

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

BRAZIL

**SUSTAINABLE BASIC SANITATION PROGRAM IN JOINVILLE
PROSAJ**

(BR-L1594)

LOAN PROPOSAL

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ABBREVIATIONS

CAJ	Companhia Águas de Joinville [Joinville Water Company]
EIRR	Economic internal rate of return
EPP	Escritório de Projetos e Processos [Projects and processes desk]
ESA	Environmental and social analysis
ESMP	Environmental and social management plan
ESPS	Environmental and social performance standards
GHG	Greenhouse gas
NCB	National competitive bidding
NDC	Nationally determined contribution
O&M	Operation and maintenance
PMSB	Plano Municipal de Saneamento Básico [Municipal Basic Sanitation Plan]
PMU	Program management unit
QCBS	Quality- and cost-based selection
SMP	Sewer master plan
SSS	Single-source selection
TCE-SC	Tribunal de Contas do Estado de Santa Catarina [Santa Catarina State Audit Office)
W&S	Water and sanitation
WBS	Work breakdown structure
WMP	Water master plan
WTP	Water treatment plant
WWT	Wastewater treatment
WWTP	Wastewater treatment plant

PROJECT SUMMARY

BRAZIL SUSTAINABLE BASIC SANITATION PROGRAM IN JOINVILLE PROSAJ (BR-L1594)

Financial Terms and Conditions				
Borrower: Joinville Water Company (CAJ)			Flexible Financing Facility ^(a)	
Executing agency: CAJ			Amortization period:	25 years
Loan type: Multiple works investment program			Disbursement period:	5 years
Guarantor: Federative Republic of Brazil			Grace period:	5.5 years ^(b)
Source	Amount (US\$)	%	Interest rate:	SOFR-based
IDB (Ordinary Capital):	128,000,000	94	Credit fee:	^(c)
Local:	8,000,000	6	Weighted average life:	15.25 years
Total:	136,000,000	100	Currency of approval:	United States dollar
Project at a Glance				
Project objective/description: The general objective of the program is to contribute to the improvement of environmental and sanitation conditions of the population in the CAJ's service area. The specific objectives will be to: (i) improve the quality of the water supply service and access to the wastewater collection and treatment service, contributing to a reduction of greenhouse gases; (ii) improve the operational efficiency of the water supply and sewer systems; and (iii) improve the CAJ's corporate management.				
Special contractual conditions precedent to the first disbursement of the loan: The borrower will submit evidence of the following: (i) approval and entry into force of the program Operating Regulations (link 9), under the terms previously agreed upon with the Bank; and (ii) creation of the program management unit, attached to the office of the CAJ president, and the appointment of its members under the terms previously agreed upon with the Bank (paragraph 3.7). Further details on the special contractual conditions can be found in Annex B of the Summary Environmental and Social Review (link 2).				
Special contractual conditions for execution: (i) before issuing the service order for each of the program works, the borrower will submit evidence that consulting services for the technical and environmental supervision of the work in question have been contracted or that the borrower's own team has been appointed to conduct this supervision, pursuant to the terms of reference previously agreed upon with the Bank and the provisions of the program Operating Regulations; and (ii) before issuing the service order for construction of the works of the second phase of the Vila Nova Wastewater Treatment Plant (WWTP), the borrower will submit evidence that: (a) the preliminary operating order for the first phase of the Vila Nova WWTP has been issued; and (b) a works contract is in force for construction of the sanitary sewer system in the <i>Morro do Meio</i> neighborhood, in which the wastewater will be treated by the second phase of the Vila Nova WWTP (paragraph 3.8). For further details, see the special contractual conditions in Annex B of the Summary Environmental and Social Review (link 2).				
Exceptions to Bank policies: A partial waiver of the guarantee policy (Operational Policy OP-303) has been requested in relation to the provision by the Município of Joinville to guarantee the performance obligations and the local counterpart. The Federative Republic of Brazil will be the guarantor of the financial obligations in the loan contract (paragraph 3.2).				
Strategic Alignment				
Challenges: ^(d)	SI <input checked="" type="checkbox"/> PI <input checked="" type="checkbox"/> EI <input type="checkbox"/>			
Crosscutting themes: ^(e)	GE <input checked="" type="checkbox"/> and DI <input checked="" type="checkbox"/>		CC <input checked="" type="checkbox"/> and EN <input checked="" type="checkbox"/>	IC <input type="checkbox"/>
Sustainable Development Goals: ^(f)	SDG1 <input checked="" type="checkbox"/>	SDG2 <input type="checkbox"/>	SDG3 <input checked="" type="checkbox"/>	SDG4 <input checked="" type="checkbox"/> SDG5 <input checked="" type="checkbox"/> SDG6 <input checked="" type="checkbox"/> SDG7 <input type="checkbox"/>
	SDG8 <input type="checkbox"/>	SDG9 <input checked="" type="checkbox"/>	SDG10 <input checked="" type="checkbox"/>	SDG11 <input checked="" type="checkbox"/> SDG12 <input checked="" type="checkbox"/> SDG13 <input checked="" type="checkbox"/> SDG14 <input checked="" type="checkbox"/>
	SDG15 <input checked="" type="checkbox"/>	SDG16 <input type="checkbox"/>	SDG17 <input type="checkbox"/>	

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- (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, commodity, and catastrophe protection 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 the 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 applicable policies.
 - (d) SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).
 - (e) GE (Gender Equality) and DI (Diversity); CC (Climate Change) and ES (Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).
 - (f) SDG (Sustainable Development Goal). *Further information on the SDGs can be obtained [here](#); and the IDB Group SDG Project Classification Methodology can be consulted [here](#).*

I. PROJECT DESCRIPTION AND RESULTS

A. Background, problem to be addressed, and rationale

- 1.1 **Institutional framework.** The Joinville Water Company (*Compañía Águas de Joinville* – CAJ) was created in 2004 as a semi-public enterprise, with the Município of Joinville the controlling shareholder. In 2005, the CAJ signed a concession contract with the município to supply water and sanitation (W&S) services for a renewable 20-year period. In September 2019, the law creating the CAJ was amended to establish it as a closed-capital public enterprise, wholly owned by the Município of Joinville, and to maintain the concession of W&S services for an indefinite period of time.¹ The company is regulated by the Intermunicipal Sanitation Regulation Agency (AIRS), it has been fulfilling the requirements of the new legal framework governing the country's sanitation sector² and does not anticipate any difficulties in continuing to do so.
- 1.2 **Coverage and quality of W&S services.** The Município of Joinville has an estimated population of 605,000³ and is located in the South Region of Brazil, in the northern part of the state of Santa Catarina. The city has a human development index of 0.809, ranking 21st nationally. Although the city has a relatively higher level of development, in Brazil populations that lack adequate access to basic utilities such as W&S are mostly low-income groups living in marginal urban areas. Eighty-one percent of the deficit in access to such services affects households with monthly family incomes of less than one minimum wage.⁴ At the end of 2020, water coverage in the município was 99.93%, with total production concentrated in just two catchments, including the Cubatão system, which produces 75% of the water consumed in the city. This situation compromises the sustainability of supply at times of water crisis, not only because of the system's lack of operational flexibility, but also because of the watershed's rapid rate of degradation. Despite the high coverage rate, however, the CAJ faces major service quality challenges, mainly owing to insufficient water production, storage capacity, and pressure control in the southern region, which generates a discontinuous service to the population (in the last six years the CAJ received an average of 299 complaints per month for lack of water in this region). In the case of the sanitary sewer system, the collection rate is only 40.74%, a situation that adversely impacts both the environment and public health. Nonetheless, 100% of the wastewater that is collected is treated.
- 1.3 **Operational efficiency of the services.** The CAJ displays an adequate level of financial solvency (paragraph 1.28). However, there is potential for operational improvement of the services in terms of: (i) increasing the rate of connection to sewer systems that have already been constructed;⁵ (ii) increasing preventive

¹ Municipal Law 8,727, of 11 September 2019. The concession contract was amended on 18 April 2022 to make the term of the concession indefinite.

² On 15 July 2020, the federal government enacted Law 14,026, which introduces reforms to the sector, including the targets of universal access to services by 2033 and demonstration of their financial-economic viability, in current contracts between service providers and municípios.

³ Brazilian Institute of Geography and Statistics (IBGE), 2021.

⁴ National Basic Sanitation Plan (PNSB), 2020.

⁵ Around 6% of the sewer connections inspected have some type of irregularity in the connection.

maintenance activities in sewer systems to enhance asset management;⁶ (iii) harmonizing its technical and customer registry with the município's database;⁷ (iv) reducing water losses, which currently run at 486 liters/connection per day (a rate of 48%, compared to the national average of 38%); and (v) reducing energy consumption (0.51 kWh/m³) by adopting energy-efficiency measures.⁸

- 1.4 **Status of digitalization and technological innovation.** Over the last few years, the CAJ has used a variety of methods to select and implement⁹ several pilot programs to test innovative technological solutions¹⁰ provided by startups. These have aimed to improve the processes and operational control of water and sewer facilities, and to reduce water losses, among other objectives.¹¹ The three strategic pillars on which the CAJ bases its innovation activities are aligned with the following corporate goals: (i) user experience; (ii) operational excellence; and (iii) business expansion and sustainability. However, the activities executed or being executed are dispersed, they do not use impact-based prioritization criteria, and they are not organized under a strategic plan. Moreover, there is no culture of evaluating pilot programs; and innovative solutions have not yet been scaled up. These shortcomings mean that operational inefficiencies persist that make it impossible to reduce water losses and optimize energy consumption, among other things. With respect to digitalization, information technology resources are contributing increasingly to the efficiency of operational processes. Digitalization speeds up expansion, seeks to reduce operating costs, and can make a significant contribution to solving important problems such as water loss and availability. Since the start of its operation in 2006, the CAJ passed through several phases in which information technology systems were implemented with a focus on billing management, customer management, service management, and customer service. These processes are executed through a specific system for sanitation services, SANSYS, which is a web application that uses a Microsoft SQL Server database. This system also supports the management of the commercial registry (where all customers are registered) and the technical registry (which is the basis for many decisions such as operation and maintenance (O&M)). Currently, 82% and 39% of the water and sewer networks are registered, respectively. These registries are maintained in a spatial database, on the ArcGIS Server platform, under the responsibility of the município. This situation reduces the CAJ's management autonomy and restricts its modernization. The main problems faced by the CAJ in terms of digitalization

⁶ Only about 100 km of preventive maintenance is performed on the sewer networks each year, out of a total network of 680 km. This results in long response times in the event of breaks or obstructions in the networks.

