant to the CORE framework agreement and operational guidelines. Works, goods, and services will be procured in accordance with Bank policies and guidelines as well as CORE operational guidelines. The Bank will process the disbursement of IDB and JICA funds in accordance with CORE guidelines. JICA has provided its letter of conditional acceptance of the project. This must be supplemented with an exchange of IDB-JICA confirmation letters under CORE. The JICA financing is expected to be approved in the first quarter of 2020.
- 2.2 Table II-1 provides a breakdown of the consolidated budget by component and financing. Under the six-year disbursement period, which is consistent with the multiyear execution plan ([required link 2](#)), the project will address the needs prioritized by the executing agency and will be governed by the Operating Regulations (paragraph 3.2). The disbursement schedule is presented in Table II-2 ([optional link 7](#)).

Table II-1. Project cost (US\$ thousands)

Component	Total*	IDB	Counterpart (JICA-CORE)	%
Component 1. Works and oversight	188,000	105,738	82,262	94
Water	116,083	65,356	50,728	58
Sanitation	71,917	40,382	31,534	36
Component 2. Management of services and transboundary water resources	7,000	4,262	2,738	3.5
Support for the operational management unit	4,400	2,457	1,943	2.2
Project development and investment plans	1,300	726	574	0.7
Communications strategy	400	223	177	0.2
Inclusion and diversity plan	100	56	44	0.1
Transboundary water resources	800	800	0	0.4
Project administration	5,000	5,000	0	2.5
Program coordination unit	1,815	1,815	0	0.9
Consulting firm (technical and fiduciary support)	3,000	3,000	0	1.5
Monitoring and evaluation	60	60	0	0.0
Auditing	125	125	0	0.1
Total	200,000	115,000	85,000	100

* The amounts included in this table include local taxes, which will be financed from the loan proceeds in accordance with Bank policies.

Table II-2. Disbursement schedule (US\$ millions)

Source/year	1	2	3	4	5	6	Total
IDB	7.2	19.7	28.8	30.8	22.1	6.4	115
Counterpart (JICA-CORE)	5.1	13.7	21.7	23.3	16.7	4.5	85
Cumulative (%)	6	23	48	75	95	100	100

B. Environmental and social risks

- 2.3 **Environmental and social safeguards.** Pursuant to the Bank's Environment and Safeguards Compliance Policy (Operational Policy OP-703), this project has been classified as a category "B" operation, with indicators of substantial environmental and social risk and moderate natural disaster risk. The operation will finance basic upgrading and rehabilitation works for the water and sewer systems in the metropolitan area of Ciudad del Este and Presidente Franco.
- 2.4 The category B classification was confirmed during the operations' preparation phase. The direct socioenvironmental impacts and risks are short-term, typical for the scale of the construction, and localized, namely, effects on and restriction of traffic, excavation on avenues and streets, dust, noise, debris, traffic disruptions, and occupational health and safety concerns. However, effective mitigation measures are available for all these impacts. Indigenous peoples will not be impacted, and no involuntary resettlement is anticipated. Furthermore, to mitigate the temporary impact on livelihoods, only partial, short-term street closures are planned.
- 2.5 An environmental and social analysis (ESA), environmental and social management plan (ESMP), and consultation plan were drawn up during preparation of the loan. The consultations were held on 3 and 4 September 2019 in Ciudad del Este and Presidente Franco, respectively, with notable results. All of the citizens' issues of concern had been included in the ESA and ESMP, and accordingly it was not necessary to update them. The ESA and ESMP, as well as the public consultation report, were published on the Bank's website on 27 September 2019.

C. Fiduciary risks

- 2.6 The executing agency's lack of experience with the type of procurement processes planned for this project (contracting the specialized technical operations advisor and the design and construction contracts) was identified, which could lead to delays in execution. This was classified as medium-high risk. Accordingly, the following mitigation measures are planned: (i) hiring a consulting firm to provide technical and fiduciary support (paragraph 3.1) in drafting the contracting documents and during execution; (ii) use of the "ad referendum" bidding modality to start bidding during the loan ratification period, so that the consulting firm that is to provide fiduciary and technical support will be on board during the early stages of execution; (iii) make the award of the first contract contingent on hiring the consulting firm that is to provide technical and fiduciary; and (iv) provide Bank-organized procurement training workshops.

D. Other risks

- 2.7 The following medium-high risks were identified: (i) development: substandard project designs could lead to increased expenses and longer execution times for the works; therefore, technical-cooperation resources will be used to conduct supplementary studies so as to minimize uncertainty regarding geotechnical, topographical, and network-interference information, among others, thereby minimizing execution risks; and (ii) public management and governance: (a) changes in the priority of the project's works could delay execution or limit the project's scope; therefore, support will be provided for preparing and implementing a communications strategy geared towards reinforcing the importance and value of water and sanitation services; (b) project execution could be affected (timeline and/or scope) by a lack of adequate coordination among the participating entities; accordingly, an interagency coordination board will be set up (paragraph 3.1).

