

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PERU

**PROJECT TO INVEST IN, IMPROVE, AND EXPAND WATER, SANITARY SEWER,
AND WASTEWATER TREATMENT SERVICES IN THE ZARUMILLA AND
AGUAS VERDES DISTRICTS OF THE PROVINCE OF ZARUMILLA,
DEPARTMENT OF TUMBES**

(PE-L1256)

LOAN PROPOSAL

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LINKS	
REQUIRED:	
1.	Multiyear execution plan/Annual work plan
2.	Monitoring and evaluation plan
3.	Environmental and social review summary
4.	Procurement plan
OPTIONAL:	
1.	Technical viability
2.	Socioeconomic viability
3.	Institutional and financial viability
4.	Project Operations Manual
5.	Analysis of compliance with the Bank's Public Utilities Policy
6.	Progress monitoring report
7.	Gender and diversity annex
8.	Climate change annex
9.	Execution planning annex: Program S curve
10.	Environmental Safeguard Policy Filters

ABBREVIATIONS

Agua Tumbes	Execution Unit 002 Tumbes Sanitation Services
ATUSA	Aguas de Tumbes S.A.
CGR	Office of the Comptroller General of the Republic
MEF	Ministry of Economy and Finance
MVCS	Ministry of Housing, Construction, and Sanitation
MWC	Meters of water column
OTASS	Organismo Técnico de la Administración de los Servicios de Saneamiento [Technical Organization for the Administration of Sanitation Services]
PMU	Unidad de Gestión de Programas y Proyectos BID (UGPP BID) [IDB Programs and Projects Management Unit]; project management unit
PNSU	Programa Nacional de Saneamiento Urbano [National Urban Sanitation Program]
SUNASS	Office of the Superintendent of National Sanitation Services
WWTP	Wastewater treatment plant

PROJECT SUMMARY

PERÚ

PROJECT TO INVEST IN, IMPROVE, AND EXPAND WATER, SANITARY SEWER, AND WASTEWATER TREATMENT SERVICES IN THE ZARUMILLA AND AGUAS VERDES DISTRICTS OF THE PROVINCE OF ZARUMILLA, DEPARTMENT OF TUMBES (PE-L1256)

Financial Terms and Conditions				
Borrower:			Flexible Financing Facility ^(a)	
Republic of Peru			Amortization period:	15 years
Executing agency:			Disbursement period:	6 years
Ministry of Housing, Construction, and Sanitation (MVCS), acting through the National Urban Sanitation Program (PNSU)			Grace period:	7 years ^(b)
			Interest rate:	SOFR-based
Source	Amount (US\$)	Percentage	Credit fee:	(c)
			Inspection and supervision fee:	(c)
IDB (Ordinary Capital):	60,000,000	78	Weighted average life:	10.75 years
Local:	17,193,261	22	Approval currency:	U.S. dollars
Total:	77,193,261	100		
Project at a Glance				
Project objective/description: The general objective of the project is to improve the quality of life of the population in urban areas of the Zarumilla and Aguas Verdes Districts of the Province of Zarumilla. The specific objectives are to: (i) improve drinking water service quality and coverage; (ii) improve sanitation service quality and coverage; and (iii) improve the management of the sanitation service provider.				
Special contractual conditions precedent to the first disbursement of the loan proceeds: The borrower, through the executing agency, will have submitted, to the Bank’s satisfaction, evidence of: (i) the approval of the Project Operations Manual under the terms agreed upon with the Bank, which includes the environmental and social requirements and incorporates as annexes the environmental and social management system, the environmental and social management plan, and the environmental and social action plan; (ii) the project management unit (PMU) has begun the process of designating the following personnel, in accordance with the terms of reference previously agreed upon with the Bank: (a) a general coordinator; (b) a technical coordinator; (c) a financial specialist; (d) a procurement specialist; (e) an environmental specialist; and (f) a social specialist; and (iii) the signing of an institutional cooperation agreement between the MVCS, acting through the PNSU; the Provincial Municipality of Zarumilla; the District Municipality of Aguas Verdes; and Execution Unit 002 Tumbes Sanitation Services, through which the municipalities of Zarumilla and Aguas Verdes delegate to the PNSU the responsibility for project execution. This agreement will be in effect throughout project execution (paragraph 3.4).				
Special contractual execution conditions: (i) Prior to the start of the supported operation for wastewater treatment plants, the borrower, through the executing agency, will have submitted, to the Bank’s satisfaction, evidence of the signing of an agreement between the executing agency and the provider, which ensures the financial sustainability of the works financed under Component 1 of this project. This agreement will be in effect for 20 years after the commissioning of these works; and (ii) prior to issuing the first call for tenders for Component 1 works, the borrower, through the executing agency, will have submitted evidence that it has the necessary rights, including applicable rights of way, to carry out the works under Component 1, as well as the water rights necessary for the corresponding works (paragraph 3.53.5). See also special execution conditions in Annex B of the environmental and social review summary (required link 3).				
Exceptions to Bank policies: None.				

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 ES <input checked="" type="checkbox"/>	IC <input checked="" type="checkbox"/>

- (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 inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with the applicable policies.
- (d) SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).
- (e) GE (Gender Equality) and DI (Diversity); CC (Climate Change) and ES (Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

