



Project Information Document/ Identification/Concept Stage (PID)

Concept Stage | Date Prepared/Updated: 16-Sep-2020 | Report No: PIDC215772



BASIC INFORMATION

A. Basic Project Data

Project ID	Parent Project ID (if any)	Environmental and Social Risk Classification	Project Name
P173621		Moderate	Supporting Smart Urban Water Management in the Recife Metropolitan Region (RETF)
Region	Country	Date PID Prepared	Estimated Date of Approval
LATIN AMERICA AND CARIBBEAN	Brazil	16-Sep-2020	
Financing Instrument	Borrower(s)	Implementing Agency	
Investment Project Financing	Companhia Pernambucana de Saneamento (COMPESA)	Companhia Pernambucana de Saneamento (COMPESA)	

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PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	2.41
Total Financing	2.41
Financing Gap	0.00

DETAILS

Non-World Bank Group Financing

Trust Funds	2.41
Trust Funds	2.41

B. Introduction and Context

Country Context

After a decade of solid growth, Brazil's economy entered a deep recession in 2015 and 2016 from which it is slowly recovering. The deterioration of both the external environment and domestic policies led to a slowdown, followed by two years of recession in 2015 and 2016. While external factors contributed to the



recession, growing fiscal imbalances, structural bottlenecks, and domestic political uncertainty affected investor and consumer confidence. The economic recovery remains weak with 1.3 percent real gross domestic product (GDP) growth recorded in 2017 and 2018 and 1.1 percent growth in 2019. Before 2020, job creation had been slowly improving with unemployment declining from a peak of 13.6 percent in March 2017 to 11.0 percent in 2019 but still above pre-crisis levels (6.8 percent in 2014). Most of the new jobs were created in the informal sector. As of 2018, 19.9 percent of the population lived on less than US\$5.50 per day (2011 purchasing power parity [PPP]), including 4.4 percent on less than US\$1.90 per day (2011 PPP). In 2020, Brazil's economy is expected to further contract as it faces the economic disruption from the COVID-19 containment, with -9.2 percent GDP growth as per the Economic Commission for Latin America and the Caribbean (ECLAC)'s July 15, 2020 Special COVID-19 Report.

The Brazilian Government continues to follow a fiscal consolidation path. In light of the weak economy and rising mandatory expenditures, the general government deficit peaked at over 10.6 percent of GDP in 2015 and public debt rose quickly, reaching 79 percent of GDP in the same year. Since December 2016, fiscal consolidation at the federal level has been anchored by a constitutional rule limiting the increase in primary expenditures, and an ambitious pension reform and several other fiscal measures helped meet the expenditure target. This also helped reduce the fiscal deficit in 2019 to 6.2 percent of GDP. The recession and subsequent slow recovery have also affected subnational governments, which have seen their revenue base decline while they struggle to adjust fiscally given high expenditure rigidities. As a result, a growing number of state governments have faced liquidity and solvency crises since 2015, undermining critical service delivery. The stock of outstanding subnational debt represents about 12 percent of GDP, which poses a significant contingent liability for the Federal Government.

Global economic downturn and domestic measures to contain the COVID-19 pandemic could bring Brazil into an economic recession and increase poverty levels and inequality in 2020. Conditions will be exacerbated by external factors including declining global demand and disruptions to transnational supply chains. Domestically, economic disruption from virus containment measures is projected to reduce private consumption and investment and reduce labor productivity, while unemployment is expected to rise. Federal support is also forthcoming for states, and monetary loosening has been announced as well as the adoption of liquidity injection by the Central Bank. Assuming that the external and domestic shocks remain transitory, the economy is expected to rebound by end of 2020 and in 2021, but low growth will limit poverty reduction. A deeper health crisis could worsen and prolong the economic crisis, raising poverty and inequality, as almost a third of Brazil's population depend on income from unprotected labor sources that are highly exposed to income shocks. ECLAC projects greater inequality in the distribution of income in all the countries of Latin America and the Caribbean (LAC) in 2020, including an increase in the Gini by between 5.0 and 5.9 percent in Brazil (only considering the consequences of the pandemic for the labor market).

Brazil is one of the most urbanized countries in LAC, with around 183 million people living in urban areas (87 percent of its total population). With 106 million now living in 59 cities with more than 300,000 inhabitants today, and with these figures expected to rise to 118 million people and 63 cities by 2030, there is a growing need for improved urban planning and infrastructure that incorporates data analytics and smart technologies. This fast urbanization rate in addition to the fact that 60 percent of the poor live in these cities,



pose a challenge for Brazil to guarantee safe, adequate and reliable water supply, as well as adequate sanitation conditions, with the additional challenge of the sector's vulnerability to climate shocks. Water services are becoming increasingly vulnerable to climate change, affected particularly by droughts and floods, leading to services cutdown and damage to infrastructure.