- 2.8 **Technical viability.** The identification of the project's works was based on an analysis and comparison of alternatives and projections of medium- and long-term demand. The investments in water service are aimed at expanding production and distribution capacity so that ESSAP can provide coverage to areas that are currently unserved, and improve quality in served areas. The investments in sanitation are geared towards expanding sewer system coverage in Ciudad del Este and improving treatment and final disposal. The project's technical studies were performed in accordance with generally accepted engineering principles and regulations. Furthermore, they leveraged experience executing previous operations with the MOPC and ESSAP, and in similar projects in the region. Effective and appropriate technologies should be used in all cases. While the designs are still preliminary, the studies performed have shown that they are feasible, and have made it possible to estimate, with a high degree of confidence, the investment costs, including contingency funds. Technical-cooperation funding will be used to supplement the designs with a simulation of Paraná River water quality, in view of the contaminant plume generated by the wastewater treatment plant discharge. The aim is to study concentrations and the affected area using Hydro-BID Flood ([optional link 1](#)).
- 2.9 **Economic viability.** A cost/benefit assessment was performed of the network rehabilitation and wastewater collection and treatment system expansion project for Ciudad del Este, as was a cost-effectiveness assessment of the drinking water supply system expansion and rehabilitation project for Ciudad del Este and Presidente Franco. The costs analyzed were the incremental economic costs of investment and operations and maintenance. The economic benefits of the sanitation project were quantified using values of willingness to pay for wastewater collection and treatment, calculated based on contingent valuation surveys performed in metropolitan Ciudad del Este in 2018 and updated for 2019, and the values of willingness to pay for treatment calculated using a function developed for the city of Asunción, using the average monthly income in Ciudad del Este published by the DGEEC. The cost-effectiveness analysis of the water project compared three alternative water sources (water uptake/catchment systems in Lake Itaipu, the Monday River, and Lago de la República) using the current value of the investment, operating and maintenance costs, and the average incremental cost per cubic meter treated. The results of the analysis show that the project is socioeconomically viable with an internal rate of return above 12%. The cost-effectiveness analysis confirmed that the Monday River water uptake system option resulted in the lowest average incremental cost per cubic meter. The analysis was supplemented with the respective sensitivity analysis ([optional link 2](#)).
- 2.10 **Payment capacity.** The monthly service bill amount was verified to be less than 5% of household income by quintile, based on current ESSAP rates and the average basic water and sanitation payment amount. Significantly, ESSAP's rate schedule does include a rate for low-income and vulnerable populations.
- 2.11 **Institutional viability.** The institutional evaluation of the MOPC was performed using the Institutional Capacity Assessment System (ICAS). According to the ICAS results, the MOPC has a satisfactory level of capacity development and a low associated risk. This indicates that it has the institutional capacity to correctly implement the project, as well as program execution experience, including programs with external financing. Nevertheless, specific measures will be implemented to improve DAPSAN's capacity for oversight and control of execution.
- 2.12 **ESSAP institutional analysis.** The AquaRating tool was applied to ESSAP to identify areas in which the operational management unit could be strengthened, including:

(i) updating the cadaster against the geographical information system; (ii) a plan for expanding the sewer network; (iii) identification of specific centers of activity for accounting of the expenses involved in administration and preventive and corrective operations and maintenance; (iv) sectorization and master metering plan of supply networks; (v) pressure modulation plan for supply and distribution networks; and (vi) development of a plan for managing NRW.

- 2.13 **Financial sustainability.** The financial analysis of ESSAP was performed using an internally developed model based on the past three years of information from the company's financial statements. The projected income and incremental expenses of the operational management unit are based on past operational and financial information from ESSAP in Ciudad del Este and from the Itaipu water and sanitation systems; those projections also take into account the project's future financial impact. According to the analysis, ESSAP's indicator of operating income coverage of operating expenses was an average of 135% in the past three years, which demonstrates the company's financial sustainability. The projections show that for both ESSAP and the operational management unit, operating income covers all operating and maintenance costs, with coverage indicators of 150% and 136%, respectively, which comply with the provisions of the Public Utilities Policy. In addition, the analysis identified the potential negative impact on the operational management unit of incorporating the Itaipu water and sanitation systems, which would entail starting to bill users for services that they are accustomed to receiving for free. A sensitivity analysis was performed in order to assess this impact. It evaluated various scenarios, and concluded that ESSAP's operating income would be sufficient even in the pessimistic scenario in which rates can be collected from barely 50% of the customers transferred from Itaipu ([optional link 4](#)).

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of implementation arrangements

- 3.1 **Borrower and executing agency.** The borrower will be the Republic of Paraguay, represented by the Ministry of Finance, and the executing agency will be the MOPC, through DAPSAN, which will form a project coordination unit (PCU) comprised of a general coordinator and technical, fiduciary, and socioenvironmental area heads. The PCU will be supported by a consulting firm that will provide it with technical and fiduciary support, and will work in partnership with the relevant MOPC units on fiduciary, socioenvironmental, and communications issues, and with ESSAP on technical issues, and on defining the applicable legal structure and administrative autonomy of the operational management unit. In addition, DAPSAN will set up a technical board for the interagency coordination of water and sanitation services management. This board will include ESSAP, ERSSAN, Itaipu, and local governments. It will coordinate with the Ministry of the Environment and Sustainable Development and the binational and trinational agencies—i.e. Itaipu, the Joint Commission for the Paraná River, and the Guaraní Aquifer Commission, respectively—responsible for managing the transboundary water resources (paragraph 1.5) on the implementation of activities to support the project, in compliance with the actions for which Paraguay is responsible (paragraph 1.30).
- 3.2 **Project Operating Regulations.** The project will be governed by the provisions of its Operating Regulations, which will include: (i) legal-institutional framework; (ii) description of the project and its purpose, objectives, and components; (iii) structure and organization of the PCU including its organizational chart, functions, responsibilities, and procedures; (iv) use of the resources and eligibility of the investments; (v) fiduciary annexes containing

the procedures to follow for procurement operations, payments, financial planning, disbursements, expense reporting, and auditing of the project financial statements; (vi) environmental and social management plan; (vii) monitoring and evaluation plan; (viii) project execution arrangements; and (ix) plan for coordination among the cofinancers. Furthermore, each chapter of the Operating Regulations will detail the project supervision implications for the executing agency in the CORE agreements. The MOPC-ESSAP agreement will be included as an annex to the Operating Regulations.