I. DESCRIPTION AND RESULTS MONITORING

A. Background, problem addressed, and rationale

- 1.1 **Background.** The Zarumilla and Aguas Verdes Districts are located in the Province of Zarumilla, Department of Tumbes. Both districts are on Peru's northern coast. According to the latest population census,¹ Zarumilla District has 21,409 residents and Aguas Verdes District, 17,366. Given that they are near the border with Ecuador, these districts also have a floating population, among them tourists, workers, merchants, and more recently, migrants.
- 1.2 **Institutional framework.** The Ministry of Housing, Construction, and Sanitation (MVCS), acting through the Office of the Deputy Minister of Construction and Sanitation, is the water and sanitation sector's lead agency, responsible for developing coordination and cooperation mechanisms with regional governments, municipalities, and civil society. The mission of the National Urban Sanitation Program (PNSU) of the MVCS is to expand coverage, improve quality, and promote the sustainable use of water and sanitation services in urban areas. The Office of the Superintendent of National Sanitation Services (SUNASS) is responsible for regulating and supervising these services, guaranteeing quality in service delivery to users. Regional and local governments are responsible for ensuring the efficient delivery of water and sanitation services. Provincial municipalities are responsible for the efficient, sustainable delivery of sanitation services through sanitation service providers. The Technical Organization for the Administration of Sanitation Services (OTASS) is the entity responsible for overseeing the execution of the lead agency's policy for the administration of services offered by sanitation service providers.
- 1.3 **Arrangements for service delivery.** The regulations of the Framework Law for Management and Provision of Sanitation Services establish that provincial municipalities can delegate the operation of one or more sanitation services to the private sector, under any public-private partnership modality. In this context, in 2005 the provincial municipalities of Tumbes, Zarumilla (including the Zarumilla and Aguas Verdes Districts), and Contralmirante Villar executed a concession contract with the company Aguas de Tumbes S.A. (ATUSA) for the improvement, expansion, maintenance, and operation of the infrastructure for drinking water and sanitary sewer services. On 6 November 2018, the MVCS declared that the concession contract had expired. Therefore, the OTASS provisionally took over sanitation service delivery, creating for this purpose Execution Unit 002 Tumbes Sanitation Services (Agua Tumbes).
- 1.4 **Drinking water service coverage and quality.** In the Zarumilla and Aguas Verdes Districts, drinking water is supplied from a groundwater source through five wells. Drinking water coverage is 56% in Zarumilla and 75% in Aguas Verdes, and is characterized by frequent service interruptions and outages. Uninterrupted water delivery is available for 9 hours per day in Zarumilla and 4.8 hours in Aguas Verdes. Water pressure is 3.2 meters of water column² (MWC) in Zarumilla and 2 MWC in Aguas Verdes, quite low values compared to the recommended minimum pressure of 10 MWC. The water source quality is fair, given that it varies depending on the well

¹ [National Institute of Statistics and Information Technology](#). 2017 Census.

² Meters of water column.

being analyzed. Some of the wells have good water quality, while three of them have conductivity and cross-contamination issues. According to the Ministry of Health,³ in 2020 and 2021, more than 150 cases of intestinal infectious diseases were reported in Zarumilla and more than 600 in Aguas Verdes. In addition, children ages 0 to 11 were the most affected (more than 50% of the cases in Zarumilla and more than 60% in Aguas Verdes).

- 1.5 **Sewer system service coverage and quality.** Sewer system coverage is 41.8% in Zarumilla and 55% in Aguas Verdes. The quality of the service is poor: according to a report of operational incidents in 2020 and 2021 provided by Agua Tumbes operations management, the main types of incidents were obstructions (in both networks and connections), which accounted for 90% of the total. Moreover, an underlying issue is rainwater intrusion, due not only to the lack of watertightness but also to informal household connections to the sanitation system.⁴ In principle, wastewater treatment is carried out by three wastewater treatment plants (WWTPs): Campo Amor in Zarumilla, which discharges into an irrigation drain; 28 de Julio in Aguas Verdes, which discharges into a concrete irrigation channel; and Aguas Verdes, which discharges into the international channel through PVC piping (outlet). However, in practice, wastewater treatment is poor, since the three plants discharge water with values exceeding the maximum allowable limits.⁵ Two plants (Campo Amor and 28 de Julio) have serious technical and operational issues, strong odors, no exterior illumination, no drinking water systems in the facilities, and no sludge management plans. With respect to both water and sanitation services, service shortcomings are partly due to the infrastructure's age and lack of proper operation and maintenance.
- 1.6 **Operating efficiency of water services.** The operating efficiency of service delivery is low. According to reports for ATUSA, nonrevenue water amounted to 64% in 2021 and averaged 60% over the previous four years. Moreover, in 2021, 63% of its customers were unmetered. ATUSA currently lacks an updated inventory of water and sanitation systems, and its existing inventory is incomplete and outdated. In addition, electricity costs are extremely high, and in 2021 accounted for 23% of total costs.⁶ A recent report from SUNASS⁷ indicated that none of the 14 WWTPs that Agua Tumbes operates (three of them located in this project's intervention area) have discharge authorizations. This service provider also ranks 4th out of 50 with the largest number of WWTPs that lack property title clearance. In addition, none of its plants monitor parameters based on the maximum allowable limits for inflow and outflow. Lastly, the report shows that Agua Tumbes does not have staff dedicated to plant operation and maintenance or laboratory staff, and none of its plants have an operation and maintenance manual.

³ [Diez principales causas de Morbilidad según regiones, Ministry of Health, September 2022.](#)

⁴ Investment project profile. Single code 2561234. www.invierte.pe.

⁵ *Diagnóstico de las Plantas de Tratamiento de Aguas Residuales (PTAR) en el Ámbito de las Empresas Prestadoras.* SUNASS, June 2022.

⁶ Investment project profile. Single code 2561234. www.invierte.pe.

⁷ PTAR SUNASS.

- 1.7 **Diagnostic assessment of gender and persons with disabilities.** Sanitation service provider Agua Tumbes has a staff of 175: 21 women (12%) and 154 men (88%). Therefore, women's workforce participation is below the region's average, which is 19.7% according to the World Bank (2020). With respect to persons with disabilities, the staff includes one woman and three men (2.3%). This is below the employment quota for people with disabilities pursuant to Law 29973, which is 5% for public entities. Gross wages for all men are 38.2% higher than women's wages. However, women and men with the same job positions were found to receive the same salaries. Women hold management positions, but not in middle and senior management. Therefore, it is necessary to implement measures to foster gender equality and inclusion of persons with disabilities in the organization. Among beneficiary populations, a household survey in Zarumilla found that, of the 132 households surveyed that lack sewer system connections, in 10 of them only the mother works, in 67 only the father works, and in 14 women are the heads of household. In addition, there is a gender wage gap of 20% favoring men. It is therefore necessary to promote measures to support women's economic empowerment, prioritizing women heads of household without sewer system connections ([optional link 7](#)).
- 1.8 **Climate change evaluation.** The effects of climate change can alter the intensity and recurrence of hydrometeorological hazards such as floods, heavy rains, and the El Niño and La Niña phenomena. In Zarumilla and Aguas Verdes, floods are the most recurrent hydrological risk. The climatic scenarios to 2050 that the National Service of Meteorology and Hydrology (SENAMHI) published in 2021 estimate increased rainfall averages for the northern coast, as well as increases above 15% for extreme rainfall events, in terms of both frequency and intensity. Climate change can affect the availability and quality of water and the infrastructure of sanitation service providers, impacting water collection, treatment, and distribution processes. Moreover, the drinking water supply and wastewater treatment cause greenhouse gas emissions—because of energy consumption, which can be high depending on the age of the facilities, the technology for wastewater treatment, and the volume and efficiency of water distribution; the high amounts of methane and nitrous oxide produced through wastewater treatment; and the poor operation and maintenance of WWTPs.
- 1.9 **The Bank's experience in the sector and the country.** The Bank has financed similar operations in Peru and other countries. With minor variations, these included the same types of measures, such as executing large water and sanitation infrastructure works. For example, the Cajamarquilla, Nievería, and Cerro Camote Project – Expansion of water and sewerage systems in sectors 129, 130, 131, 132, 133, 134, and 135 – Districts of Lurigancho and San Antonio de Huarochirí ([PE-L1060: 2645/OC-PE](#)), which benefited 100,000 people with water and sanitation services. It also achieved high connectivity to the sewer system (96% of households) when it was commissioned, because of the social strategy implemented throughout the project cycle. Based on this experience, it is necessary to adopt a comprehensive approach, with interventions that include infrastructure, operational modernization, and institutional strengthening.
- 1.10 **Lessons learned applicable to the project.** The lessons learned during the preparation and execution of similar operations in Peru and the region ([Water and Sanitation Sector Framework Document](#)) and project completion reports from similar