⁷ In 2021, around 9% of registered water connections were not being billed because the user registry data are obsolete.

⁸ In certain facilities, energy consumption could be reduced by about 30%.

⁹ Technological partnerships, selection via hackathon (an event in which web developers or app programmers meet to find solutions to the challenges posed by the new legal framework for sanitation, an environment conducive to new ideas), development of solutions and other projects.

¹⁰ Innovative technologies are those that use Industry 4.0 developments, such as sensorization, the Internet of Things, artificial intelligence, dashboard, etc.

¹¹ For example, [IOSight](#) to improve the operational efficiency of water distribution; [GALX.IA](#) to reduce losses in macro metering; [ECONAM](#) for electrolytic wastewater treatment, etc.

are: deficits in systems/software, insufficient technical and commercial registries, deficits in information security (cybersecurity), and incompatibility of its systems with new technological developments (obsolescence).

- 1.5 **Diagnostic assessment of gender and persons with disabilities.** Work done with the company has generated the following data: women account for 38% of the CAJ staff and hold 45% of its middle management posts. In senior management positions, which are responsible for the most important decisions and define the organization's lines of action, there are currently no women directors.¹² Women represent 23% of the Board of Directors and Supervisory Boards. In technical and operational positions, women are below parity (34% and 24%, respectively), while in administrative positions (where women are usually a majority), their share is 48%. The firm's workforce has no one from the indigenous, Afro-descendent, or LGBTIQ+ communities. On the other hand, it has been reported that 2% of the company's total workforce are persons with disabilities. The institutional framework for gender and persons with disabilities are mainstreamed within the CAJ through several instruments, such as: (i) the Sustainability Policy, which includes gender, equality, and inclusion considerations; (ii) two codes of conduct and ethics; (iii) the Collective Bargaining Agreement which includes practices to balance work/family/personal life, as well as professional development; and (iv) several activities to serve the beneficiary populations of CAJ programs, which account for gender, equality, and inclusion considerations. An example is the "Network Assessment" which provides brick-laying and plumbing courses for external participants. Despite all the achievements and progress that the company has made on gender, equality, and inclusion issues, it currently has no plans to disseminate and promote them. If it were to do so, the probability of enhancing its reputation is almost 60% (ILO, 2019), which converts into stakeholder loyalty (customers, workers, investors, shareholders, etc.), and hence into reputational gains. Similarly, ensuring parity and diversity in positions where this does not exist needs to be made a value in the corporate culture. Several intervention strategies have been designed to build this value, strengthen the institutional framework for gender described above, and promote the disability perspective and the concepts of universal accessibility as part of corporate culture.
- 1.6 **Climate change considerations.** Brazil's climate has been changing significantly in recent years. Some studies indicate that the minimum and maximum temperatures show a clear rising trend (about +0.5°C per decade) in nearly all regions of the country and in all seasons of the year. This can be seen most clearly in the Center-West region (Mato Grosso, Tocantins, Goiás and western Bahia, Minas Gerais, and São Paulo), and in the North region in winter and spring, where temperature gains are up to 1°C per decade. In the case of average annual precipitation, no homogeneous historical trend of change has been detected, although there is major spatial variability. Nonetheless, the frequency of extreme precipitation events (measured as maximum cumulative rainfall in a five-day period, RX5) are clearly rising in several parts of the country. These include the Northeast region, in the state of Bahia, in the eastern part of the Southeast region, in most of the Center-West region and in scattered areas

¹² In the previous municipal administration, two out of three directors were women.

of the North region. In these areas, rainfall totals due to extreme events have increased by 8 mm to 40 mm in recent decades. The projections generated by climate change models¹³ concur in identifying a clear rising trend in temperature throughout the national territory. In the case of precipitation, the models seem to coincide in terms of a reduction in average precipitation for Brazil as a whole, except in the southern part of the country. This situation poses a significant risk to the quality and sustainability of W&S services, by affecting the availability of water resources.

- 1.7 Brazil ratified the Paris Agreement in September 2016 and committed, through its Nationally Determined Contribution (NDC), to adopt measures to reduce greenhouse gas (GHG) emissions. The NDC states that the country will seek to reduce its GHG emissions relative to their 2005 level by 37% no later than 2025 and 43% by 2030. In 2016, Brazil's GHG emissions totaled 1,467 Gt CO₂ which represented an increase of 19.4% over the 2010 level. In fact, according to the [Fourth National Communication](#), between 2010 and 2016, total emissions of carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) increased by 30.3%, 3.8% and 10.7%, respectively. Of the increase in total emissions between 2010 and 2016, 61% was caused by land-use change, followed by energy (20%), agriculture (12%), waste (4%), and the industrial and production sectors (3%). The waste sector in particular includes emissions from the disposal and treatment of solid and liquid waste, with emissions of CH₄, N₂O and CO₂ from four subsectors, according to the [methodology of the Intergovernmental Panel on Climate Change \(IPCC\)](#). Emissions from this sector totaled 65,954 Gg CO₂ in 2016, up by 16.4% since 2010. Of the total emissions, approximately 60% correspond to the solid waste subsector and 40% to wastewater treatment (WWT) with a total of 25,794 Gg CO₂ in 2016. Measures to increase the energy efficiency of facilities and equipment, control nonrevenue water, and improve WWT will contribute to the country's emissions reduction target.
- 1.8 **General program design strategy.** The strategy aims to support the CAJ with investments to move toward the targets of universalization of W&S services in a sustainable manner in the urban area of the município of Joinville, ensuring operational resilience, efficiency, and quality services. These measures will ultimately contribute to improving both the environmental conditions of the city and the health of the population.¹⁴ To this end, emphasis will be placed on reducing intermittency and the concentration of water production in the Cubatão system, by increasing the capacity for catchment, transportation, treatment, adduction, and potable water supply reservoirs. Works will also be undertaken to expand the existing collection and WWT systems. All works will be studied to ensure their protection against the effects of climate change; and their adaptation and mitigation contributions will be evaluated. The strategy will also focus on reducing water losses, optimizing energy consumption, and generally reducing operational inefficiencies, while prioritizing innovative solutions. Lastly, to contribute to the sustainability of the interventions, the CAJ will receive institutional strengthening to: (i) improve its operational performance (including

¹³ The two models used in the Fourth National Communication for Brazil are: (i) the regional water treatment plant (WTP) model; and (ii) the HadGEM3-A model (Hélix project).

¹⁴ [Water and Sanitation Sector Framework Document](#), IDB (2021).

the implementation of AquaRating),¹⁵ by strengthening the preventive maintenance of its assets, including the management of the technical and customer registry; (ii) define and implement specific gender and diversity policies and actions, especially to ensure that all processes are carried out with a focus on equality and inclusion; and (iii) design and implement an innovation and digital transformation strategy. The proposed actions have been shown to be effective in several studies of works undertaken in similar contexts.¹⁶

- 1.9 **Strategy and actions on gender and persons with disabilities.** The strategy will include a diagnostic assessment of the situation and its resulting Action Plan for the CAJ. The diagnostic assessment will include the use of AquaRating's gender equality and diversity inclusion targeted analysis tool, with the aim of defining a baseline for measuring the degree of implementation of the good gender and diversity practices that the company has already implemented and those that may be identified during the program and recommended for implementation. In all of its analyses and recommendations, this plan will include the following: (i) a focus on gender and persons with disabilities (considering issues of universal accessibility and reasonable accommodations); (ii) training on gender and disability issues for company staff; (iii) proposals for mechanisms to encourage women in the communities to participate in the "Network Assessment" courses; and (iv) the design of surveys to measure the perception of gender and diversity concepts among the CAJ staff, and the degree of satisfaction with respect to the work-family-personal life balance among women, persons with disabilities, and vulnerable people in the company. To this end, two multifunctional decompression spaces will be built, one at CAJ headquarters and the other at the Customer Service Center located in the city center. These will be used for pregnant women's rest, relaxation, and breastfeeding, and for the integration of work teams. Both spaces will comply with the principles of universal accessibility (which presupposes the "Design for All" strategy). Moreover, to promote and disseminate the CAJ's achievements in the gender area, a chapter on gender and diversity and persons with disabilities will be designed for inclusion in the Sustainability Report to be published periodically ([link 10](#)).
- 1.10 **Technological innovation and digital transformation strategy.** In terms of technological innovation, the CAJ will be supported with instruments to enable it to carry out adequate strategic planning in technological innovation and address its main operational challenges in a prioritized manner. It will also be supported in formulating and implementing viable models for public procurement of innovation, and in scaling up viable technological solutions. This will reduce costs, increase effectiveness, and shorten times in the firm's operations. The CAJ digitalization strategy includes the development and implementation of information technology and cybersecurity plans. This will include renewal of the commercial system, for which it was decided to purchase a software and database solution to replace the

¹⁵ [AquaRating](#).