- 3.3 **Arrangements for the delivery of water and sanitation services.** ESSAP will form the operational management unit for the provision of water and sanitation services in the project target area. Its main functions will include the technical, operational, and commercial management of the services in Ciudad del Este and Presidente Franco. A specialized technical operations advisor will provide support to strengthen the unit and foster its financial sustainability. The scope of the specialized technical operations advisor's contract will include: (i) providing support for the administrative structuring of the operational management unit and the operational and commercial optimization of service delivery; (ii) defining and implementing a rapid-impact investment plan; (iii) providing support for implementing the strategy to grow the operational management unit's service delivery area; (iv) developing medium- and long-term master plans for universalizing the services; (v) implementing a digital transformation plan through the use of new technologies for managing mapping, commercial, and operational information; and (vi) technology transfer and capacity building of human talent. The specialized technical operations advisor's compensation will have fixed and variable parts, tied to the achievement of contractual targets (e.g. invoicing, collection, and unbilled water).
- 3.4 **MOPC-ESSAP agreement.** The MOPC will sign an interagency agreement with ESSAP, establishing, inter alia: (i) the coordination arrangements for project execution; (ii) the responsibilities of each party; (iii) ESSAP's commitment to appoint a technical team counterpart to the MOPC; (iv) the commitment to form the operational management unit (paragraph 3.3); (v) the conditions for the delivery of works financed by the project; and (vi) the commitments associated with the operation and maintenance of the infrastructure works built by the project 3.10).
- 3.5 **Special contractual conditions precedent to the first disbursement of the loan: (i) entry into effect of the agreement between JICA and the borrower governing the JICA cofinancing for the project; (ii) formation of the project coordination unit by appointing and/or hiring the members specified in paragraph 3.1; (iii) approval and entry into effect of the project Operating Regulations, in accordance with the terms previously agreed upon with the Bank; and (iv) signing of the MOPC-ESSAP, in the terms set out in paragraph 3.4.** These conditions are key for ensuring that the project is properly coordinated and executed, as well as for putting detailed guidelines in place for operational considerations. Also essential is that the first disbursement be conditional on the JICA financing having entered into effect, since the program activities will be cofinanced by the two sources.
- 3.6 **Special contractual conditions for execution:** (i) prior to awarding the first works contract of the project, the executing agency will have hired a consulting firm to provide technical and fiduciary support and a specialized technical operations advisor, presenting evidence to the Bank that the ESSAP operational management unit has been formed for metropolitan Ciudad del Este; and (ii) prior to the start of works in the Itaipu service area, the executing agency will present evidence to the Bank that ESSAP has secured the necessary rights and authorizations to use the infrastructure and assets associated with

that area's existing water and sanitation services, and to implement the respective works. These conditions are necessary to ensure that the project is appropriately supervised and managed, as well as to facilitate the implementation of the new service-delivery arrangements agreed upon during the preparation of the operation for metropolitan Ciudad del Este.

- 3.7 **Procurement.** Works, goods, and consulting services will be procured in accordance with policies GN-2349-9 and GN-2350-9 and any future updates thereto. All procurement processes must be included in the procurement plan approved by the Bank through the procurement plan execution system, and will be conducted in accordance with the methods, supervision modalities, and thresholds established therein. The executing agency and the Bank have agreed on a procurement plan for the first 18 months of execution ([required link 4](#)). All procurement and/or contracting processes will be subject to ex ante review by the Bank.
- 3.8 **Advance of funds.** The advance of funds will be governed by the provisions of the Financial Management Guidelines for IDB-financed Projects (OP-273-6). After the first disbursement, subsequent disbursements will be subject to justification of 80% of the previous advance.
- 3.9 **Auditing.** During the loan disbursement period, the executing agency will submit to the Bank the project's annual audited financial statements within 120 days of the close of the fiscal year. The audit is to be performed by a Bank-eligible independent audit firm. The determination of the scope and other related aspects will be governed by the Financial Management Guidelines for IDB-financed Projects (OP-273-6) and the Audited Financial Reports and External Audit Management Handbook. Audits may be financed with project funds.
- 3.10 **Operations and maintenance.** In the first quarter of each calendar year, beginning in the year the that the first work financed by the project has been completed, and up to three years after the end of the loan disbursement period, the borrower, through the executing agency, will present to the Bank the annual maintenance plan for any goods and works financed by the operation together with information on the corresponding operations and maintenance processes performed. This ESSAP commitment will be included in the agreement to be signed by MOPC and ESSAP (paragraph 3.5).

B. Summary of arrangements for results monitoring

- 3.11 A monitoring and evaluation plan was agreed upon, which includes a data-collection plan, the parties responsible, and the allocated budget ([required link 2](#)). The executing agency will be responsible for project monitoring and execution. The Bank's supervision instruments will be used for monitoring: the procurement plan, multiyear execution plan, annual work plan, results matrix, and progress monitoring report ([optional link 8](#)). Within 60 days of the end of each six-month period, the executing agency will send semiannual progress reports on progress made, results obtained, and an action plan for the following six-month period.
- 3.12 Project evaluation will include a midterm and final evaluation. The proposed evaluation methodology is before and after, to consist in the measurement of the project outcome indicators at baseline and after the interventions have been implemented, comparing these measurements to verify achievement of the targets. An ex post economic evaluation will also be performed ex post. Following the methodology used for the ex ante evaluation, it will compare the costs of the investments, the costs of operation and maintenance, and the project benefits, estimated as specified in the monitoring and evaluation plan.