The Recife Metropolitan Region (RMR) is the fourth largest metropolitan area in Brazil with a population of approximately 4 million inhabitants distributed among 15 different municipalities - the largest of which is the City of Recife with 1.65 million people. The RMR is located in the northeastern region of Brazil in the state of Pernambuco, and the most important commercial and service center in the northeast region of Brazil, generating about 76 percent of the State's GDP.

While the pandemic propagates across the country and the State of Pernambuco, daily cases and deaths have stabilized at a high level. As of August 11, 2020, the total number of cases in Brazil stood at 3.1 million and confirmed deaths were over 100,000, with the State of Pernambuco accounting for over 100,000 cases and 7,000 deaths. The RMR is one of the most affected urban areas of Brazil with over 40,000 cases, representing close to 40 percent of the State's cases so far.

Across Brazil and the LAC region, the COVID-19 crisis has prompted water supply and sanitation (WSS) service providers and infrastructure managers to adapt to a "new service delivery normal" and seek innovative ways to respond to the additional constraints brought onto them, including lower revenues (as households struggle to pay bills) and increased operating costs due to public mandates for water supply increases. As a result, many utilities initiated or accelerated their transition towards the use of innovative platforms and tools to engage differently with their customers, as well as to remotely collect data on their assets and services, but there is a need to bridge the knowledge gap on the menu of options available and the capacity to integrate them into their operations.

Sectoral and Institutional Context

Water supply and sanitation services in Brazil present the challenge of adapting to its fast urbanization rates and population growth to guarantee safe, adequate, and reliable water supply to its population, as well as adequate sanitation conditions. The WSS services in cities have had to expand exponentially, adding some 160 million new users to the water supply network, while showing less successful outcomes in the provision of wastewater collection and treatment services. Today, about 10 million Brazilians (6 percent of the population, and mostly poor) living in cities are still not included in the formal water services, and almost 60 million (32 percent) are not served by wastewater collection services. Also, the wastewater generated by around 90 million people (45 percent) is not treated. The Brazilian National Information System on Sanitation (SNIS) reveals that approximately 4 of every 10 liters of treated water is wasted through leaks, illegal connections, and "other irregularities" in the 100 cities with populations of over 250,000.

Most of the urban poor live in the fringes of regular neighborhoods and only have access to water through informal connections providing unreliable water quality. This situation is aggravated by increasing water variability resulting from climate change, and current climate scenarios indicate that areas already vulnerable



to climate-related extreme events may face even more prolonged and acute droughts as well as more intense rains and floods. Some areas of the country may face both types of extreme events and aspiring to water security is, therefore, an increasing challenge for the country. Addressing the water challenges requires mobilizing more resources, improving the quality of spending, and modernizing institutions to deliver higher water supply and sanitation services. This must be complemented by incentivizing behavior changes in both water users and service providers to ensure more sustainable and inclusive service provision.

In August 2019, Brazil's government introduced a water and sanitation bill to update the regulatory framework for *Saneamento* (covering the provision of water supply, sanitation, urban drainage and solid waste services), and while the Senate has recently approved the bill (June 2020), it is still awaiting the President's approval to become Law. The main objective is to seek a wider private sector participation in the sector's operations and financing models, to achieve universality and (99% and 90% coverage for water supply and sanitation services respectively, by 2033) and operate more efficiently. As part of the changes promoted under the new regulatory framework, the National Water Agency (ANA) would take on a new role as National Regulator for the sector, providing standards and guidelines of best practices for utilities and subnational regulators. In addition, new types of concession contracts that encourage the private sector participation in the service provision will be possible, which could potentially attract more investments to sanitation projects. The quality of the implementation of the law will determine whether it brings the expected benefits in the long term, particularly for the underserved.