¹⁶ [Evidence of the effectiveness of loss control interventions in Brazil can be found in Da Silva, Nilce Regina](#) and Rizzo, Alex; Pearson, David, Stephenson, Matthew; and Harper, Neil; *Apparent Loss Control: A practical Approach*; International Water Association (IWA), Water 21 Article 7, IWA Task Force, June 2004. There are also numerous studies demonstrating the effectiveness of wastewater treatment for the sanitation of receiving bodies, such as Von Sperling M., [Urban wastewater treatment in Brazil](#) and Nolasco N., [Desarrollo de proyectos MDL en plantas de tratamiento de aguas residuales](#).

SANSYS system. This includes consulting and development services for data migration, adaptation of processes, training, and support. It will also make it possible to implement measures to partially automate the metering and billing systems. Additionally, in terms of improving management of access to the information technology environment (cybersecurity) and considering the risks that affect business continuity, it is planned to gradually implement protection measures, and create a dedicated information security unit, together with the corresponding training ([link 11](#)).

- 1.11 **Climate change strategy.** The program's investments in WWT, energy efficiency, and water loss reduction will contribute to the mitigation of GHG emissions in the waste sector, as mentioned in paragraph 1.24. New sewer connections to a centralized WWT system contribute to reducing emissions of CH₄ and N₂O, which are two potent GHGs.
- 1.12 **The Bank's experience in the sector and country.** The Bank has financed similar operations in Brazil and elsewhere, which, with minor variations, include actions of the same type: implementation of large-scale W&S infrastructure such as the three stages of the Tietê River Cleanup Program (loan [4623/OC-BR](#)) in São Paulo, which demonstrates the need for a comprehensive approach with interventions in infrastructure, operational modernization, and institutional strengthening and innovation, etc. With the Município of Joinville as borrower and executing agency, Program Viva Cidade 2 (loan [3410/OC-BR](#)) is currently in execution, targeting mainly macro and micro drainage systems. Earlier, also with the Município of Joinville, the Joinville Environmental Revitalization Program (loan [1909/OC-BR](#)) was implemented, including flood control and measures to minimize environmental problems. This operation was successfully completed in 2014. Also currently in execution is the technical cooperation operation "IDB-Israel Collaboration: Improving Capacities in Water Resource Technologies" (operations [ATN/CF-17061-RG](#) and [ATN/OC-17060-RG](#)), under which the CAJ is being supported in the implementation of pilot technological innovation programs.
- 1.13 **Lessons learned that are applicable to the program.** This operation draws on lessons learned during the preparation and execution of similar operations in Brazil. These include: (i) having a program management unit (PMU) responsible for coordinating the entire program and acting as sole interlocutor with the Bank. For this program, a PMU will be set up to take charge of program execution (paragraph 3.3); (ii) given the dispersed nature of the work sites, execution will need continuous support involving consulting services for works supervision, for which specific resources have been earmarked (paragraphs 1.18 and 1.19); (iii) focus on the optimization of existing infrastructure, enhancing the systems' resilience capacity; the program includes interventions to rehabilitate existing infrastructure focused on increasing the resilience of services (paragraphs 1.18 and 1.11); and (iv) identification of the use of innovative technologies in the technical solutions; for which the program will finance projects with innovative technologies that could be replicable in other areas (paragraph 1.10); and (v) implementation of specific actions to strengthen the operator's operational management with a view to making the investments sustainable (paragraphs 1.19 and 1.20).

- 1.14 **The country's strategy in the sector.** The program's interventions are included in the Municipal Basic Sanitation Plan - Water and Sewer System (PMSB) - Joinville (2011) and in the respective Water Master Plans (WMP) (2013, revised in 2022) and the Sewer Master Plan (SMP) (2019). The PMSB has a planning horizon of 2035, while that of the WMP is 2037 and that of the SMP is 2047. The main premises of the PMSB include: (i) short-term (2017), medium-term (2023) and long-term (2035) planning; (ii) universalization of water supply in the short term, which has been achieved; (iii) use of institutional performance targets such as loss reduction; and (iv) maximum utilization of installed capacity. In the case of the sewer system, the main premises were: (i) universalization of the service in the long term; (ii) treatment of 100% of collected wastewater, which was achieved; and (iii) maximum utilization of installed capacity.
- 1.15 **The Bank's country strategy.** The operation is consistent with the IDB Group Country Strategy with Brazil 2019-2022 (document GN-2973), specifically with the priority area of "Improve the business climate and narrow gaps in sustainable infrastructure for enhanced competitiveness," thereby contributing to the expected results associated with the strategic objective of narrowing infrastructure gaps: "Better access to improved water, solid waste, and sanitation services," and with the crosscutting themes of: (i) gender; (ii) environmental sustainability and climate change; and (iii) innovation and digital transformation. This operation is also included in the 2022 Operational Program Report (document GN-3087).
- 1.16 **Compliance with the Public Utilities Policy (document GN-2716-6).** The proposed program and the national objectives for the sector are consistent with the principles of the Public Utilities Policy (document GN-2716-6) and meet the conditions of financial sustainability and economic evaluation. The company displays an adequate financial position that has allowed it to cover its O&M costs with an ample margin; the entity's financial projections indicate that this trend will continue in the future (paragraph 1.28). Moreover, the works to be financed under the program are socioeconomically viable (paragraph 1.26). The CAJ charges a differentiated social rate to low-income households and has an appropriate institutional framework, with proper separation of roles and responsibilities ([link 5](#)).

B. Objective, components, and cost

- 1.17 **Objective and scope.** The general objective of the program is to contribute to the improvement of environmental and sanitation conditions of the population in the CAJ's service area. The specific objectives will be to: (i) improve the quality of the water supply service and access to the wastewater collection and treatment service, contributing to a reduction of GHGs; (ii) improve the operational efficiency of the water supply and sewer systems; and (iii) improve CAJ corporate management.
- 1.18 **Component 1: Water supply and sewer works (US\$101.9 million).** This component will finance: (i) implementation of the Pirai Sul water treatment and distribution system, including catchment, adduction, treatment plant with a capacity of approximately 750 liters per second (l/s), improvements to existing plants, construction and expansion of reservoirs and interconnections of distribution networks, and other complementary works; and (ii) implementation of

works to expand the sewer system, including increasing the capacity of the Vila Nova and Jarivatuba treatment plants, with capacity increases of approximately 45 l/s in the Vila Nova plant and two modules of approximately 150 l/s in the Jarivatuba plant; (iii) implementation of approximately 130 kilometers of collector networks, lifting stations and outfalls, among other similar works; and (iv) implementation of approximately 15,000 new sewer connections. This component will also finance consulting services for the preparation of complementary studies and designs, and technical and environmental works supervision.

- 1.19 **Component 2: Improvement of operational efficiency and quality of services (US\$25.8 million).** This component will finance: (i) operational improvements in the water supply systems, including the implementation of approximately 12.6 kilometers of water distribution networks; (ii) rehabilitation of water treatment plants, including the Cubatão treatment plant with a capacity of approximately 1,800 l/s; (iii) water loss reduction actions, including the implementation of metering and control districts, macrometers, suction pumps, pressure reducing valves, boosters, replacement of branches and networks, and other similar measures; and (iv) energy-efficiency programs that include replacing pumps with more modern and efficient ones, and implementing frequency inverters, among other similar actions to reduce the system's electricity consumption. This component will also finance consulting services for the preparation of complementary studies and designs and technical and environmental works supervision.
- 1.20 **Component 3: Institutional strengthening, innovation, digitalization, and gender (US\$6.6 million).** This component will finance: (i) strengthening of the database (commercial and technical) of the Georeferenced Municipal Information System; (ii) development of an asset preventive maintenance plan; (iii) promotion of population awareness campaigns to encourage connection to the sewer network; (iv) strengthening of socioenvironmental and educational management; (v) strengthening of water resources management; (vi) preparation of a diagnostic assessment of the CAJ gender and diversity situation and action plans to be implemented by common agreement among the parties; and (vii) implementation of a digitalization and innovation acceleration program for the CAJ by common agreement among the parties.
- 1.21 **Program administration and management.** This will finance consulting support services for the PMU, monitoring, evaluation, and the program audit. It will also finance the contracting of consulting services for the preparation of supplementary studies and programs.
- 1.22 **Key results indicators.** The key project results relate to improvements in terms of access, quality, and operational efficiency of the services provided by the CAJ. The key performance indicators are presented in Table I-1 below (see also Annex II).

Table I-1 – Key indicators

Outcome indicator	Unit of measure	Baseline	Target
Households with 24/7 access to drinking water in the município of Joinville	Household	136,069	153,272
Households with effective access to wastewater collection		84,728	104,480
Households with wastewater treated in the município of Joinville		84,728	104,480
the CAJ distribution losses index	%	41.8	32.1

- 1.23 **Benefits and beneficiaries.** It is estimated that approximately 80,000 inhabitants¹⁷ of the município of Joinville will benefit from the expansion of the collection and WWT systems. In addition, approximately 600,000 people already connected to the water supply system will benefit directly from the improvement actions to be implemented. Their well-being and quality of life will improve thanks to access to better quality sustainable services. Sustainability will be enhanced not only by upgrading CAJ institutional performance, but also by modernizing and increasing its operational efficiency, which will also bring financial benefits to the firm.