Development Effectiveness Matrix		
Summary		RG-L1134
I. Corporate and Country Priorities		
1. IDB Development Objectives		Yes
Development Challenges & Cross-cutting Themes	-Social Inclusion and Equality -Productivity and Innovation -Economic Integration -Gender Equality and Diversity -Climate Change and Environmental Sustainability -Institutional Capacity and the Rule of Law	
Country Development Results Indicators	-Households with new or upgraded access to drinking water (#)* -Households with new or upgraded access to sanitation (#)* -Households with wastewater treatment (#)*	
2. Country Development Objectives		Yes
Country Strategy Results Matrix	GN-2958	Increase access to potable water and sanitation services
Country Program Results Matrix	GN-2948-2	The intervention is included in the 2019 Operational Program.
Relevance of this project to country development challenges (If not aligned to country strategy or country program)		
II. Development Outcomes - Evaluability		Evaluable
3. Evidence-based Assessment & Solution		9.2
3.1 Program Diagnosis		3.0
3.2 Proposed Interventions or Solutions		4.0
3.3 Results Matrix Quality		2.2
4. Ex ante Economic Analysis		10.0
4.1 Program has an ERR/NPV, or key outcomes identified for CEA		3.0
4.2 Identified and Quantified Benefits and Costs		3.0
4.3 Reasonable Assumptions		1.0
4.4 Sensitivity Analysis		2.0
4.5 Consistency with results matrix		1.0
5. Monitoring and Evaluation		7.7
5.1 Monitoring Mechanisms		1.8
5.2 Evaluation Plan		6.0
III. Risks & Mitigation Monitoring Matrix		
Overall risks rate = magnitude of risks*likelihood		Medium
Identified risks have been rated for magnitude and likelihood		Yes
Mitigation measures have been identified for major risks		Yes
Mitigation measures have indicators for tracking their implementation		Yes
Environmental & social risk classification		B
IV. IDB's Role - Additionality		
The project relies on the use of country systems		
Fiduciary (VPC/FMP Criteria)	Yes	Financial Management: Budget, Treasury. Procurement: Information System, Price Comparison, National Public Bidding.
Non-Fiduciary		
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:		
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project	Yes	PR-T1268. The objective of this TC is to support the design and implementation of reforms to strengthen the water and sanitation sector in Paraguay, and in the planning of short and medium term interventions (2019-2023), established in the National Water and Sanitation Plan to progressively meet the SDGs. The CT will also support the strengthening of the country's long-term investment planning and also the development of efficient projects for the metropolitan areas of Asunción and Ciudad del Este.

Note: (*) Indicates contribution to the corresponding CRF's Country Development Results Indicator.

The general objective of the project is to help mitigate the regional challenge of preserving the quality of water resources in the Paraná river and the Guaraní aquifer, and to improve the quality of life of the population of the districts of Ciudad del Este and Presidente Franco. The specific objectives are: (i) increase coverage and improve the quality of drinking water and sanitary sewer services in these districts, taking into account the impacts of climate change; and adequate management of transboundary water resources, and (ii) improve the efficiency of service provision management, through the implementation of Energy Efficiency (EE) programs, reduction of losses and a new model for the provision of services.

The documentation presents a solid diagnosis. The main challenges of the Water and Sanitation (WSA) sector are identified and quantified; these have to do with low levels of WSA coverage and low quality of service, as well as management challenges faced by operators. This is discussed within the regional context, where it is emphasized that the operation will contribute to mitigate the negative impacts of transboundary water resources.

To mitigate the problems identified, the Project will implement two components: Works and supervision; and Management of cross-border water resources services. The proposed solution is clearly linked to the problems and needs identified. Relevant evidence is presented on the effectiveness of these types of programs. The results matrix reflects the objectives of the program and shows a good vertical logic. Most of the result indicators are SMART. The outcome and product indicators have their respective baseline values, targets, and means to collect information.

A Cost-Benefit analysis was performed for sanitation, and a cost-effectiveness analysis for drinking water. For the two analyzes, costs and benefits are properly identified and quantified; the assumptions made are reasonable and supported with evidence and comparative data. The CBA yields an internal rate of return (IRR) of 12.26% and a net present value (NPV) of US \$ 920,511. The CEA shows that the alternative chosen by the project results in the lowest Incremental Average Cost (IAC) per m³ of treated water. Sensitivity analyzes are performed under alternative scenarios that may affect costs and benefits and the IAC; these modifications do not present significant alterations to the results.

The monitoring and evaluation plan propose an evaluation using an ex-post cost-benefit analysis and a reflexive evaluation.

The risks identified seem reasonable and are classified as Low (2) and Medium (7) risks. Risk management strategies, responsible parties, and triggers are included.

RESULTS MATRIX

Project objective:	The project's objective is to help overcome the regional challenge of preserving the quality of water resources in the Paraná River and Guaraní Aquifer System, and to improve the quality of life of the population in the districts of Ciudad del Este and Presidente Franco. Its specific objectives are to: (i) expand water and sanitary sewer services coverage and improve their quality in those districts, taking into account the impacts of climate change and appropriate management of transboundary water resources; and (ii) improve service-delivery management efficiency by reducing losses and implementing energy efficiency programs and a new service delivery model.
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EXPECTED IMPACTS AND RESULTS

Indicator	Unit of measurement	Base-line	Base-line year	Year						Project end	Comments (C)/Means of Verification (MV)/Party responsible (R)
				1	2	3	4	5	6		
IMPACT 1: Improved quality of water resources											
Concentration of biodegradable organic matter at the sewer system discharge point into the Paraná River	BOD ₅ milligrams per liter	TBD	2020						TBD	TBD	C: The baseline and target will be defined at the time the project's quality monitoring plan is implemented. MV: Water quality monitoring report R: Water and Sanitation Department (DAPSAN)
SPECIFIC OBJECTIVE: (I) Expand water and sanitary sewer service coverage and improve their quality.											
OUTCOME 1: Decreased pollutant load discharged into the Guaraní Aquifer System and Paraná River											
O1.1 Volume of wastewater properly discharged into the Paraná River	Liters per second	0	2019						420	420	C: Average daily volume according to design of the works. Properly discharged means in compliance with dumping regulations. MV: Sanitary Services Company of Paraguay (ESSAP) report on flow rate measurement of wastewater treatment plant R: DAPSAN