The RMR faces complex water challenges, aggravated by climate change and increasing water variability, which impacts most on the poor and threatens the city's future sustainability. The State of Pernambuco's Water and Sewerage Company (Compesa) provided water supply services to approximately 2.3 million households and sewage services to 600,000 households, and the main challenges related to WSS services are: (i) water losses, which are at a higher rate than the rest of Brazil. Their reduction is of a critical nature given that the State of Pernambuco is already facing tremendous water scarcity problems, and although some improvements can be noticed in the last 10 years, non-revenue water (NRW) in the RMR remains very high, with an average of 57.3 percent. In volumetric terms, current water losses stand at 678 liters per connection per day, among the highest among Brazilian metropolitan cities; (ii) water supply intermittency, with an average supply time of around 20h/day, although some areas face more strict rationing, particularly in the northern portion of the RMR and in the more elevated areas of the hills; and (iii) low sanitation coverage with around 42 percent, and even lower in the poor areas. In the RMR, only an estimated 20 percent of total sewage is treated, the four existing treatment facilities presenting severe operational problems. As a result, the heavily contaminated river system affects the quality of the water along the coast, especially the northern coast, from Olinda onwards.

This Trust Fund proposal presents activities that will largely focus on the first challenge, namely reducing water losses (both physical and commercial), through innovative approaches, building on the results of and outputs developed under the Smart Urban Water Externally-Financed Output (EFO) which closed in December 2019.



Relationship to CPF

This proposal is aligned with one of the three pillars of the World Bank Country Partnership Framework (CPF) for Brazil FY18-FY23 (Report No. 113259-BR, dated May 16, 2017), namely providing more sustainable urban services by improving the efficiency of service delivery. This project aims to improve the non-revenue water management program through the upgrade and expansion of its management system as well as through the acquisition of smart equipment. These two combined will help to achieve a better understanding of water losses and critical points for action, improving the efficiency of NRW reduction. In addition, this project supports the modernization of water supply and sanitation service delivery in the RMR, reflecting the need to focus on improved efficiency and new service delivery models, to enhance the citizens' quality of life.

The CPF states the need to invest in water and sanitation to foster resilience against the increased variability of water supply. Reducing NRW is of great importance to help tackle water scarcity faced by the State of Pernambuco, and exacerbated by climate change. In addition, water scarcity and supply rationing affect the poorest area of the RMR, with significant negative impacts on health, well-being and economic development, and this Activity will thus seek to foster resilience through the improvement in the reliability and efficiency of water services, increasing the quantity of water supply available for Compesa's customers.

C. Project Development Objective(s)

Proposed Development Objective(s)

Improve the non-revenue water management program and support the modernization of water supply and sanitation service delivery in the Recife Metropolitan Region, through the piloting of innovative smart water technologies and approaches.

Key Results

Key Results for this Activity include:

- Compesa's capacity to manage NRW is enhanced, as verified by (i) the expansion of the Plant Information Management System (PIMS), as measured by the number of Business Units using the System or the increase in the number of tags populating the System (to be confirmed) and (ii) the completion of at least two smart water technology pilots. This key result is associated with activities "Upgrade and expansion of Compesa's Operational Management System for water supply in the RMR" and "Acquisition of equipment for the "smart" management and monitoring of water losses in the RMR" under Part 1;
- Compesa's modernization efforts are advanced, as verified by the completion of (i) the assessment of its existing customer relationship management system (CRM) and (ii) the assessment of its existing billing and collection practices and policies. This key result is associated with activities "Assessment and modernization of Compesa's existing Customer Relationship Management (CRM) system"



and "Assessment and recommendations to improve Compesa's billing and collection practices and policies", under Part 3.

D. Preliminary Description

Activities/Components

The Proposed Project is part of a broader trust-funded Program consisting of Bank-Executed Trust-Funded (BETF), as well as of Recipient-Executed Trust-Funded (RETF) activities. This Project Description concerns the RETF activities, although the overall structure applicable to both BETF and RETF activities is here used for consistency.

**Part 1: Smart Non-Revenue Water Management in the Recife Metropolitan Region*

Upgrade and expansion of Compesa's Operational Management System for water supply in the RMR. This activity will support the further development and implementation of integrated supervision and process management system for water supply in the RMR based on data and information collected and stored in the Compesa operational management system ("Plant Information Management System" or PIMS), providing timely process knowledge for decision-making in terms of where, when and how to intervene to reduce water losses.

Acquisition of equipment for the "smart" management and monitoring of water losses in the RMR. This activity will include the acquisition of innovative equipment, informational technologies, and techniques to monitor and manage water supply in a "smart way". This will also include testing and piloting of innovative equipment. This activity will be divided into two lots, one which will be procured in the first year of the project, while the second lot will be defined as a result of assessments performed under the BETF.

The first lot will support Compesa's response to and recovery from COVID-19, and continue its current transition towards creating District Metered Areas (DMA) to identify and reduce leakage and implementing pressure management. This first lot will acquire and install Pressure Reducing Valves (PRV) at the inlet of a number of DMAs in the RMR, and pressure reduction will be carried out to ensure customers still receive an adequate level of service by monitoring pressure at the critical point (CP) of the DMA, which is defined as the point where pressure is closest to the minimum allowable service pressure. The resulting water loss reduction would then help increase or maintain water service for zones normally under intermittent supply, including some of the poorest in the RMR, thus helping customers better cope with the COVID-19 crisis.