C. Strategic alignment

- 1.24 The program is consistent with the Update to the Institutional Strategy (document AB-3190-2) and is aligned with the development challenges of: (i) social inclusion and equality, since access to W&S services will be expanded and improved, and environmental pollution will be reduced; and (ii) productivity and innovation, through the implementation of measures that will reduce inefficiencies in systems management and the implementation of an innovation and digital transformation plan. The program is also aligned with the crosscutting themes of: (i) gender equality and inclusion of persons with disabilities, in relation to the inclusion of a policy on gender and persons with disabilities throughout the CAJ; (ii) institutional capacity and rule of law, by improving the CAJ operational efficiency and business management; and (iii) climate change and environmental sustainability, as investments in WWT, reduction of losses, and energy efficiency will reduce GHG emissions and improve water security conditions, through the construction of infrastructure for the provision of drinking water and wastewater collection and treatment services. According to the [joint multilateral development bank methodology](#), it is estimated that 70.52% of the Bank's resources are invested in energy-efficiency activities, reducing water losses, and increasing the number of connections for aerobic wastewater treatment. All of these investments help mitigate GHGs. These resources contribute to the Bank's climate finance target (30% of the annual volume of approvals). The operation will also contribute to the 2020-2023 Corporate Results Framework (document GN-2727-12) through the indicators "Households with new or improved access to water and sanitation" and "Agencies with strengthened digital technology and managerial capacities." Lastly, the program is consistent with the following sector framework documents: (i) the Water and Sanitation Sector Framework Document (document GN-2781-13), under the premise that projects and programs are environmentally

¹⁷ Four inhabitants per household.

and socially sustainable and incorporate considerations of climate change and environmental and cultural sustainability; (ii) the Climate Change Sector Framework Document (document GN-2835-8) through dimension iv, “countries make progress on mainstreaming climate considerations across sectors”; and (iii) the Gender and Diversity Sector Framework (document GN-2800-8) in terms of providing quality public services that promote gender equality, the inclusion of persons with disabilities, and women’s empowerment.

D. Viability analysis

- 1.25 **Technical viability.** To determine the program’s viability and streamline its execution once approved, a sample of representative programs of the types of works to be executed was analyzed, involving a total investment amount of US\$71.0 million, approximately 52% of the total program amount. Four Component 1 water programs were evaluated: (i) the new Pirai Sul Water Treatment Plant (which includes its catchment, raw water intake, and plant); (ii) treated water adductor; (iii) an underground tunnel for the treated water adductor; and (iv) the construction of the R9 reservoir, together with its adductor section. In terms of sanitation, the expansion of the Vila Nova wastewater treatment plant (WWTP) was evaluated, together with the collection network works in basin 7-32. In the case of Component 2, Improvement of operational efficiency, the improvement measures at the (existing) Cubatão WWTP were evaluated. These include replacement and implementation of several new, modern, and automated equipment items. In addition, the works to upgrade existing water networks (sectors R9 and R12), the water loss reduction program, and the energy-efficiency measures were also evaluated. The programs are at an advanced basic or conceptual level. They have been developed following the guidelines and selection of alternatives specified in the WMP, the SMP, and the PMSB. The proposals are technically viable, appropriate for the needs identified, and aligned with the defined capacity and quality objectives, requiring a few specific optimizations included in the Program Operating Regulations. All studies and designs of infrastructure components will abide by the standards of the Brazilian Technical Standards Association, generally accepted international engineering principles, and the guidelines agreed upon in the Program Operating Regulations ([link 4](#)).
- 1.26 **Economic viability.** As a multiple works program, a cost-benefit analysis was performed on the representative program sample. All programs are economically viable with economic internal rates of return (EIRR) and net present values (using a discount rate of 12%) of 17.6% and US\$26.14 million, respectively for Pirai Sul, 12.9% and US\$139,000 for Cubatão, 13.1% and US\$125,000 for sewer networks in watershed 7.32, and 23.7%, and US\$2.0 million for the Vila Nova WWTP. For programs not evaluated, a benefit-cost analysis will be carried out and only programs with EIRR above 12%, or those that result in the most cost-effective alternative, may be financed by the project. Lastly, according to information provided by the CAJ, households in the program area pay an average of US\$12 per month for water and sewer services, which represents 0.95% of average monthly family income. For poor households there is a social rate, under which the monthly payment by users in this category is approximately US\$4.60, representing 2.86% of their average monthly household income. These values are acceptable by international standards ([link 6](#)).

- 1.27 **Socioenvironmental viability.** In accordance with the Bank's Environmental and Social Policy Framework (ESPF), and based on the environmental and social due diligence of the programs in the representative sample, this is classified as a Category "B" operation, because it will generate moderate, local, short-term negative environmental and social impacts, for which effective and readily available mitigation measures are known. Specifically, minimal impacts are anticipated on critical habitats (patches of Atlantic Forest biome, the Serra do Mar coastal forest ecoregion, and ombrophylous forest phytophysiology), as well as possible minimal impacts to endangered species.
- 1.28 **Financial and institutional viability.** The financial analysis of the CAJ has shown that the firm has sufficient financial capacity to cover the local contribution, service its debts, and cover O&M of the program's works. The financial analysis included both the historical analysis, based on the entity's audited financial statements and operating data, and the development of a financial model that projects the financial situation for the coming years. The historical financial data show that the company, with revenues from the provision of services, has been able to cover its costs adequately (EBITDA¹⁸ of 44% and final profit margin of 31% (both in 2021)). It also has low levels of debt;¹⁹ and it has been able to finance a major part of its investment plan from its internally generated cashflow. The rates it charges are reviewed annually, and its revenue collection rates are above 95% of billing. The baseline financial projections indicate that the CAJ will be able to maintain an adequate financial position for the projection period ([link 7](#)). In addition, the institutional capacity assessment platform (ICAP) tool, applied to the CAJ as the program's executing agency, found that the entity has adequate processes and procedures to execute the program. Although the CAJ has no previous experience with international multilateral financing organizations, the company has recently reinforced its technical team involved in program execution: and it was agreed to set up a PMU in the company's structure, linked to the projects and processes desk (EPP). This will report to the office of the CAJ president and will be staffed by a multidisciplinary team. It will also be supported in execution of the program activities by several of the company's operational divisions, whose functions and responsibilities will be defined in detail in the Program Operating Regulations ([link 9](#)).

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 **Financing modality and structure.** The operation will be structured as an investment loan under the multiple works program modality, since it involves independent and physically similar programs that can be rolled out individually and satisfy eligibility and prioritization criteria (paragraph 1.25) (document GN-750-1).

¹⁸ Earnings before interest, tax, depreciation, and amortization.

¹⁹ Net debt / EBITDA < 0.5x (2021).

- 2.2 **Cost and financing.** The total program cost is US\$136 million, of which US\$128 million will be financed by a loan from the Bank's Ordinary Capital and US\$8 million from a local contribution. The disbursement period will be five years. The consolidated budget is itemized by component in Table II-1. The disbursement schedule is shown in Table II-2.

Table II-1. Estimated program costs (US\$)²⁰

Components	IDB	Local	Total	%
Component I. Water supply and sewer works	93,880,926	8,000,000	101,880,926	74.9
Water supply works	38,303,136	0.0	38,303,136	28.1
Sewer works	55,577,790	8,000,000	63,577,790	46.7
Component II. Improved operational efficiency and service quality	25,814,000	0.0	25,814,000	19.0
Modernization of water supply and sewer systems	11,184,000	0.0	11,184,000	8.3
Water loss reduction measures	6,430,000	0.0	6,430,000	4.7
Energy efficiency measures	8,200,000	0.0	8,200,000	6.0
Component III. Institutional strengthening, innovation, digitalization, and gender	6,598,074	0.0	6,598,074	4.8
Programs to strengthen CAJ management	4,153,074	0.0	4,153,074	3.1
Digitalization and innovation acceleration program	2,445,000	0.0	2,445,000	1.7
Program administration and management	1,707,000	0.0	1,707,000	1.3
Total	128,000,000	8,000,000	136,000,000	100.0

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

Components	Year 1	Year 2	Year 3	Year 4	Year 5	Total
IDB	23.8	18.5	27.5	30.4	27.8	128.0
Local contribution	0.7	1.4	4.6	1.3	0.00	8.0
Total	24.5	19.9	32.1	31.7	27.8	136.0
%	18.0	14.6	23.6	23.3	20.5	100.0

- 2.3 **Deadline for starting the physical works.** The deadline for starting the program's physical works will be 42 months from the entry into force of the loan contract. This period is justified by the fact that this program finances the second phase of the Vila Nova WWTP; and the first phase, currently in execution, will be completed in the second year of this operation. Thus, the bidding and contracting for the plant is scheduled for the third year of operation.

²⁰ The amounts specified in each component are indicative.

B. Environmental and social risks

- 2.4 The environmental and social risk has been rated as substantial, mainly associated with the presence of critical habitats and cultural sites in the program's area of direct influence, and the moderate scale of the physical interventions to be carried out (infrastructure expansion and modernization of W&S systems, with the risks and impacts typical of the sector). These could generate pollution, workplace accidents, the need for expropriation, and, potentially, temporary livelihood impacts (loss of earnings). There will be no physical displacement or adverse impact on indigenous or coastal communities. Disaster and climate change risk has been estimated as high, mainly due to the "Reservoir 9" sample program,²¹ which is highly critical/vulnerable. A risk narrative was prepared for this project, and a Disaster Risk Assessment will be performed during execution, in accordance with the Disaster and Climate Change Risk Assessment Methodology for IDB programs.
- 2.5 An environmental and social management system was developed for the operation with a preliminary version of its seven pillars, incorporating two environmental and social analyses (ESAs) and two environmental and social management plans (ESMPs), focusing basically on water and sewer service, respectively. The ESAs include all relevant assessments and requirements of environmental and social performance standards (ESPS) 1 to 10; and their respective ESMPs are commensurate with the expected risks and impacts. Also, as part of the aforementioned system, an environmental and social management framework was prepared. This includes guidelines for the assessment and subsequent socioenvironmental management of all programs outside the representative sample, and two stakeholder engagement plans for the sample programs with gender, cultural heritage, and biodiversity perspectives. The meaningful consultation process for the aforementioned program groups ended on 22 June 2022 and included the completion of three face-to-face events, attended by 91 people. In general, the program was well received by the population, as there was consensus on the need for wastewater treatment. The main concerns revolved around the disruptions inherent to the works, the quality of services after completion, and specific complaints about the location of the future Vila Nova WWTP (only its expansion will be financed by the program).
- 2.6 The environmental and social documents in their "fit for disclosure" versions were posted on the Bank's external website prior to the analysis mission; and the final versions were disclosed before the date of program approval by the Board of Executive Directors. The Environmental and Social Review Summary provides further details on the mitigation measures and conditions to ensure compliance with the requirements of the 10 ESPS.