operations that were recently⁸ completed have been incorporated into the design of this operation, including: (i) have an execution unit to coordinate the entire project and serve as sole liaison with the Bank, in this case the existing project management unit (PMU) for IDB projects, which will manage the execution (paragraph 3.1) and is now known in Spanish as the Unidad de Gestión de Programas y Proyectos BID (UGPP BID); (ii) given the widespread nature of work areas, provide continuous support for the execution through consulting services for works supervision, with specific resources allocated (paragraph 1.19); (iii) focus on optimizing existing infrastructure while increasing the capacity for resilience of systems, for which the project includes interventions to rehabilitate existing infrastructure aimed at promoting service resilience (paragraphs 1.15 and 1.19); and (iv) implement strengthening actions for the provider's operational management in order to achieve investment sustainability, for which the project includes specific operational and business management improvement measures (paragraph 1.20).

- 1.11 **The government's sector strategy.** Peru recently approved the 2022-2026 National Sanitation Plan. Its objective is to achieve universal, sustainable, and quality access to water and sanitation services, including equity, affordability, security of supply, climate change mitigation and adaptation, disaster risk management, and circular economy criteria. The plan defines two essential pillars: (i) universal access and (ii) sustainable management of quality services.
- 1.12 **IDB Group's strategy with the country.** The operation is consistent with the IDB Group Country Strategy with Peru 2022-2026 (document GN-3110-1), since it contributes to the strategic objective of improving the coverage and quality of water and sanitation services through the indicators: (i) drinking water coverage in urban areas and (ii) basic sanitation coverage in urban areas.
- 1.13 **Strategic alignment.** The project 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, by expanding and improving access to water and sanitation services and reducing environmental pollution; and (ii) productivity and innovation, by implementing measures to improve the efficiency of water and sanitation systems management (paragraph 1.15). The operation is also aligned with the crosscutting areas of: (i) gender equality and diversity, by implementing an institutional policy regarding gender and persons with disabilities at the provider level, as well as various activities to empower women in communities within the area of influence (including strengthening technical skills, self-esteem, and leadership); (ii) institutional capacity and the rule of law, by improving the operational efficiency and business management of Agua Tumbes; and (iii) climate change and environmental sustainability, since wastewater treatment, loss reduction, and energy efficiency investments will help decrease greenhouse gas emissions, improve water security conditions, and build infrastructure for the delivery of drinking water services and wastewater collection and treatment services. Of the operation's resources, [41.33%](#) will be invested in climate change mitigation and adaptation activities, based on the [Multilateral Development Banks' joint methodology on estimating climate finance](#). These resources contribute to the IDB's climate finance goal of at least 30% of the volume of approvals. In addition, the operation will contribute to the Corporate

⁸ Operations [BO-X1004](#), [CO-L1028](#), [PE-L1060](#), and [PE-X1004](#).

Results Framework 2020-2023 (document GN-2727-12), through the indicators “households with improved access to water and sanitation” and “agencies with strengthened digital technology and managerial capacity.” Lastly, the project is consistent with: (i) the Water and Sanitation Sector Framework Document (document GN-2781-13), through projects and programs that are environmentally and socially sustainable and incorporate climate change and cultural and environmental sustainability considerations; (ii) the Climate Change Sector Framework (document GN-2835-8), through dimension of success 4, “countries make progress on mainstreaming climate considerations across sectors”; and (iii) the Gender and Diversity Sector Framework Document (document GN-2800-8), through the delivery of quality public services that promote gender equality or women’s empowerment.

- 1.14 **Compliance with the Bank’s Public Utilities Policy (document GN-2716-6).** The proposed project and Peru’s sector-specific objectives are consistent with the principles set forth in the Bank’s Public Utilities Policy (document GN-2716-6) and meet conditions of financial sustainability and economic evaluation. The economic evaluation demonstrated that the provider for the sample project has the financial capacity to meet its commitments related to the investments proposed for this operation. This is based on implementing the management improvement measures identified, including the program for active portfolio management, the program to detect low consumption and large consumers, the plan for efficient energy management, and the plan for intelligent management of systems. This will help increase revenue, ensuring financial sustainability. The economic evaluation showed that the operation is economically viable, with an internal rate of return of 25.5% and a net present value of US\$20,500,000 for the water project and an internal rate of return of 12.8% and a net present value of US\$1,700,000 for the sanitation project ([optional link 5](#)).
- 1.15 **Strategy.** The strategy is aimed at supporting Agua Tumbes through investments to sustainably improve and expand access to water and sanitation services in the urban areas of Zarumilla and Aguas Verdes, guaranteeing operational resilience, efficiency, and service quality. These measures will ultimately help improve both municipal environmental conditions and the population’s health.⁹ To do so, emphasis will be placed on increasing the intake, conveyance, treatment, and storage capacities of the drinking water supply. Works to rehabilitate and expand existing wastewater collection and treatment systems will also be carried out.¹⁰ All the works were studied to verify that they can withstand the effects of climate change and evaluate their contributions to climate change adaptation and mitigation. In addition, the strategy focuses on reducing water losses, optimizing energy consumption, and in general reducing operational inefficiencies. The project includes activities to develop construction and masonry skills among the population (particularly women), enabling job placement. Lastly, to contribute to the interventions’ sustainability, institution-strengthening measures for Agua Tumbes will: (i) improve its operational