**Part 2: Integration of Behavioral Insights into Water and Sanitation Service Delivery in the Recife Metropolitan Region*

No activities are financed through the RETF under this Part.

**Part 3: Modernization of Water and Sanitation Service Delivery*



Assessment and modernization of Compesa’s existing customer relationship management (CRM) system.

This activity will evaluate and restructure Compesa’s existing CRM system, including through the potential use of machine learning and integration with external data platforms such as from the Brazilian Geography and Statistics Institute (IBGE) and the Department of Federal Revenue (Receita Federal).

Assessment and recommendations to improve Compesa’s billing and collection practices and policies. This activity will support Compesa in redesigning its billing and collection processes to increase water and wastewater bill payment, which was greatly impacted by the COVID-19 pandemic. This may include testing the use of self-service terminals in public spaces to reduce hassle factors related to bill payment and increase payment options for their customers. Experience from SABESP and SANEPAR on this matter could be consulted.

In addition, the Project will explore including activities to contribute to reducing gender inequality in access to water and sanitation services, as well as to bridge the gender gap within Compesa. A number of potential activities have been discussed and are being considered to contribute towards these outcomes, as well as to empower female customers in the poorer areas of the RMR. These activities could include:

1. Activities to address the gender gap within Compesa: (i) review the recruitment process and provide recommendations to improve gender neutrality in job advertisements. Evidence shows that improved gender wording in job advertisements can lead to a better balanced distribution between men and women, both in absolute numbers and in terms of positions; and (ii) exchange ideas (benchmarking) with other sanitation companies through the Equal Aqua portal, a collaborative platform which aims to deepen the dialogue on gender diversity and inclusion in water sector jobs;
2. Activities to better inform Compesa's service delivery from a gender perspective: (i) include gender information (Male / Female) in Compesa's databases, such as in the CRM system; and (ii) promote citizen engagement through partnerships with local organizations, women's groups and organizations of people with disabilities to create stronger links with customers, a particularly critical dimension during and after the COVID-19 pandemic.
3. Activities to empower female customers: (i) explore offering courses on basic household plumbing and maintenance to female customers, as part of Compesa's portfolio of social actions, targeting lower-income and most vulnerable segments of the population, including black, mixed-race and indigenous women who face the greatest disadvantages in terms of access and service quality in Brazil. The objective would be to train women to install and maintain showers and identify leaks, for example, empowering women, providing an additional source of income and ultimately contributing to reducing water losses.

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Environmental and Social Standards Relevance

E. Relevant Standards



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ESS Standards		Relevance
ESS 1	Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10	Stakeholder Engagement and Information Disclosure	Relevant
ESS 2	Labor and Working Conditions	Relevant
ESS 3	Resource Efficiency and Pollution Prevention and Management	Not Currently Relevant
ESS 4	Community Health and Safety	Relevant
ESS 5	Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
ESS 6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Currently Relevant
ESS 7	Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8	Cultural Heritage	Not Currently Relevant
ESS 9	Financial Intermediaries	Not Currently Relevant

Legal Operational Policies

Safeguard Policies	Triggered	Explanation (Optional)
Projects on International Waterways OP 7.50	No	
Projects in Disputed Areas OP 7.60	No	

Summary of Screening of Environmental and Social Risks and Impacts

The potential adverse risks to and impacts on the environment and on human populations are likely to be minimal or negligible. The environmental risk is classified as Low. The social risk is classified as Moderate, given the envisaged activities the Project will support related with relationship between the provider of water and sanitation services with its customers. The relevant areas for social risk management are: (i) ensuring that COMPESA keeps sound worker-management relationships with its direct and contracted workers, (ii) ensuring that the self-service terminals to be acquired with Project funds are placed by COMPESA in safe and universally accessible places, (iii) ensuring that training activities aimed to contribute to reducing gender inequality in access to water and sanitation services as well as to bridge the gender gap within Compesa adhere to current national and WHO guidelines on COVID-19 prevention, and (iv) ensuring that COMPESA keeps proportionate channels of communication (information, feedback and grievance redressing) about the new services provided with its customers. Measures will be taken to ensure protection of direct, contracted and primary-supply workers as well as local communities and beneficiaries against the introduction of COVID-19 as recommended by country and state contingency plans and WHO.

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