C. Fiduciary risks

- 2.7 During program preparation, no fiduciary risks that adversely affect execution of the operation were identified. The risk identification and management process will be maintained during the execution period.

²¹ Glass-fused-to-steel elevated storage tank.

D. Other risks and key issues

- 2.8 The following medium-high risks have been identified: (i) economic-financial: owing to the high rate of inflation in Brazil when the operation was being prepared, the reference budgets used to define the program components could be lower than the values applied during program execution. This risk is mitigated by assessing the impact of inflation leading up to the startup workshop, to be able to make the relevant adjustments and monitor the impacts of inflation on program costs; and (ii) legal: if the authorizing law is not passed by the second week of July 2022, it will be impossible to negotiate the loan contract and approve the operation in 2022. This risk is mitigated by monitoring the approval process of the law in question by the Municipal Council in conjunction with the CAJ and the Município of Joinville.
- 2.9 **Sustainability.** The company's healthy financial position, both historical and forecast (paragraph 1.29), underpins the financial sustainability of the program's works in the long term. Moreover, preventive maintenance of CAJ assets will be strengthened under Component 3 of the program, thereby also enhancing the sustainability of the investments to be made.

III. IMPLEMENTATION AND RESULTS MONITORING AND EVALUATION ARRANGEMENTS

A. Summary of implementation arrangements

- 3.1 The CAJ will serve as both borrower and executing agency. The Federative Republic of Brazil will stand as guarantor of the borrower's financial obligations under the loan contract to be entered into between the CAJ and the Bank.
- 3.2 **Exceptions to Bank policies.** The project team has requested a partial waiver of the guarantee policy (Operational Policy OP-303) in relation to the provision by the Município of Joinville to guarantee the performance obligations and the local counterpart. The partial waiver, linked to the guarantee of the timely contribution of the local counterpart, is justified and supported by the financial soundness of the CAJ, as shown in its audited financial statements for recent years, and the strength of its projected financial position (paragraph 1.28). Regarding the guarantee of the performance obligations, the CAJ enjoys legal stability, enabling it to ensure long-term legal certainty for the company's operations. The IDB's Institutional Capacity Assessment Platform (ICAP) was applied to the CAJ during program preparation, and showed that the company has adequate processes and procedures for program execution. In addition, the company has recently strengthened its technical team involved in execution of the program (paragraph 1.28). Moreover, in the last 10 years, the CAJ has been satisfactorily executing similar works to those included in the program, both with internal sources (General Federal Budget (OGU) and the Service Time Guarantee Fund (FGTS)), as well as with external sources (Banco Regional de Desenvolvimento do Extremo Sul (BRDE) and the French Development Agency (AFD)),²² and with its own resources. The corporate planning and organizational and operational structure of the CAJ have enabled adequate coordination between the departments and the intermediate and operational levels necessary for the

²² Non-sovereign guaranteed loan signed in June 2022.

execution of programs and the fulfillment of business targets (paragraph 1.28 and [link 4](#)).

- 3.3 For program implementation, the CAJ will set up a PMU attached to the office of its president, which will be responsible for program coordination and management. The PMU will be staffed by personnel appointed in accordance with the profiles and functions agreed upon with the Bank. The PMU structure will comprise an executive coordinator and professionals in the areas of socioenvironmental management; procurement; financial management; technical management; and planning. The PMU will be technically supported by different the CAJ areas involved in the program activities. The Program Operating Regulations ([link 9](#)) will identify and specify the responsibilities of each area involved in program execution.
- 3.4 The PMU will be supported by the CAJ Standing Bidding Commission for bidding processes and program procurement
- 3.5 **Program Operating Regulations.** Program execution will be governed by the provisions of the loan contract and the program Operating Regulations, which will contain, at a minimum, the following: (i) the institutional arrangements for program execution and the structure of the PMU, including the identification, details on the attributions of each area involved in program execution, and the minimum number of professionals in each area; (ii) details on the monitoring and evaluation of the program; and (iii) the environmental and social instruments comprising the environmental and social management system.
- 3.6 **Eligibility criteria for the works.** Each work financed by the program will satisfy the following eligibility criteria to be specified in greater detail in the program Operating Regulations. They will: (i) be works to upgrade and/or expand drinking water supply services and sanitary sewer and WWT systems; (ii) be located in the CAJ service delivery area; (iii) be technically (paragraph 1.25) and economically viable,²³ and be socially and environmentally viable (paragraph 1.27); and (iv) not be classified as a category “A” operation according to the Bank’s Environmental and Social Policy Framework. Eligible programs will be prioritized based on the CAJ’s strategic needs and as established in the respective Water and Sewer Master Plans (paragraph 1.14).
- 3.7 **Special contractual conditions precedent to the first disbursement of the loan: The borrower will submit evidence of the following: (i) approval and entry into force of the Program Operating Regulations ([link 9](#)), under the terms previously agreed upon with the Bank; and (ii) creation of the PMU, attached to the office of the CAJ president, and the appointment of its members under the terms previously agreed upon with the Bank.** Condition (i) is necessary because the Program Operating Regulations will define the operational aspects of implementation and harmonize the procedures to be followed by the CAJ; and condition (ii) is necessary to ensure that the CAJ will be ready with a suitable team to start program execution.

²³ Economically viable means having an EIRR greater than 12%, or financing the most cost-effective alternative.

- 3.8 **Special contractual conditions for execution:** (i) before issuing the service order for each of the program works, the borrower will submit evidence that consulting services for the technical and environmental supervision of the work in question have been contracted or that the borrower's own team has been appointed to conduct this supervision, pursuant to the terms of reference previously agreed upon with the Bank and the provisions of the program Operating Regulations; and (ii) before issuing the service order for construction of the works of the second phase of the Vila Nova WTP, the borrower will submit evidence that: (a) the preliminary operating order for the first phase of the Vila Nova WTP has been issued; and (b) that a works contract is in force for construction of the sanitary sewer system in the Morro do Meio neighborhood, whose wastewater will be treated by the second phase of the Vila Nova WWTP.
- 3.9 **Procurement of works, goods, and services.** Procurement financed, in whole or in part, with the loan proceeds will abide by the Policies for the Procurement of Works and Goods Financed by the Inter-American Development Bank (document GN-2349-15) and the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (document GN-2350-15). The *Pregão Eletrônico* country system that has been approved by the Bank's Board of Executive Directors (document GN-2662-4 of 2013), will be used within the scopes provided for in the respective approval and as set forth in Annex III of this document.
- 3.10 **Disbursements, advances of funds, and audits.** Disbursements will be made primarily through advances of funds, or through some other modality established in the guidelines set forth in document OP-273-12. Funds will be advanced according to a financial plan that covers the program's actual liquidity needs for up to 180 days, or some other period as per document OP-273-12. Except for the first advance of funds, subsequent advances will be processed when at least 80% of the total cumulative balances pending justification are accounted for. To manage program resources, the CAJ will use a bank account for this exclusive purpose. The company will submit audited financial statements, both annually and at the end of the operation. These will be submitted no later than 120 days after the fiscal year-end and 120 days after the expiration of the original disbursement period, or extensions thereof, respectively. The PMU will select and contract an independent audit firm acceptable to the Bank for the duration of the operation. Alternatively, the Santa Catarina State Audit Office (TSE-SC) may also be used to audit the program.
- 3.11 **Direct contracting.** Three firms will be contracted directly during program execution for a total amount of approximately US\$500,000, as follows: (i) the firm Galax.IA for an estimated amount of US\$330,943.19 to scale up the loss reduction solution, using data analytics; (ii) the firm IOSight for an estimated amount of US\$99,283, to scale up technical assistance to improve the operational efficiency of the water distribution system; and (iii) ECONAM for an estimated US\$36,771.47, to test and validate the electrolytic sewage treatment system and the model treatment unit with the electrolytic effluent treatment process. These prototypes, identified in the CAJ's open innovation strategy, showed positive results for scaling up ([link 11](#)). As these firms support and develop the entire associated innovation cycle (idea-prototype-test-scale), they are the only firms qualified with experience of exceptional worth for this task, thus

fulfilling the requirements specified in paragraph 3.11 (d) of document GN-2350-15 (see Annex III).

- 3.12 **Advance procurement and retroactive financing.** Pursuant to the Bank's policy on recognition of expenditures, retroactive financing, and advance procurement (document GN-2259-1 and Operational Policy OP-507), the Bank may use the loan proceeds to retroactively finance up to US\$1.5 million (equivalent to 1.17% of the proposed loan amount) in eligible expenditures on goods, works, and services incurred by the borrower prior to the loan approval date. To be eligible, the expenses in question will have satisfied requirements substantially similar to those set forth in the loan contract, and will have been incurred no later than 19 April 2022 (the program profile approval date), but in no case will they include expenditures incurred more than 18 months prior to the loan approval date. The CAJ expects to bring forward procurement processes that would be awarded prior to the signing of the loan contract and would generate disbursements during the first few years of implementation. The main conclusions on this strategy are reported in Annex III. The Bank will review the process used. The Bank's agreement to the procurement procedures, documentation, or proposal does not commit it to granting the loan.
- 3.13 **Community participation in procurement.** The program will finance the "Water Resources Management Strengthening Program" under Component 3, for an amount of approximately US\$500,000. This will include payments for environmental services, a possibility envisaged in paragraph 3.20 of document GN-2349-15. This procurement method is advisable because: (i) these are small-scale services, which would make it difficult for private companies to participate; and (ii) this type of community support would generate the degree of involvement needed to make the improvement of the intervention area sustainable. The procedure envisaged by the CAJ in the context of its "*Águas para Sempre*" [Water forever] program will be used, which establishes criteria for beneficiary selection, verification of services, and payments. The procedure will be specified in detail in the program Operating Regulations. These conclusions are indicated in Annex III.