⁹ [Water and Sanitation Sector Framework Document, IDB \(2021\).](#)

¹⁰ Based on the analysis of alternatives carried out to prepare this operation, the most viable option is to close two of the existing WWTPs (28 de Julio and Campo Amor), since they are located in the city center, are not working well, and cannot be recovered. Therefore, the project includes rehabilitating the Aguas Verdes wastewater treatment plant and building a new plant in Zarumilla.

performance by performing preventive maintenance of its assets; managing technical and customer records, including conducting a technical survey of systems and nonlinear works and optimizing the customer portfolio to improve billing; and using system management software to track incidents that impact the system's proper functioning, forecast risk levels, automatically analyze systems, and monitor operational efficiency in real time; (ii) develop and implement specific gender and diversity policies and actions; and (iii) design and implement a human resources strategy. The effectiveness of the proposed interventions has been demonstrated through various studies of works carried out in similar contexts.¹¹

- 1.16 **Strategy and measures related to gender and persons with disabilities.** The measures proposed are internal to Agua Tumbes (Component 2) and for the community (Component 1). At the community level, to foster women's participation and economic empowerment, the following will be implemented: (i) the plan to strengthen technical skills for jobs related to the construction, operation, and maintenance of water and sanitation services, incentivizing women's participation and providing them self-development skills and new job opportunities that enable them to increase their income; (ii) the training plan for self-esteem and leadership for women; and (iii) awareness activities focused on health, hygiene, and rational use and protection of water sources, with a gender approach. To promote gender equality and inclusion of persons with disabilities in Agua Tumbes, the following activities are proposed: (i) preparing an institutional diagnostic assessment of gender and persons with disabilities (using the AquaRating gender and diversity analysis¹²) and its subsequent action plan, to develop an institutional culture that is sensitive to gender and persons with disabilities, including universal accessibility concepts and a "design for all" approach, according to the Convention on the Rights of Persons with Disabilities (CRPD, 2006); (ii) preparing an institutional policy for gender equality and equity; and (iii) preparing an institutional policy for the inclusion of persons with disabilities ([optional link 7](#)).
- 1.17 **Climate change strategy.** The operation includes designing infrastructure that is resilient to extreme events such as floods. Specifically, the location and design of the new WWTP in Zarumilla took into consideration flood simulations under climate change conditions. The new plant is expected to generate fewer greenhouse gas emissions compared to the baseline, because of the type of technology used. In addition, the closing of the Campo Amor and 28 de Julio plants will prevent current greenhouse gas emissions, since the plants are functioning poorly because of pond silting, generating large amounts of methane. Moreover, capacity-building for the provider includes a program to reduce nonrevenue water in Zarumilla and Aguas

¹¹ See evidence of the effectiveness of water loss control interventions in [Da Silva, Nilce Regina](#); and Rizzo, Alex, David Pearson, Matthew Stephenson, and Neil Harper, Apparent Water 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 cleaning up of receiving watercourses. For example, von Sperling, M., [Urban Wastewater Treatment in Brazil](#); and Nolasco, N., [Desarrollo de proyectos MDL en plantas de tratamiento de aguas residuales](#).

¹² AquaRating's gender and diversity analysis is a tool that water and sanitation companies use to diagnose and quantify their corporate culture with respect to gender and diversity, and evaluate the implementation level of the gender and diversity policies and actions that the company established. With the results of this evaluation, a baseline can be set, identifying and quantifying the company's existing labor gaps, as well as action areas to narrow these gaps while measuring progress in closing them.

Verdes, aimed at decreasing energy consumption per unit of drinking water produced while increasing water availability to serve more users. This also includes an energy efficiency plan. All of these measures contribute to the Nationally Determined Contribution for adaptation and mitigation.

B. Objectives, components, and cost

- 1.18 **Objective.** The general objective of the project is to improve the quality of life of the population in urban areas of the Zarumilla and Aguas Verdes Districts of the Province of Zarumilla. The specific objectives are to: (i) improve drinking water service quality and coverage; (ii) improve sanitation service quality and coverage; and (iii) improve the management of the sanitation service provider.
- 1.19 **Component 1. Works for drinking water supply and distribution, sewer systems, and wastewater treatment (US\$64,371,474).** This component will finance: (i) works to expand and rehabilitate the drinking water supply system, including construction of underground wells, impulse lines, reservoirs, distribution networks, and household connections; (ii) works to expand and rehabilitate the sewer system, including construction of primary and secondary mains, pumping stations, impulse lines, and household connections; (iii) construction and rehabilitation of treatment plants; (iv) supported operation of the WWTPs; and (v) a program for connectivity to the sewer system. In addition, this component will also finance consulting services to prepare the technical dossier—including environmental sustainability and climate change considerations, technical supervision, and environmental and social management of works.
- 1.20 **Component 2. Improvements in delivery of water and sanitation services (US\$6,656,254).** This component will finance: (i) programs to reduce water losses; (ii) information gathering on customers, facilities, and connections, and a technical survey of systems and nonlinear works; (iii) the energy efficiency plan; (iv) the program to strengthen human resources management; (v) the plan for the management of WWTPs and control of discharges into the sewer system; (vi) the manual for protection and monitoring of water wells; (vii) the application for intelligent management of systems; (viii) the gender and diversity strategy;¹³ and (ix) equipment for operation and maintenance.
- 1.21 **Administration, evaluation, audit, and associated control costs (US\$6,165,533).** The project will also finance the costs related to the PMU (including staff and operating expenses), project monitoring and evaluation, and applicable external audits. The associated control costs, corresponding to 2% of the total investment amount, are included in the table of costs required by the office of the comptroller and will be financed with local counterpart resources.

C. Key results indicators

- 1.22 The main project outcomes are associated with improved access, quality, and operating efficiency for the water and sanitation services that ATUSA delivers. The key outcome indicators are in Table I-1 below (see Annex II).

¹³ This includes an institutional diagnostic assessment of gender and persons with disabilities for Agua Tumbes, aimed at promoting actions to develop an institutional culture that is sensitive to these considerations.