Indicator	Unit of measurement	Base-line	Base-line year	Year						Project end	Comments (C)/Means of Verification (MV)/Party responsible (R)
				1	2	3	4	5	6		
OUTCOME 2: Expanded and upgraded sanitation service coverage											
O2.1. Households with upgraded sanitary sewer services in Ciudad del Este	Household	0	2019			-			14,571	14,571	C: Rehabilitation of and repairs to the existing system that channels wastewater to the treatment plant (households with sewer service in 2019). MV: ESSAP report R: DAPSAN
O2.2. Households in Ciudad del Este with access to sewer services	Households (%)	14,571 (14.44)	2019					47,241 (43.37)	47,687 (43.37)	47,687 (43.37)	C: This refers to households in areas with sewer networks. Target includes 33,116 new households with access to the service. R: DAPSAN
O2.3. Households in Ciudad del Este whose wastewater is treated	Households (%)	0	2019					39,429 (36.20)	41,378 (37.63)	41,378 (37.63)	C: This only counts the households that are <u>effectively connected</u> to the network plus those that already have the service. The target entails connecting a minimum of 75% of households to the sewer network. R: DAPSAN
OUTCOME 3: Expanded and upgraded water service coverage											
O3.1. Households in Ciudad del Este and Presidente Franco with upgraded water service	Household	0	2019						32,151	32,151	C: At least one service-quality characteristic will improve (continuity, pressure, water quality) The target corresponds to households with water service in 2019. MV: ESSAP report R: ESSAP

Indicator	Unit of measurement	Base-line	Base-line year	Year						Project end	Comments (C)/Means of Verification (MV)/Party responsible (R)
				1	2	3	4	5	6		
O3.2. Households in Ciudad del Este and Presidente Franco with drinking water service	Households (%)	32,151 (31.87)	2019					41,456 (38.66) ¹	52,464 (48.18)	52,464 (48.18)	C: Baseline corresponds to households with service in 2019. Target includes 20,311 new households with service. MV: ESSAP report R: ESSAP
O3.3. Water intake/catchment infrastructure on the Monday River resilient to extreme rain events (TR = 100 years)	System	0	2019						1	1	C: Resilient intake/catchment system means that the infrastructure design takes climate change criteria into account. MV: ESSAP reports R: DAPSAN
OUTCOME 4: Improved comprehensive management of the water resources											
O4.1. The commissions responsible for managing the Paraná River and the Guaraní Aquifer System implement the measures and recommendations set forth in the plans and studies drawn up under the project.	Measure	0	2019					1	1	2	MV: Semiannual progress report R: DAPSAN
SPECIFIC OBJECTIVE (II): Improve service-delivery management efficiency											
OUTCOME 5: Improved energy efficiency in the drinking water systems											
O5.1. Energy consumption per cubic meter of distributed water in existing systems	Kilowatt hours per cubic meter	0.53	2019						0.48	0.48	C: The specialized technical operations advisor will verify the baseline using annual energy consumption, based on the electric bill for operating the existing systems, divided by the volume of water emanating from drinking water treatment plants. MV: ESSAP report R: ESSAP and DAPSAN

Indicator	Unit of measurement	Base-line	Base-line year	Year						Project end	Comments (C)/Means of Verification (MV)/Party responsible (R)
				1	2	3	4	5	6		
OUTCOME 6: Borrowers' improved operational and financial performance											
O6.1. Operational management unit financial self-sufficiency (operating income/operation, maintenance, and administration costs)	%	TBD	2022						100	100	C: The specialized technical operations advisor will establish the baseline. MV: Operational management unit audited financial statements R: ESSAP and DAPSAN
O6.2. Nonrevenue water (NRW) of the operational management unit	%	67	2019						62	62	C: The specialized technical operations advisor will establish the baseline. The target will be a 10% reduction. MV: ESSAP report R: ESSAP and DAPSAN
OUTCOME 7: Inclusion policy incorporated into executing agency responsible unit - ESSAP practices											
O7.1. Percentage of administrative staff with a disability working for the operational management unit	%	1.2	2019						5	5	C: Disability is defined based on the International Convention on the Rights of Persons with Disabilities (Article 1, paragraph 2). MV: ESSAP report R: ESSAP and DAPSAN
O7.2. Gender equity approach implemented in the operational management unit's practices, policies, projects and training	Strategy	0	2019						1	1	MV: ESSAP report R: ESSAP and DAPSAN

OUTPUTS

Output	Unit of measurement	Base-line	Base-line year	Cost	Associated outcomes	Year						Final target ¹	Comments (C)/Means of Verification (MV)/ Party responsible (R)
						1	2	3	4	5	6		
Component 1: Works and oversight													
O1. Water treatment plant built	Plant	0	2019	29,594,264	3.1 and 3.2				1			1	MV: Works acceptance certificate R: DAPSAN
O2. Pumping systems built	Station	0	2019	441,031	3.1 and 3.2			2	1	1		4	Idem
O3. Mains built	Kilometer	0	2019	6,782,019	3.1 and 3.2			3.5	3	2		8.5	Idem
O4. New or expanded distribution centers	Distribution center	1	2019	9,934,418	3.1 and 3.2			1	1	1		4	C: The new distribution center is for Presidente Franco, whereas those for Area 4 of Ciudad del Este will be expanded. MV: Works acceptance certificate R: DAPSAN
O5. Distribution networks built	Kilometer	0	2019	53,947,876	3.1 and 3.2		100	150	200	260	150	860	MV: Works acceptance certificate R: DAPSAN
O6. Individual meters installed in existing systems	Meter	0	2019	1,541,368	3.1 and 3.2		3,000	5,000	4,000	0	0	12,000	Idem
O7. New household water connections with individual meters built	Connection	0	2019	5,651,682	3.1 and 3.2			2,000	4,000	9,000	5,000	20,000	Idem
O8. Existing drinking water systems optimized	System	0	2019	8,220,629	3.1 and 3.2		2	1		3	4	10	C: The target refers to the systems of ESSAP (1) + Itaipu (2) + 7 small operators to be identified. R: DAPSAN