B. Results monitoring and evaluation arrangements

- 3.14 **Monitoring.** The executing agency will prepare progress reports on the activities for which it is responsible and on achievement of their results. The monitoring arrangements will include the procurement plan, the project execution plan, the annual work plan, the Results Matrix, the progress monitoring report, and the risk management plan. The executing agency will submit semiannual reports to the Bank, reporting on progress achieved, the results obtained, and an action plan for the following six-months, within 60 days after the end of each semiannual period ([link 3](#)).
- 3.15 **Evaluation.** The executing agency will contract the following: (i) if the Bank deems it necessary, a midterm evaluation, to be submitted 36 months after the effective date of the loan contract or 90 days after 50% of the program funds have been disbursed, whichever occurs first; and (ii) a final evaluation to be submitted 90 days after expiration of the original disbursement period or any extensions thereof. The proposed evaluation methodology will be "before and after," which consists of measuring the result indicators after the actions have

been carried out, and comparing the measurements to verify achievement of the targets. The final evaluation will include an ex post economic evaluation, the methodology of which is specified in detail in the monitoring and evaluation plan ([link 3](#)).

Development Effectiveness Matrix		
Summary		BR-L1594
I. Corporate and Country Priorities		
Section 1. IDB Group Strategic Priorities and CRF Indicators		
1. The Strategic Alignment tab in convergence shows alignment on IDB Group Strategic Priorities. The Results Matrix tab lists flagged CRF indicators		
2. The Strategic Alignment tab in convergence shows information on alignment to Country Development Objectives		
II. Development Outcomes - Evaluability		Evaluable
3. Evidence-based Assessment & Solution		10.0
3.1 Program Diagnosis		2.5
3.2 Proposed Interventions or Solutions		3.5
3.3 Results Matrix Quality		4.0
4. Ex ante Economic Analysis		10.0
4.1 Program has an ERR/NPV, or key outcomes identified for CEA		1.5
4.2 Identified and Quantified Benefits and Costs		3.0
4.3 Reasonable Assumptions		2.5
4.4 Sensitivity Analysis		2.0
4.5 Consistency with results matrix		1.0
5. Monitoring and Evaluation		9.5
5.1 Monitoring Mechanisms		4.0
5.2 Evaluation Plan		5.5
III. Risks & Mitigation Monitoring Matrix		
6. Overall risks rate = magnitude of risks*likelihood		Medium Low
The Environmental and Social Data tab in convergence shows the environmental and social risk classification of the project		
IV. IDB's Role - Additionality		
Annex III Fiduciary Arrangements describes project reliance on the use of country systems (VPC/FMP Criteria)		
7. 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	TC BR-T1524 (en proceso de aprobación)

BR-L1594

Evaluability Assessment Note: The proposal presents an operation for US\$136,000,000 to be financed through a US\$128,000,000 multipurpose investment program loan (BL-L1036). The specific objectives of this operation will be to (i) improve the quality of water supply service and access to wastewater collection and treatment (WWTP), with a focus on Greenhouse Gas (GHG) reduction; (ii) to improve the operational efficiency of the water supply and sewerage systems; and (iii) improve the CAJ's corporate governance. Achieving these objectives will contribute to the General Objective of contributing to the improvement of the environmental and sanitation conditions of the population in the CAJ's area of operation.

The proposal presents a solid diagnosis of the problems. Specifically, the main problems identified are sustainability and quality of water coverage, sanitation coverage with treatment, unaccounted-for water, and low connection rate to the sanitation network. The proposed solutions appropriately respond to the identified problems and their contributing factors. Their effect on the General Objective is supported by internally and externally valid evidence. The results matrix is congruent with the vertical logic of the project and includes appropriate indicators at the results level associated with the Specific Objectives. However, it does not have indicators associated with the General Objective. Nevertheless, the result indicators are correctly defined to measure the achievements reached by the program and the fulfillment of its three specific objectives, as well as the strategic alignment with the cross-cutting issues.

The proposal proposes a cost-benefit analysis for the four works in the sample (two sanitation and two water interventions). Their Internal Rates of Return (IRR) are in the range of 12.9% - 23.7%, which implies that in all cases, the IRR exceeds the discount rate of 12% chosen for the analysis. The methodology for monetizing the benefits consists of contingent valuation based on surveys for similar projects in Brazil. A benefit-cost analysis will be performed for projects not evaluated, and only projects with IRRs above 12% will be eligible for project financing.

The project includes a monitoring and evaluation plan that aligns with Bank standards. The effectiveness of the proposed intervention will be measured following two approaches: an ex-post cost-benefit analysis approach and a before-after comparison to verify the achievement of goals. For these analyses, it is envisaged to use information from external performance audits.

RESULTS MATRIX

Project objective:	The general objective of the program is to contribute to the improvement of environmental and sanitation conditions of the population in the CAJ's service area. The specific objectives will be to: (i) improve the quality of the water supply service and access to the wastewater collection and treatment service, contributing to a reduction of greenhouse gases; (ii) improve the operational efficiency of the water supply and sewer systems; and (iii) improve the CAJ's corporate management..
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Specific Development Objectives

Indicators	Unit of measure	Baseline	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	End of project	Means of verification (MV) / Comments
Specific development objective 1: To improve the quality of water supply services and access to wastewater collection and treatment services										
1. Households with 24/7 access to drinking water in the município of Joinville	Household	136,069	2022 (April)					153,272	153,272	MV: <i>Interact Solutions</i> monthly report of the performance module, the CAJ data item.
2. Households with effective access to wastewater collection in the município of Joinville		84,728	2022 (April)					104,480	104,480	
3. Households whose wastewater is treated in the município of Joinville		84,728	2022 (April)					104,480	104,480	
4. GHG emissions from wastewater treatment plants (WWTPs) (Vila Nova and Jarivatuba)	tCO ₂ eq	10,097	2022 (April)					8,181	8,181	MV: Technical calculation note of the program management unit (PMU) ¹ Note: The CO ₂ eq emissions shown for year 5 would be the annual emissions in the “with project” scenario once the project starts operations.

¹ Detailed methodology in the Program Operating Regulations (see methodological link for [Vila Nova](#) and [Jarivatuba](#)).

Specific development objective 2: To improve the operational efficiency of water supply and sewer systems										
Indicators	Unit of measure	Baseline Value	Year Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	End of project	Means of verification/ Comments
5. CAJ distribution losses index	%	41.8	2022					32.1	32.1	MV: <i>Interact Solutions</i> monthly report of the performance module, the CAJ data item. Distribution loss ratio = $\frac{((\text{Volume produced} - \text{Service volume}) - \text{Volume consumed}))}{(\text{Volume produced} - \text{Service volume})} \times 100$
6. Energy consumption per m ³ of treated water in the pumping system of the Cubatão water treatment plant	kWh/m ³	0.55	2021					0.40	0.40	MV: Specific report issued by the CAJ's Energy Management and Energy Efficiency Coordination Unit (CGE). Annual energy consumption (backwashing, raw water catchment and treated water delivery)/Volume of water produced.
Specific development objective 3: Improve CAJ corporate governance										
7. Average time for unblocking of sewer networks and connections	Hours	2021	14hs					11.5hs	11.5hs	MV: Specific CIOP report ² issued by the CAJ. Time between service order and completion of repair (specific report issued by SANSYS system)
8. Volume billed by telemetry	%	2022	0					30	30	MV: Specific report issued by the CAJ's GFC. ³ $\frac{(\text{Volume billed by telemetry}/\text{Total volume billed}) \times 100}$
9. Women and/or persons with disabilities participating in external courses		2022	0%					10%	10%	MV: Specific report issued by the CAJ's GGP. ⁴ $\frac{(\text{Number of women and/or Persons with disabilities}/\text{Total participants}) \times 100}$

² CIOP: *Centro de Informações e Operação* (Information and Operation Center).

³ GFC: *Gerência de Faturamento e Gestão Comercial* (Billing and commercial management).

⁴ GGP: *Gerência de Gestão de Pessoas* (Personnel Management Division).

Outputs

Output	Unit of measure	Associated outcomes	Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Final	Means of verification/Comments
Component 1. Water supply and sewer works											
1.1 Pirai Sul drinking water system constructed	System	1	32,866,432		-	-	-	1	-	1	<u>MV:</u> Works certificate validated by the PMU. Projects and processes desk (EPP) <u>Entity responsible:</u> PMU. EPP
<i>Milestone: Drinking water treatment plant constructed</i>	<i>WTP</i>	<i>1</i>	<i>23,805,258</i>		-	-	-	<i>1</i>	-	<i>1</i>	
<i>Milestone: Treated water adductor pipeline constructed</i>	<i>Km</i>	<i>1</i>	<i>9,061,174</i>		<i>5.0</i>	<i>5.1</i>	<i>2.5</i>	-	-	<i>12.6</i>	
1.2 Treated water reservoir constructed	Tank	1	5,436,704		-	-	-	1	-	1	
1.3 Expanded Vila Nova WWTP	WWTP	1	2,328,570		-	-	-	1	-	1	
1.4 Subbasin 7-32 sewer system constructed	1	1	8,099,373		-	-	-	1	-	1	
<i>Milestone: Sewer networks constructed</i>	<i>Km</i>	<i>1</i>	<i>7,600,869</i>		-	<i>3.2</i>	<i>7.6</i>	<i>2.4</i>	-	<i>13.2</i>	
<i>Milestone: Household connections made</i>	<i>Connection</i>	<i>1</i>	<i>498,503</i>		-	<i>334</i>	<i>810</i>	<i>257</i>	-	<i>1,401</i>	
1.5 Out-of-sample sanitation systems in the AIDP constructed or expanded	System	1	53,149,847		-	-	-	1			
Component 2: Improvement of operational efficiency and quality of services											
2.1 Cubatão drinking water treatment plant upgraded	WTP	2	5,130,000		-	1	-	-	-	1	<u>MV:</u> Equipment reception report. <u>Entity responsible:</u> PMU. EPP
<i>Milestone: Equipment purchased⁵</i>	<i>Equipment</i>	<i>2</i>	<i>650,000</i>		<i>17</i>	-	-	-	-	17	
<i>Milestone: Catchment and removal system upgraded</i>	<i>System</i>	<i>2</i>	<i>290,000</i>		<i>1</i>	-	-	-	-	<i>1</i>	

⁵ Automation and modernization of the sludge treatment plant + Replacement of peristaltic pumps (13) + Implementation of apparent color and PH process meters (4).