Table I-1 – Key indicators

Outcome indicator	Unit of measure	Baseline	Target
Households with 24/7 access to drinking water in the Zarumilla and Aguas Verdes Districts	Household	0	15,476
Households with new access to drinking water in the Zarumilla and Aguas Verdes Districts		0	7,050
Households with new, effective access to wastewater collection services in the Zarumilla and Aguas Verdes Districts		0	11,853
Rate of nonrevenue water in the Zarumilla and Aguas Verdes Districts	Percentage	64.1	50

- 1.23 **Benefits and beneficiaries.** The direct beneficiaries of the project are almost 50,000 residents who will have new or improved drinking water and sanitation services (approximately 15,500 households with improved drinking water service, 7,050 households with new drinking water service, and approximately 11,900 households with wastewater collection and treatment service). Other beneficiaries are the people (particularly the women) who participate in project-financed employment programs and public health and environmental training. Sustainability will increase through improved institutional performance for Agua Tumbes and modernization and increased efficiency of operations—resulting in environmental benefits for the area and financial benefits for the sanitation service provider. The indirect beneficiaries will be the entire population of the Agua Tumbes service area (approximately 150,000 people), because the service provider’s capacities will be strengthened.

II. FINANCING STRUCTURE AND MAIN RISKS

A. Financing instruments

- 2.1 **Type of financing.** The project is designed as a specific investment loan, since all the works have been identified and have technical (paragraph 2.8), environmental and social (paragraph 2.4), and socioeconomic viability (paragraph 2.9).
- 2.2 **Cost and financing.** The project will have a total cost of US\$77,193,261, of which US\$60,000,000 will be financed by the Bank from its Ordinary Capital and US\$17,193,261 will be financed with local counterpart resources. The consolidated budget per component is in Table II-1. The disbursement period for the loan is six years, in line with the multiyear execution plan ([required link 1](#)). The disbursement schedule is in Table II-2.

Table II-1 – Project cost (US\$)

Components	IDB	Percentage	Local	Percentage	Total
Component 1: Works for drinking water supply and distribution, sewer systems, and wastewater treatment	52,979,404	88.3	11,392,070	66.2	64,371,474
Drinking water project in Zarumilla and Aguas Verdes	19,130,750	-	4,113,287	-	23,244,037
Sanitation project in Zarumilla and Aguas Verdes	33,848,654	-	7,278,783	-	41,127,437
Component 2: Improvements in delivery of water and sanitation services	5,458,128	9.1	1,198,126	7	6,656,254
Project administration	962,468	1.6	3,089,472	18	4,051,940
Evaluation and audit	600,000	1	-	-	600,000
Associated control costs	-	-	1,513,593	8.8	1,513,593
Total	60,000,000	100	17,193,261	100	77,193,261

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

Source	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
IDB	1.3	4.5	16	17.4	14.7	6.1	60
Counterpart	0.78	1.21	3.92	4.24	4.45	2.59	17.19
Percentage	3	7	26	28	25	11	100

- 2.3 **Deadline for the physical start of the works.** The deadline for the physical start of the project's works is 30 months following the effective date of the loan contract.

B. Environmental and social risks

- 2.4 Pursuant to the Bank's Environmental and Social Policy Framework, this project was classified as a category "B" operation, based on possible negative environmental or social impacts that might be caused by the construction, rehabilitation, and expansion of infrastructure for drinking water and sanitary sewer systems. These impacts will be localized, temporary, and moderate, and will be addressed with mitigation measures that are known and easy to implement.
- 2.5 During construction, the main impacts will be the generation of noise, dust, debris, and solid and liquid waste; fuel spills; traffic increase and congestion from the flow of vehicles and heavy machinery; interruptions in vehicular and pedestrian transit; and difficulties in and/or temporary blocking of access to households, businesses, and public facilities. During operation, the main impacts will be the environmental emissions resulting from the energy used in plants and pumps; and the generation of waste, discharge of treated wastewater, and emission of noxious odors associated with operating the WWTP. The environmental and social risk rating identified a substantial risk level, because the impacts and risks of the construction and rehabilitation works involve increased occupational and community health and safety risks and interruptions in vehicular and pedestrian transit, and there are risks associated with the management of the wastewater treatment system and the executing agency's capacity. Other substantial indirect risks identified are related to

the construction and operation of a WWTP and its associated sewer system works, which will generate and discharge treated water into a body of water that terminates in the buffer zone of a protected natural area. The project was classified as having a moderate disaster and climate change risk level, following the methodology established by the Bank to evaluate projects with respect to risks, vulnerabilities, and critical nature. Indigenous peoples were not identified within the project area. No critical natural habitats were identified in the project's immediate surroundings, since this is an urban environment. However, since the area of direct influence of the WWTP includes a protected natural area, the plant's discharges need to comply with the country's most demanding parameter and with Environmental and Social Performance Standard 3. No physical or economic displacements, nor impacts due to land procurement or obtaining rights of way, have been identified. An environmental and social management system was prepared, to mitigate the risks and impacts identified; it includes an environmental and social analysis and an integrated environmental and social management plan for all the works. A meaningful public consultation about the environmental and social analysis/environmental and social management plan was held on 19 September 2022 in Zarumilla with the main project stakeholders: associations, human settlements, populated centers, and representatives of the Municipality. The event was attended by 109 people on site (63% women and 37% men) and by 22 people online. The main concerns were related to the work schedule, coverage of the comprehensive project, and the government plans for the development of other public utility and development infrastructure projects. The environmental and social management system, the final version of the environmental and social analysis/environmental and social management plan, and the consultation report have been disclosed on the Bank's website.

C. Fiduciary risks

- 2.6 Based on the results of the fiduciary capacity assessment, the PMU has sufficient capacity to execute the project. This operation presents a medium-low fiduciary risk. The need to improve internal coordination processes between the PMU and the PNSU was identified, to manage the justification of expenditures and disbursements. This will be explicitly included in the Project Operations Manual ([optional link 4](#)). Another need identified, strengthening the procurement team to take on the increased workload, will be addressed by hiring a coordinator and a procurement specialist.