Output	Unit of measurement	Base-line	Base-line year	Cost	Associated outcomes	Year						Final target ¹	Comments (C)/Means of Verification (MV)/ Party responsible (R)
						1	2	3	4	5	6		
O9. Wastewater treatment and final disposal system built	System	0	2019	7,193, 050	1.1 and 2.3						1	1	C: Treatment system means the wastewater treatment plant and under-river discharge pipe infrastructure. MV: Works acceptance certificate R: DAPSAN
O10. Pumping stations built	Station	8	2019	13,358,522	1.1, 2.1, 2.2, and 2.3			1	2	2		13	C: Two will be built in the existing service area and two in the expanded area. MV: Works acceptance certificate R: DAPSAN
O11. Sewer networks built	Kilometer	0	2019	43,158,301	1.1, 2.1, 2.2, and 2.3		50	50	70	60	20	250	C: Includes secondary networks and collectors MV: Works acceptance certificate R: DAPSAN
O12. Household sewer system connections built	Connections	14,571	2019	4,624,104	1.1, 2.1, 2.2, and 2.3		2,000	5,000	10,000	8,000	6,250	45,821	MV: Works acceptance certificate R: DAPSAN
O13. Existing sanitary sewer system rehabilitated	Systems	0	2019	3,082,736	1.1, 2.1, 2.2, and 2.3			1	1			2	C: This refers to the ESSAP and ITAIPU systems in Ciudad del Este. MV: Works acceptance certificate R: DAPSAN
O14. Water quality monitoring plan implemented	Plan	0	2019	300,000	1.1	1						1	MV: Semiannual progress report R: DAPSAN
Monitoring campaigns	Campaigns	0	2019				4	4	4	4	4	20	
O15. Wastewater treatment plant environmental compensation certificate secured	Certificate	0	2019	200,000	3.1 and 3.2		1					1	MV: Socioenvironmental Management Department report R: DAPSAN

Output	Unit of measurement	Base-line	Base-line year	Cost	Associated outcomes	Year						Final target ¹	Comments (C)/Means of Verification (MV)/ Party responsible (R)
						1	2	3	4	5	6		
Component 2. Management of services and transboundary water resources													
O16. Operational management unit strengthened	Unit	0	2019	4,000,000	6.1 and 6.2				1			1	MV: Semiannual progress report and ESSAP report R: ESSAP and DAPSAN
Proposal for the operational management unit structure and organization	Proposal	0	2019				1					1	
Activity-based costing system and proposed rate structure	System	0	2019				1					1	
Commercial system implemented	System	0	2019					1				1	
Asset management system implemented	System	0	2019					1				1	
Sewer connections incentive plan implemented	Plan	0	2019							1		1	
O17. Diagnostic assessment and rapid-impact investment plan	Plan	0	2019	400,000	2.1, 3.1, 5.1, and 6.2		1					1	C: This refers to the ESSAP and ITAIPU systems in Ciudad del Este and Presidente Franco. MV: ESSAP report R: ESSAP and DAPSAN
O18. Water and sanitation master plan for metropolitan Ciudad del Este	Plan	0	2019	400,000	6				1			1	MV: Semiannual progress report R: ESSAP and DAPSAN
O19. Second stage priority projects drawn up	Project	0	2019	900,000	6						1	1	
O20. Communications strategy implemented	Strategy	0	2019	400,000	2.1, 2.2, 2.3, 3.1. and 3.2						1	1	

Output	Unit of measurement	Base-line	Base-line year	Cost	Associated outcomes	Year						Final target ¹	Comments (C)/Means of Verification (MV)/ Party responsible (R)
						1	2	3	4	5	6		
O21. Diagnostic assessment performed and gender approach inclusion strategy developed	Strategy	0	2019	50,000	7.1			1				1	
O22. Inclusion plan developed for persons with disabilities	Plan	0	2019	50,000	7.2			1				1	
O23. Water diplomacy plans drafted for the Paraná River watershed and Guaraní Aquifer System	Plan	0	2019	400,000	4.1				1			1	MV: Semiannual progress report R: DAPSAN
O24. Water, energy, and food nexus study	Study	0	2019	400,000	4.1				1			1	

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Country: Paraguay
Project number: RG-L1134
Name: Water and Sanitation Project for Metropolitan Ciudad del Este
Executing agency: Ministry of Public Works and Communications (MOPC)
Fiduciary team: Fernando Glasman, Jorge Seigneur, and
Jorge Luis González, fiduciary specialists

I. EXECUTIVE SUMMARY

- 1.1 The institutional assessment of project fiduciary management was performed by the Bank fiduciary team with employees of the MOPC administrative-financial and procurement departments. It was supplemented with the ICAS report findings on the MOPC and the project risk matrix. These financial agreements were prepared as a result.
- 1.2 The project will be cofinanced with the Japan International Cooperation Agency (JICA), under the Cofinancing for Renewable Energy and Energy Efficiency Program (CORE) cofinancing framework agreement, signed by the Bank and JICA on 16 March 2012, as amended. Under the terms of that agreement, the Bank will serve as the project's administrator.