Output	Unit of measure	Associated outcomes	Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Final	Means of verification/Comments
<i>Milestone: Sodium hypochlorite generating plant implemented</i>	<i>Plant</i>	2	460,000		2	-	-	-	-	2	
<i>Milestone: Desilter attenuation sluice gates installed</i>	<i>Sluice gate</i>	2	550,000		8	-	-	-	-	8	
<i>Milestone: Upstream filters modernized</i>	<i>Filter</i>	2	3,180,000		-	16	-	-	-	16	
2.2 Water distribution network in sector R9 upgraded	Km	2	1,430,000		-	-	2.9	3.1	-	6.0	MV: Works certificate validated by the PMU. EPP Entity_____responsible: PMU. EPP
2.3 Water distribution network in sector R12 upgraded		2	1,760,000		-	-	1.0	2.6	-	3.2	
2.4 Actual water loss reduction program implemented in the South region	Program	2	6,430,000		-	1	-	-	-	1	
2.5 Energy efficiency project implemented	Project	2	8,200,000		-	1	-	-	-	1	MV: Final consulting report Entity_____responsible: PMU. EPP
2.6 Operational improvement of out-of-sample drinking water and/or sanitation projects implemented		2	2,155,054		-	-	-	1	-	1	MV: Works certificate validated by the PMU. EPP Entity_____responsible: PMU. EPP
Component 3: Institutional strengthening, innovation, digitalization, and gender											
3.1 Database (commercial and technical) of the georeferenced municipal information system implemented in the CAJ	Database	3	1,000,000		-	-	-	1	-	1	MV: Final consulting report Entity_____responsible: PMU. EPP

Output	Unit of measure	Associated outcomes	Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Final	Means of verification/Comments
3.2 Preventive asset maintenance plan developed and implemented	Plan	3	958,000		-	-	-	1	-	1	
3.3 Awareness campaign to persuade the population to connect to the sewer system implemented.	Campaign	3	875,000		-	-	-	-	1	1	
3.4 Program to strengthen socioenvironmental and educational management implemented	Program	3	707,821		-	-	-	-	1	1	
3.5 Program to strengthen water resource management implemented		3	498,253		-	-	-	-	1	1	
3.6 CAJ innovation and digital transformation plan developed and implemented	Plan	3	550,000		-	1	-	-		1	
3.7 CAJ information technology and cybersecurity plan developed and implemented		3	775,000		-	1	-	-		1	
3.8 Telemetric water metering system implemented	System	3	1,120,000		-	-	-	-	1	1	
<i>Milestone: Meters automated (including software)</i>	Number of meters	3	1,120,000		743	743	743	743	743	3,715	

Output	Unit of measure	Associated outcomes	Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Final	Means of verification/Comments
3.9 CAJ gender and diversity status assessment and action plan developed	Action plan	3	50,000	-	1	-	-	-	-	1	MV: Final consulting report Entity responsible: PMU. EPP
<i>Milestone: Gender and diversity chapter in the sustainability report designed and included</i>	Chapter	3	10,000	-	-	1	-	-	-	1	
<i>Milestone: Mechanisms to encourage women to participate in the company's external training programs designed and implemented.</i>	Mechanism	3	20,000	-	-	1	-	-	-	1	
<i>Milestone: Training Plan on gender equality and diversity inclusion implemented through the CAJ platform.</i>	Plan	3	20,000	-	-	1	-	-	-	1	
3.10 Multifunctional decompression spaces for pregnant women to rest, for mothers to breastfeed, and for persons with disabilities built and/or equipped.	Space	3	64,000		-	-	-	2		2	

Country: Brazil

Division: WSA

Operation number: BR-L1594

Date: 2022

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Executing Agency: Joinville Water Company (CAJ)

Project name: Sustainable Basic Sanitation Program in Joinville - PROSAJ

I. FIDUCIARY CONTEXT OF THE EXECUTING AGENCY

1. Use of country systems in the project¹

<input checked="" type="checkbox"/> Budget	<input type="checkbox"/> Reports	<input checked="" type="checkbox"/> Information system	<input type="checkbox"/> National competitive bidding (NCB)
<input checked="" type="checkbox"/> Treasury	<input type="checkbox"/> Internal audit	<input checked="" type="checkbox"/> Shopping	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> Accounting	<input checked="" type="checkbox"/> External control	<input type="checkbox"/> Individual consultants	<input type="checkbox"/> Other

2. Fiduciary execution mechanism

<input checked="" type="checkbox"/>	Specifics of fiduciary execution	The CAJ will create a project management unit (PMU), attached to the CAJ president's office, which will be responsible for the coordination and management of the actions needed to implement the program. The PMU structure will include an executive coordinator and specialists in the areas of socioenvironmental management, procurement, financial, planning, and technical management, all of them CAJ staff with time allocated to the activities required for execution. The PMU will be supported by different areas of the CAJ, specifically the Procurement and Logistics Division and the Standing Bidding Commission for procurement management and the Finance Division for financial management. If necessary, the PMU will use the loan proceeds to contract specialized services. Link 9 will identify and specify the responsibilities of each area involved in program execution.
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3. Fiduciary capacity

Fiduciary capacity of the executing agency	The executing agency's fiduciary capacity to implement this program is rated medium. According to the institutional capacity assessment platform (ICAP), the CAJ has adequate capacity due to its status as a water and sanitation company, and it has a special project management unit to execute investments. However, it does not have experience in executing projects financed by the Bank. To strengthen its execution capacity, the CAJ will formally create a specific PMU staffed by individuals with appropriate profiles, supported by the relevant areas of the CAJ's organizational structure. They will receive training in the specific policies and procedures defined by the Bank for program execution.
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4. Fiduciary risks and risk response: No medium-high or high risks were identified.

5. Policies and Guidelines applicable to the operation: documents GN-2349-15 and GN-2350-15.

6. Exceptions to Policies and Guidelines: Not applicable.

¹ Any system, or subsystem that is subsequently approved, may be applicable to the operation, in accordance with the terms of the Bank's validation.

II. CONSIDERATIONS FOR THE SPECIAL PROVISIONS OF THE LOAN CONTRACT

Special conditions precedent to the first disbursement:	
Exchange rate: For purposes of Article 4.10 of the General Conditions, the Parties agree that the applicable exchange rate will be the rate indicated in subsection (b)(i) of said article. For purposes of determining the equivalence of expenditures incurred in local currency against the local contribution, or the reimbursement of expenditures financed from the loan proceeds, the agreed upon exchange rate will be the buy rate set by the Central Bank of Brazil on the day preceding the effective date of the submission to the Bank of the reimbursement request or the justification of expenditures from the local counterpart.	
During program execution, the borrower will submit audited financial statements annually no later than 120 days after each fiscal year-end. The program's external audit will be performed by an external firm acceptable to the Bank, or by the Santa Catarina State Audit Office (TCE-SC). The program's final audited financial statements will be submitted no later than 120 days after the expiration date of the last disbursement or any extension thereof.	

III. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION

<input checked="" type="checkbox"/>	Bidding documents	Procurement of works, goods, and nonconsulting services executed in accordance with the Bank's procurement policies (document GN-2349-15), subject to international competitive bidding, will use the Bank's Standard Bidding Documents (SBDs) or those agreed between the executing agency and the Bank for the procurement in question. Similarly, consulting services will be selected and contracted in accordance with the Bank's consultant selection policies (document GN-2350-15), using the Standard Request for Proposals (SRP) issued by the Bank, or as agreed upon between the executing agency and the Bank for the selection in question. In the case of procurement to be undertaken before the loan contract has been signed, a procurement document will be agreed upon between the execution unit and the Bank. The technical specifications and the terms of reference for procurement will be reviewed by the project sector specialist during the preparation of selection processes. This technical review may be ex ante and is independent of the procurement review method.
<input checked="" type="checkbox"/>	Use of country systems	The <i>pregão eletrônico</i> online auction method, approved by the Bank's Board of Executive Directors, will be used for the procurement of goods and nonconsulting services. The program procurement plan will flag procurement to be executed through the country system within the approved scope. Should the scope of Board approval for use of the country system be expanded, the expanded scope will be applicable to the operation.
<input checked="" type="checkbox"/>	Direct contracting and single source selection	The following direct contracting and single-source selections have been identified: (i) the firm Galax.IA for an estimated amount of US\$330,943.19 to scale the development of sensors with LoRa protocol and artificial intelligence to undertake a diagnostic assessment of the operation of the supply system; (ii) the firm IOSight for an estimated US\$99,283.00 for technical assistance to improve the operational efficiency of the water distribution system; and (iii) the firm ECONAM for an estimated US\$36,771.47 to test and validate the electrolytic sewage treatment system and the model treatment unit with the electrolytic effluent treatment process. The prototypes to be scaled will be selected from the CAJ's open innovation strategy, in which ideas, presented in <i>Hackathons</i> or open windows for innovation, are selected, prototyped, and tested within the company. The tested prototypes pass to the scale phase (which are those identified in these direct contracts) based on the positive results achieved. These are evaluated based on the technical criteria that respond to the CAJ's innovation strategy (see Technical Report - link 11). This is in accordance with paragraph 3.11 (d) of document GN-2350-15, since the firms in question support and develop the entire associated innovation cycle (idea-prototype-test-scale), which makes them the only firms qualified with