D. Other key issues and risks

- 2.7 The following medium-high risks were identified: (i) a public management and governance risk, if the management unit for the drainage program of the PNSU is not strengthened, since the current team is unable to take on the additional workload, which might delay project execution. This risk will be mitigated by ensuring that the project finances the strengthening of the PMU with staff, based on the needs identified; (ii) a public management and governance risk, since if an agreement delegating the responsibilities for execution has not been signed with the PNSU, the startup of the operation might be delayed. To mitigate this risk, a contractual condition for the first disbursement is the submission of the signed agreement; (iii) a development risk, since if property title clearance is not available before the date scheduled for the startup of works, it will not be possible to begin the works planned

under Component 1 for 2024, delaying the project completion date. This risk will be mitigated through coordinated work with the Provincial Municipalities of Zarumilla and Aguas Verdes, the sanitation service provider, the Office of the Superintendent of National Assets (SBN), and the National Water Authority (ANA) to manage the title clearance of lands and ensure that a title clearance specialist is hired for the PMU; (iv) a development risk that if authorization from the National Water Authority is not available for execution of the final wells and discharges (environmental quality standards met at the profile level), the works planned for 2024 cannot begin, delaying the project completion date. This risk will be mitigated with the same actions described for the previous risk; and (v) a procurement risk that if the procurement fiduciary team is not strengthened during the first six months of execution, processes might not be carried out in good and proper form, causing possible delays in the operation's physical and financial schedule. To mitigate this risk, a procurement coordinator and a procurement specialist will be hired. The following high risks were identified: (i) a sustainability risk that, if by the construction stage, social incentive measures have not been implemented, beneficiaries will not connect to the sewer system, impacting the project's financial sustainability. This risk will be mitigated by implementing the program for connectivity to the sewer system (paragraph 1.19) and the gender measures planned for the project to increase the income of women heads of household (paragraph 1.16); and (ii) a sustainability risk that if there is no mechanism to guarantee the resources needed, the systems built might be operated and maintained poorly, affecting the sustainability of investments. This risk will be mitigated by implementing a mechanism to guarantee the necessary funds (fees or subsidies) through an agreement between the executing agency and the provider (paragraph 3.5).

- 2.8 **Technical viability.** The technical solution adopted for the project to meet its expected objectives is using underground sources (wells) for the drinking water supply. The sources that were ruled out were surface sources because they are intermittent (Tumbes and Zarumilla Rivers) and coastal marine sources due to high investment and operation costs. For the treatment and final disposal of the wastewater collected, the following were adopted: (i) in Zarumilla, a centralized solution west of the city, in the low-lying area, on available, municipally owned land, with outflows discharged into a stream used for the area's mariculture activities and into which shrimp ponds currently drain, which flows toward the Los Manglares de Tumbes National Sanctuary; and (ii) in Aguas Verdes, the rehabilitation and upgrading of the existing treatment system, which discharges into an irrigation channel that drains toward an international channel. The project also includes expanding the drinking water system, building new reservoirs, and expanding the sanitary sewer system. The proposals are technically viable and suitable for the needs identified and the capacity and quality objectives defined. All the surveys and designs for infrastructure components will follow the country's regulations and generally accepted international engineering principles ([optional link 1](#)).
- 2.9 **Socioeconomic viability.** A cost-benefit analysis was prepared for the interventions financed under the operation: the project to expand and improve the drinking water service and the project for wastewater collection and treatment. Using a discount rate of 12%, both of these interventions are socioeconomically viable, with an internal rate of return of 25.5% and a net present value of US\$20,500,000 for the water project and an internal rate of return of 12.8% and a net present value of US\$1,700,000 for

the sanitation project ([optional link 2](#)). These analyses were complemented with corresponding sensitivity analyses, evaluating scenarios with varying investment and infrastructure operation and maintenance costs in terms of project profitability. Increasing investment costs by 30% would not modify the profitability of the water project; however, a similar increase would impact the profitability of the sanitation project. Nevertheless, it is important to clarify that given the level of progress of the engineering designs for the projects, no substantial changes in investment costs are expected. According to information provided by Agua Tumbes, the average monthly payment made by users of the water and wastewater collection and treatment services for an average household is approximately US\$12.60. This accounts for nearly 1.3% of the average monthly household income in the intervention area. Households classified as poor have a reduced rate. The monthly amount paid by these users is approximately US\$4.50, which accounts for nearly 2% of the average monthly household income for these types of households. According to international standards, this is an acceptable amount.

- 2.10 **Financial and institutional viability.** The financial and institutional analysis showed that Agua Tumbes, the provider, faces operational and financial challenges. Revenue for services covers 82% of operating costs and expenses as of 2021. Some of the causes identified for the company's issues are the high rate of water losses (64%); the low rate of micrometering (63% of customers are unmetered); the high costs of electricity; and the need to strengthen the staff's skills. The project will support the implementation of institution-strengthening measures to reduce losses and improve operational and administrative management, including the program for active portfolio management, the program to detect low consumption and large consumers, the plan to strengthen human resources, the plan for efficient energy management, and the plan for intelligent management of systems ([optional link 3](#)).

III. IMPLEMENTATION AND MANAGEMENT PLAN

A. Summary of implementation arrangements

- 3.1 **Borrower and executing agency.** The borrower will be the Republic of Peru and the executing agency will be the Ministry of Housing, Construction, and Sanitation (MVCS), acting through the National Urban Sanitation Program (PNSU). The project management unit (PMU), which reports to the PNSU, will be responsible for the project's technical, administrative, socioenvironmental, fiduciary, and operational execution, including general coordination and resource management. The PMU will have the following key staff: (i) a general coordinator; (ii) a technical coordinator; (iii) a financial specialist; (iv) a procurement specialist; (v) an environmental specialist; and (vi) a social specialist. The qualifications for key staff and details of the execution mechanism will be included in the Project Operations Manual. The hiring and/or designation of the key staff requires the Bank's prior no objection. Among its functions, the PMU will: (i) prepare and periodically update the multiyear execution plan, the annual work plan, and the procurement plan; (ii) carry out the selection processes for works, goods, and consulting services; (iii) supervise the works, and monitor and supervise project execution and evaluation, and socioenvironmental management; (iv) conduct financial management within the framework of Bank policies; and (v) prepare and update the project's semiannual reports, including environmental and social compliance reports and risk matrices.