II. THE COUNTRY'S FIDUCIARY CONTEXT

- 2.1 Overall, the country financial management systems present a medium level of development. For purposes of executing Bank-financed projects, these systems need to be supplemented with specific financial reports and external control, using auxiliary accounting systems and by contracting Bank-eligible auditing firms. Financial control tools such as the Integrated Financial Administration System (SIAF), the Accounting System (SICO), and other subsystems enable the executing agency to manage payment transfers to suppliers through the Central Bank. The integration of these systems in the near future will make it possible to prepare audited financial statements in the SIAF; in the meantime, parallel systems are being used.
- 2.2 The efficiency and transparency of the country system for public procurement has improved as a result of the creation of its lead agency, the National Public Procurement Department, which has facilitated the implementation of a procurement platform with electronic procedures, such as the electronic reverse auction, a system of suppliers, and the statistical information system. For Bank-financed operations, the Public Procurement Information System has been used, as have the electronic reverse auction and competitive bidding subsystems,

for the amounts and categories established in the agreement governing the use of these subsystems signed on 17 June 2014.

III. EXECUTING AGENCY'S FIDUCIARY CONTEXT

- 3.1 The executing agency will be the MOPC through the project coordination unit (PCU), a sub-agency of the Water and Sanitation Department (DAPSAN), which is responsible for technical and operational management. DAPSAN will work in coordination with the Office of the Deputy Minister of Administration and Finance and the Procurement Unit.
- 3.2 During the preparation phase of the project, the MOPC's institutional capacity was assessed for the following areas: programming and organization; execution of programmed and organized activities, including systems for managing human resources, goods and services, finances, and control. According to the assessment, the MOPC has technical competencies in fiduciary matters. The consolidated results of the Institutional Capacity Assessment System (ICAS) report on the MOPC indicate that it has a low level of risk and a satisfactory degree of development.
- 3.3 The PCU will perform the functions of: operational management, procurement monitoring, and financial management. DAPSAN will be the counterpart to the IDB and will act as project representative to other bodies.

IV. FIDUCIARY RISK EVALUATION AND MITIGATION ACTIONS

- 4.1 The executing agency's lack of experience in the type of procurement processes planned for this project—i.e. hiring the specialized technical operations advisor and design and construction contracts—was identified as a medium-high level risk, which could lead to delays. Accordingly, the following mitigation measures are planned: (i) engagement of a technical and fiduciary support consulting firm to provide support for drafting the procurement documents and during execution; (ii) use the "ad referendum" modality to initiate bidding during the loan ratification period, so as to have the fiduciary and technical support consulting company on board during the early stages of execution; (iii) make the first award conditional on the contracting of the technical and fiduciary support consulting firm; and (iv) Bank-organized procurement training workshops.
- 4.2 The assessments performed reveal that the main opportunities for improvement involve:
 - a. Implementation of the project Operating Regulations;
 - b. Implementation of the mitigation actions specified in the ICAS report;
 - c. Training on Bank financial management policies for the accounting and internal control areas; and
 - d. Training on Bank procurement policies.

V. CONSIDERATIONS FOR THE SPECIAL PROVISIONS OF CONTRACTS

- 5.1 The following agreements and requirements should be included in the special provisions:
- a. For the purposes of Article 4.10 of the General Conditions, the parties agree that the exchange rate to be applied will be the one indicated in section (b)(ii) of said article. The agreed upon exchange rate will be the one prevailing on the date expenditures are paid in the currency of the borrower. To determine the equivalence of expenditures incurred in local currency against the local counterpart contribution, or requests for reimbursement from the Bank against the loan proceeds, the agreed upon exchange rate will be the one prevailing at the time the MOPC, or any other person or legal entity it has designated to make payment, makes the respective payments to the contractor, vendor, or beneficiary.
 - b. The audited financial statements of the project will be submitted no later than 120 days after the close of the fiscal year, and the final audited financial statements no later than 120 days after the date of the final disbursement.

VI. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION

- 6.1 The applicable procurement policies for this loan are provided in documents GN-2349-9 and GN-2350-9 or their subsequent updates. The Bank's Board of Executive Directors has also approved, in document GN-2538-11, the use of the electronic reverse auction and competitive bidding subsystems of Paraguay's public sector procurement system (SCPP) (Law 2,051/03). Other country systems approved after project approval will be used automatically and reflected in the procurement plan.

A. Procurement execution

- 6.2 **Procurement of works, goods, and nonconsulting services.** Contracts for works, goods, and nonconsulting services¹ subject to international competitive bidding (ICB) will be executed using the standard bidding documents issued by the Bank. In turn, bidding processes subject to national competitive bidding will be executed using the national competitive bidding documents agreed upon with the Bank. The project's sector specialist is responsible for reviewing the technical specifications of these documents.
- 6.3 **Selection and contracting of consultants.** Contracts for consulting services generated under the project will be executed using the standard request for proposals issued by or agreed upon with the Bank. The project's sector specialist is responsible for reviewing the terms of reference of these documents.
- 6.4 **Selection of individual consultants.** No direct hiring of individual consultants is anticipated for the project.
- 6.5 **Country system use.** Pursuant to document GN-2538 of October 2013, use of the electronic reverse auction and competitive bidding process subsystems of the

¹ Document GN-2349-9 paragraph 1.1: Nonconsulting services are treated as goods.