		experience of exceptional worth to accompany the scaling of their prototypes and thus achieve the desired results during the innovation cycle.
<input checked="" type="checkbox"/>	Advance procurement and retroactive financing	<p>The Bank may use the loan proceeds to retroactively finance up to US\$1.5 million (1.17% of the proposed loan amount). To be eligible, the expenses in question will have been incurred by the borrower prior to the loan approval date for goods, works, and services; and they will have met requirements substantially similar to those specified in the loan contract. The expenditures will also have been incurred on or after 19 April 2022, but in no case more than 18 months prior to the loan approval date (see documents GN-2349-15 and GN-2350-15 and the policy on recognition of expenditures, retroactive financing, and advance procurement (document GN-2259-1)). These expenditures are for the implementation of improvements for the Cubatão and Pirai water treatment plans, final designs for sanitary sewer networks, execution of the Anaburgos water network, water loss reduction measures, the program to strengthen commercial management and management of the sanitary sewer systems in the framework of components 1, 2, and 3 (for more details see the execution plan in link 1). During preparation, eight procurement processes were identified that are set to be awarded before the loan contract is signed, which is slated for the first quarter of 2023. A first group, containing five of the identified processes (Work breakdown structure – WBS 1.1.3, 2.1.1, 2.1.2, 2.1.4, 2.1.6), will involve amounts of less than US\$500,000 each, which do not represent significant procurement risks. A second group consists of two works processes for amounts estimated at less than US\$10 million (WBS 1.1.2, 2.3.1), which will be monitored in conjunction with the CAJ team, removing provisions in the national bidding documents that could jeopardize the Bank's financing. Lastly, a works process for approximately US\$23 million (WBS 1.1.1) is envisaged, which will be monitored on the basis of the Bank's standard documents. All of these advance procurement processes will meet the Bank's eligibility criteria and provisions on prohibited practices; and the results will be submitted for Bank review.</p>
<input checked="" type="checkbox"/>	Special procurement provisions applicable to the operation	<p>The project will finance the Water Resources Management Strengthening Program in the framework of program component 3, for an amount of approximately US\$500,000. This includes payments for environmental services as indicated in paragraph 3.20 of document GN-2349-15. The borrower's procedure provided for in its "Águas para Sempre" program, which establishes criteria for beneficiary selection, verification of services, and payments,² which have been considered efficient according to paragraph 3.20 of document GN-2349-15.</p> <p>The current regulation is in force until August 2022, and the CAJ will coordinate with the Bank to ensure that its renewal includes the relevant integrity and eligibility provisions. These will be replicated in the affiliation contracts signed by the inhabitants providing these services. This procedure will be part of the program Operating Regulations (link 9).</p>
<input checked="" type="checkbox"/>	Procurement supervision	<p>Supervision will be performed on an ex post basis, except in cases where ex ante supervision is warranted. For procurement executed through the country system, supervision will also be done through that system. The method, whether (i) ex ante, (ii) ex post or (iii) national monitoring system, will be determined for each selection process. Ex post reviews will be conducted every 13 months in accordance with the Project Supervision Plan, subject to change during implementation. Ex post review reports will include at least one physical inspection visit (inspection verifies the existence of the procurement, leaving the verification of quality and compliance with specifications to the sector specialist), selected from the procurement processes subject to ex post review [Proportion of contracts physically reviewed - at least 10%]. The threshold amounts for ex post review are as follows:</p>

² [Águas para sempre \[Water forever\] program – environmental services regulations.](#)

		Executing agency	Works	Goods/services	Consulting firms
		the CAJ	US\$25 million	US\$5 million	US\$1 million
<input checked="" type="checkbox"/>	Records and files	The PMU will be responsible for the documentation process and for the safekeeping of files for audit and oversight purposes.			

Main procurement items

Description	Selection method	Best and final offer (BAFO)	Estimated date	Amount (US\$)
Works				
Construction of treated water reservoirs + adductor segment + rail crossing at MND	NCB	No	7/20/2025	5,370,000
Pirai Sul WTP - Executive designs and work (extraction, raw and treated water mains)	NCB	No	7/15/2022	22,980,000
Installation of Pirai Sul WTP treated water pipelines	NCB	No	4/20/2022	8,950,000
Implementation of improvement measures for the Cubatão WTP - Modernization of air filters, compressors, pipelines, and valves	NCB	No	10/4/2023	3,180,000
Water supply improvement measures implemented and operating (R12 and R9)	NCB	No	1/14/2025	3,190,000
Implementation of Package 03 - Basin 7 - 1	NCB	No	10/10/2023	8,000,000
Implementation of energy efficiency measures/ lifting of treated water	NCB	No	4/7/2022	8,200,000
Work on water loss reduction projects in the South region (performance-based contract)	NCB	No	10/1/2023	6,430,000
Expansion work at the Vila Nova WTP	NCB	No	10/1/2024	2,300,000
Consulting services				
Automation of the telemetry metering and billing system	Quality- and cost-based selection (QCBS)	No	10/8/2023	1,120,000
Database (technical and commercial) of the CAJ's georeferenced municipal information system	QCBS	No	4/20/2023	1,000,000
Development of a preventive maintenance plan for CAJ assets	QCBS	No	4/20/2023	958,000
Development of information technology and cybersecurity plans: (i) integration between information systems; (ii) implementation of data warehouse and business intelligence; (iii) upgrading of the technical registry	QCBS	No	2/20/2024	75,000
Implementation of information technology and cybersecurity plans	QCBS	No	7/15/2023	733,003

Description	Selection method	Best and final offer (BAFO)	Estimated date	Amount (US\$)
Supervision of water and sewer works	QCBS	No	2/2/2023	1,250,000
Testing and validation of the electrolytic wastewater treatment system and the model treatment unit with the electrolytic effluent treatment process (ECONAM)	Single-source selection (SSS)	No	2/20/2024	36,771
Technical assistance to improve operational efficiency in the pilot water distribution system (IOSight)	SSS	No	2/20/2024	99,283
Scaling up of the development of sensors with LoRa protocol and artificial intelligence, for diagnostic assessment of the operation of the water supply system (Galax.IA)	SSS	No	2/20/2024	330,943

To access to the execution link, see [link 1.](#)

IV. AGREEMENTS AND REQUIREMENTS FOR FINANCIAL MANAGEMENT

<input checked="" type="checkbox"/>	Programming and budgeting	Each year, the Accounting Coordination Department of the CAJ Financial Management Division prepares the budget proposal for the following five years. The proposal for each year is approved by the Board of Directors during the last quarter of the preceding year. The budget contains the investment plan and identifies the sources of financing. The budget for externally financed projects is included in the five-year budget proposal as soon as the financing source is identified.
<input checked="" type="checkbox"/>	Treasury and disbursement management	Disbursements will be made in U.S. dollars, mainly as advances of funds; the modality of reimbursement of payments to the executing agency may also be used, subject to agreement with the Bank. The amount of advances will be based on projected financial execution for up to 180 days. For advances subsequent to the first one, at least 80% of the cumulative balance of unjustified funds already advanced must be accounted for. The funds disbursed by the Bank will be deposited in a bank account to be opened by the CAJ and used exclusively to receive and manage the loan proceeds. The exchange rate agreed upon with the executing agency to account for expenditures paid from loan advances will be the internalization rate. To determine the equivalence of expenditures incurred against the local counterpart, or reimbursement of expenditures charged to the loan, the exchange rate agreed upon will be the rate prevailing on the date on which each expense is actually paid.
<input checked="" type="checkbox"/>	Accounting, information systems, and reporting	The CAJ uses the Benner enterprise resource planning (ERP) system for institutional accounting. The program's financial transactions will be recorded using the liability accounts associated with the financing and the cash account associated with the bank account to be opened for program execution. This account allows for the creation of subaccounts for monitoring execution by component, with the structure of the cost table in the Single Annex. Currently, the Benner system cannot issue reports in the currency of the operation (dollars), so the system will need to be updated to add this functionality. If this is impossible, the program will use technological support tools to issue the program's financial statements and financial reports in dollars.
<input checked="" type="checkbox"/>	Internal control and internal audit	The CAJ's Internal Audit Unit (UAI) reports to the Statutory Audit Committee (CAE), which approves the annual audit plan, as well as the reports that the Unit produces as a result of its audit work and interventions. During execution, the program may be subject to analysis by the Internal Audit Unit, within its scope of action. The Program Operating Regulations will define coordination mechanisms between the CAJ units that will participate in program execution.

<input checked="" type="checkbox"/>	External control and financial reporting	The program's external audit will be performed either by an external audit firm acceptable to the Bank, or by the Santa Catarina State Audit Office (TCE-SC). The program's fiscal year runs from 1 January to 31 December. During program execution, audited financial statements as of 31 December each year will be submitted annually no later than 120 days after each fiscal year-end. The program's final audited financial statements will be submitted no later than 120 days after expiration of the disbursement period, or any extension thereof.
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DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-____/22

Brazil. Loan ____/OC-BR to the Companhia Águas de Joinville.
Sustainable Basic Sanitation Program in Joinville – PROSAJ

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 Companhia Águas de Joinville, as borrower, and with the Federal Republic of Brazil, as guarantor, for the purpose of granting the former a financing aimed at cooperating in the execution of the Sustainable Basic Sanitation Program in Joinville – PROSAJ. Such financing will be in the amount of up to US\$128,000,000 from the resources of the Bank's Ordinary Capital, 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 ____ 2022)