- 3.2 To support the PMU, within six months of the signing of the loan contract, the committee to support project management will be established. This committee will provide strategic guidance, monitor the execution, and support the project's management. The committee will also provide input in case of changes in the general coordinator and the key team of the PMU. The committee will consist of: (i) two representatives from the MVCS, from: (a) the PNSU, who will chair the committee, and (b) the sector's Office of Multiyear Programming of Investments, or the entity acting as such; (ii) a representative from the Ministry of Economy and Finance (MEF); and (iii) an IDB representative, with a voice but no vote. The committee's specific functions will be established in the Project Operations Manual and require the Bank's no objection.
- 3.3 **Project Operations Manual.** The project will follow an updated Project Operations Manual for the PMU, reflecting its needs and specific details. The update will include the project cycle; the necessary institutional coordination mechanisms and instruments; and engineering, environmental and social, and fiduciary specifications ([optional link 4](#)).
- 3.4 **Special contractual conditions precedent to the first disbursement of the loan:** The borrower will have submitted, to the Bank's satisfaction, evidence of: (i) the approval of the Project Operations Manual under the terms agreed upon with the Bank, which includes the environmental and social requirements and incorporates as annexes the environmental and social management system, the environmental and social management plan, and the environmental and social action plan; (ii) the PMU has begun the process of designating the following personnel, in accordance with the terms of reference previously agreed upon with the Bank: (a) a general coordinator; (b) a technical coordinator; (c) a financial specialist; (d) a procurement specialist; (e) an environmental specialist; and (f) a social specialist; and (iii) the signing of an institutional cooperation agreement between the MVCS, acting through the PNSU; the Provincial Municipality of Zarumilla; the District Municipality of Aguas Verdes; and Agua Tumbes, through which the municipalities of Zarumilla and Aguas Verdes delegate to the PNSU the responsibility for project execution. This agreement will be in effect throughout the project execution. Condition (i) is necessary because the Project Operations Manual will establish the operational elements of the execution and harmonize the procedures followed by the PNSU. Condition (ii) is needed to ensure that the PNSU will be prepared, with a suitable team to begin project execution. Condition (iii) is necessary so that the responsibilities are delegated to the PNSU.
- 3.5 **Special contractual execution conditions:** (i) Prior to the start of the supported operation for wastewater treatment plants, the borrower, through the executing agency, will have submitted, to the Bank's satisfaction, evidence of the signing of an agreement between the executing agency and the provider, which ensures the financial sustainability of the works financed under Component 1 of this project. This agreement will be in effect for 20 years after the commissioning of these works; and (ii) prior to issuing the first call for tenders for Component 1 works, the borrower, through the executing agency, will have submitted evidence that it has the necessary rights, including applicable rights of way, to carry out the works under Component 1, as well as the water rights necessary for the corresponding works.

- 3.6 **Operation and maintenance.** The borrower will commit to adopting, through the executing agency or beneficiary sanitation service provider, as applicable, the measures necessary for the proper maintenance of the works and assets that are part of the project, in accordance with generally accepted technical standards. During the disbursement period and as part of semiannual status reports, the borrower will submit, acting through the executing agency, a report on the status of these works and assets. If, on the basis of the Bank's inspections or any reports the Bank receives, maintenance is found to be below agreed upon levels, the borrower, acting through the executing agency or the beneficiary sanitation service provider, as applicable, will take measures to ensure that the deficiencies are fully corrected.
- 3.7 **Procurement management.** Procurement financed in whole or in part with the Bank loan proceeds will be conducted in accordance with the Policies for the Procurement of Goods and Works 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 advanced use of the country system (including the national competitive bidding, shopping, framework agreement, reverse auction, and individual consultant subsystems) that was approved by the Bank's Board of Executive Directors (document GN-2538-22 of 2017) will be pursuant to the scope included in the respective approval and the provisions of Annex III of this document. No single-source contracting or retroactive financing are anticipated for this project. An 18-month procurement plan was prepared ([required link 4](#)).
- 3.8 **Sustainability considerations for procurement.** Procurement processes could include sustainability criteria (environmental, social, or economic) in the various stages, including planning; preparation of standard bidding documents; definition of technical specifications; evaluation and selection criteria for bidders; and evaluation and awarding criteria for bids.
- 3.9 **Disbursements.** The primary disbursement modality will be advances of funds, pursuant to the guidelines of document OP-273-12, and will be based on a financial plan that covers the project's actual liquidity needs for up to 180 days. Except for the first advance of funds, subsequent advances will be processed when at least 80% of the total cumulative balances pending supporting documentation have been justified. For resource management, the executing agency will use the single treasury account. Expenses will be justified using the exchange rate in effect on the date that the proceeds disbursed were converted from U.S. dollars to the local currency (monetization rate). Documentation will be reviewed on an ex post basis.
- 3.10 **Audits.** The project financial statements will be audited annually by an independent audit firm acceptable to the Bank, within 120 days after the close of each fiscal year of the operation during the original disbursement period, or as extended, if necessary. The final audited financial statement will be submitted within 120 days after the date stipulated for the last disbursement. The executing agency will select and contract a Bank-eligible independent audit firm, financed with the loan proceeds. The audit's management, with respect to the contracting modality, scope, terms, and deadlines for submission of reports, will follow Bank policies (document OP-273-12 and the Audited Financial Reports and External Audit Management Handbook).

B. Summary of arrangements for monitoring results

- 3.11 **Monitoring.** For the activities under its responsibility, the executing agency will prepare reports indicating progress made and outcomes achieved. The monitoring mechanism will include the procurement plan, the multiyear execution plan, the annual work plan, the results matrix, the progress monitoring report, and the risk management plan. The executing agency will submit to the Bank semiannual reports on progress and outcomes achieved, including an action plan for the following six-month period, within 60 days after the end of every six-month period ([required link 2](#)).
- 3.12 **Evaluation.** The executing agency will commission: (i) a midterm evaluation, submitted within 90 days after the date on which 50% of the loan proceeds have been disbursed; and (ii) a final evaluation, submitted within 90 days after the date of the last disbursement of loan proceeds. The proposed evaluation methodology will be a “before and after” analysis, which will measure the outcome indicators before and after implementation and compare the measurements to verify that the targets were achieved. As part of the final evaluation, there will be an ex post economic evaluation, in accordance with the monitoring and evaluation plan ([required link 2](#)).