- SCPP in Bank-financed operations will apply to: (i) contracts for goods and nonconsulting services subject to use of electronic reverse auction as established in the SCPP, for amounts below the threshold set by the Bank for use of the shopping method for off-the-shelf goods (i.e. US\$250,000); and (ii) works contracts for amounts below the threshold set by the Bank for use of the shopping method for complex works (i.e. US\$250,000), and goods and nonconsulting services up to the threshold set by the Bank for use of the shopping method for complex goods and services (i.e. US\$50,000). Contracts for amounts equal to or greater than the aforementioned thresholds will be governed by Bank policies.
- 6.6 Section 1 of document GN-2349-9 will remain applicable for all contracts financed, regardless of the amount or contracting method. The operation's procurement plan and updates thereto will indicate which procurement processes are to be executed using the approved country systems. If another system or subsystem is approved by the Bank, it will be applicable to the operation, in accordance with the loan contract.
- 6.7 **Recurrent costs.** To ensure that the appropriate conditions exist for the PCU to perform its functions, the project will finance public utilities and communication costs, bank fees, advertisements, photocopies, postage, etc. within the annual budget approved by the Bank. These expenses will be incurred according to the executing agency's procedures, provided that they do not violate the fundamental principles of competition, efficiency, and economy. These expenses do not include the salaries of government employees.²
- 6.8 **Domestic preference.** None anticipated.

Table 1. Thresholds for ICB and international shortlist.³

Method	ICB works	ICB goods and nonconsulting services	International shortlist for consulting services
Threshold	3,000,000	250,000	200,000

Table 2. Procurement by category⁴

TOTAL WORKS	175,800,000
TOTAL GOODS	1,400,000
TOTAL CONSULTING FIRMS	20,985,000
TOTAL INDIVIDUAL CONSULTANTS	1,483,200
TOTAL PROCUREMENT PLAN	199,668,200

² As an exception, financing will be provided for incremental staffing costs incurred by the executing agency and specifically associated with project execution (document [GN-2331-5](#) Annex I(1.7)(C)(1.22)).

³ Thresholds may vary, in which case the new ones will be applied and the procurement plan adjusted.

⁴ The breakdown of procurement items in the procurement plan.

- 6.9 **Procurement supervision.** All procurement and/or contracting processes governed by the Bank's procurement policies (documents GN-2349-9 and GN-2350-9) will be reviewed by the Bank ex ante, taking into account the government's position. All procurement and/or contracting processes governed by the public sector contracting electronic reverse auction and competitive bidding subsystems (document GN-2538-11) will be carried out through the country system. Supervision may be supplemented with project audits.
- 6.10 **Special provisions.** No special provisions are anticipated.
- 6.11 **Records and files.** Project reports will be prepared and filed according to the procedures and formats described in the project's fiduciary manual of functions and procedures.

VII. FIDUCIARY AGREEMENTS AND REQUIREMENTS FOR FINANCIAL EXECUTION

B. Financial management

- 7.1 **Programming and budget.** The MOPC will centralize execution through a PCU, which will receive logistical support from the other units. DAPSAN will provide the following services: legal advice on regulations and procedures, computer services, human resources management, and logistical support.
- 7.2 **Accounting.** The accrual basis of accounting will be used. However, for purposes of accountability for projects partially or fully funded by the IDB, accounting will be on a cash basis. The SIAF is the main platform for budgetary and accounting transactions, and is integrated with the SICO as the accounting subsystem that, along with other subsystems, facilitates the downloading of information and the preparation of Bank-accessible reports and other sources of finance.
- 7.3 **Information systems.** The PCU will have access to the SIAF. Since the country systems do not issue the reports required by the Bank, they will be prepared using different systems. This entails the development and implementation of an independent, integrated system that includes a financial, management, and monitoring module, in accordance with program requirements.
- 7.4 **Disbursements and cash flow.** Disbursements will typically be made through advances of funds, to be corroborated through the monthly submission of a detailed financial plan for each six-month period, making it possible to determine the project's actual demand inferred from the multiyear execution plan, annual work plan, and procurement plan. The second and subsequent disbursements will be subject to justification of 80% of the previous advance, pursuant to the Financial Management Guidelines for IDB-financed Projects (document OP-273-6) and its updates.
- 7.5 **Internal control and internal auditing.** To address the observations made regarding the internal control system in the ICAS report, the following will be periodically reported to the Bank: (i) progress on implementation of Paraguay's standard internal control model in DAPSAN, which ensures internal control in the facets of project execution; and (ii) progress on implementation of the system indicated in paragraph 7.3.

- 7.6 **External control and reports.** The executing agency will submit annual project audit reports on the activities financed with the loan proceeds. These reports will be prepared by an independent auditing firm acceptable to the Bank, in accordance with the terms of reference previously approved by the Bank. These external audit reports will be subject to publication in accordance with the Access to Information Policy.
- 7.7 **Financial supervision plan.** Financial supervision may be adjusted on the basis of project execution and audit reports. Supervision will take place in three ways.

Table 1. Financial supervision plan

Nature/scope	Frequency
Financial audit and presentation of financial statements	Annually
Review of disbursement requests and attached reports	2 to 3 times per year
Inspection visit/analysis of internal controls and control environment at the executing agency	Annually

- 7.8 **Financial execution mechanism.** The PCU will coordinate financial issues with the Office of the Deputy Minister for Financial Management.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/19

Regional. Loan ____/OC-PR to the Republic of Paraguay. Water and Sanitation Project for
Metropolitan Ciudad del Este

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republic of Paraguay, as Borrower, for the purpose of granting it a financing to cooperate in the execution of the Water and Sanitation Project for Metropolitan Ciudad del Este. Such financing will be for an amount of up to US\$115,000,000 from the Ordinary Capital resources of the Bank, and will be subject to the Financial Terms and Conditions and the Special Contractual Conditions of the Project Summary of the Loan Proposal.

(Adopted on ____ 2019)