Development Effectiveness Matrix		
Summary		PE-L1256
I. Corporate and Country Priorities		
Section 1. IDB Group Strategic Priorities and CRF Indicators		
Development Challenges & Cross-cutting Issues	-Social Inclusion and Equality -Productivity and Innovation -Gender Equality and Diversity -Climate Change -Institutional Capacity and the Rule of Law	
CRF Level 2 Indicators: IDB Group Contributions to Development Results	-Households with improved access to water and sanitation (#)	
2. Country Development Objectives		
Country Strategy Results Matrix	GN-2889	Improve access and quality of water and sanitation service
Country Program Results Matrix	GN-3087-2	The intervention is included in the 2022 Operational Program.
Relevance of this project to country development challenges (If not aligned to country strategy or country program)		
II. Development Outcomes - Evaluability		Evaluable
3. Evidence-based Assessment & Solution		9.4
3.1 Program Diagnosis		1.9
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		
Overall risks rate = magnitude of risks*likelihood		Medium Low
Environmental & social risk classification		B
IV. IDB's Role - Additionality		
The project relies on the use of country systems		
Fiduciary (VPC/FMP Criteria)	Yes	Financial Management: Budget, Treasury, Accounting and Reporting, External Control. Procurement: Information System, Price Comparison, Contracting Individual Consultant, National Public Bidding.
Non-Fiduciary		
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:		
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project		Yes RG-T3579

Evaluability Assessment Note: The project is a specific investment operation whose general objective is to improve the quality of life of the population in the urban area of the districts of Zarumilla and Aguas Verdes. The specific objectives are: (i) to improve service quality and increase drinking water coverage; (ii) improve service quality and increase sanitation coverage; and (iii) improve management capacity of the utility providing sanitation services.

The operation presents an adequate diagnosis in which gaps are identified in the coverage and quality of drinking water services in terms of continuity, pressure and potability. Regarding sanitation, the collection and treatment of wastewater in the existing plants is deficient and presents serious technical and operational problems. Likewise, the efficiency in the management of services is characterized by high levels of non-billed water and unmetered clients. To meet these challenges, the program will implement two components: I) Works for the supply and distribution of drinking water, sewerage, and wastewater treatment; and II) Improving the provision of water and sanitation services.

The results matrix (RM) adequately reflects the vertical logic of the operation and will allow to measure the achievement of the Specific Objectives. The output and result indicators present their respective baseline values, targets, and means of data collection and verification. It should be noted that the targets set in terms of sewerage connectivity rates at the end of the project are high, however, the team indicates that the program will finance an ambitious connectivity program that will allow to achieve them.

The assessment of the socioeconomic feasibility was based on a cost-benefit analysis (CBA) of the project to expand and improve the AP service and the wastewater collection and treatment project. The IRR obtained was 25.5% and 12.8%, respectively. The parameters used in the economic analysis are consistent with the project costs and RM values. The CBA includes an appropriate sensitivity analysis.

To evaluate the effectiveness of the project, a retrospective evaluation of the indicators associated with each specific objective is proposed using a "before and after" methodology. In addition, the final evaluation includes an ex post economic analysis.

RESULTS MATRIX

Project objective:	The general objective of the project is to improve the quality of life of the population in urban areas of the Zarumilla and Aguas Verdes Districts of the Province of Zarumilla. The specific objectives are to: (i) improve drinking water service quality and coverage; (ii) improve sanitation service quality and coverage; and (iii) improve the management of the sanitation service provider.
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SPECIFIC DEVELOPMENT OBJECTIVES

Indicators	Unit of measure	Baseline value	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of operation	Comments/Mean of verification
Specific development objective 1: Improve drinking water service quality and coverage											
Households with 24/7 access to drinking water in the Zarumilla and Aguas Verdes Districts	Households	0	2022	-	-	-	-	-	15,476	15,476	Verification: Ministry of Housing, Construction, and Sanitation (MVCS) report. A household is considered to have adequate access to drinking water when the system is delivering services in the quantity (liters/person/day) and with the continuity (hours/day) and quality determined in its design. Responsibility: Project management unit (PMU).
Households with new access to drinking water in the Zarumilla and Aguas Verdes Districts	Households	0	2022	-	-	-	-	-	7,050	7,050	
Specific development objective 2: Improve sanitation service quality and coverage											
Households with new or improved effective ¹ access to wastewater collection services in the Zarumilla and Aguas Verdes Districts	Households	0	2022	-	-	-	-	-	11,853	11,853	Verification: MVCS report. Annually, 6.6% of new households are effectively connected to the sewer system. “Improved” means reduced overflowing, clogging, and similar issues in the system’s functioning. Given the poor functioning of the existing treatment system for both

¹ A household is considered to have effective access when it is connected to the wastewater collection system.

Indicators	Unit of measure	Baseline value	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of operation	Comments/Mean of verification
											wastewater collection and treatment, the baseline is considered as 0. The indicator calculated corresponds to 60% of possible new households by year 6 (8,440) plus the existing households already connected (6,790). Responsibility: PMU.
Obstruction of mains and/or sewer system overflows in the Zarumilla and Aguas Verdes Districts	Annual number of obstructions and/or overflows	78	2021	-	-	-	-	-	0	0	Verification: Report from Agua Tumbes operations management. Responsibility: PMU.
Households in the Zarumilla and Aguas Verdes Districts with wastewater treatment ²	Households	0	2021	-	-	-	-	-	11,563	11,563	Verification: MVCS report. This considers that by year 6, 60% of new households with access to the sewer system are effectively connected to it, and does not include possible households served through future projects. Responsibility: PMU.
Women certified in masonry or installation of water and sanitation systems and connections ³	Percentage	0	2022	-	-	-	-	-	30	30	Verification: Course reports validated by the PMU. Calculated as number of women / number of people certified. Responsibility: PMU.

² A household is considered to have treated wastewater when it is connected to the sewer system that transports wastewater to the new wastewater treatment plants (WWTPs).

³ Technical training to install sanitation systems and connections in jobs related to the construction, operation, and maintenance of water and sanitation services.

Indicators	Unit of measure	Baseline value	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	End of operation	Comments/Mean of verification
Specific development objective 3: Improve the management of the sanitation service provider											
Active customers in the Zarumilla and Aguas Verdes Districts	Percentage	69	2021	-	-	-	-	-	90	90	Verification: Official report from Agua Tumbes to SUNASS. Calculated as number of customers billed / total number of customers. Responsibility: PMU.
Rate of nonrevenue water in the Zarumilla and Aguas Verdes Districts	Percentage	64.10	2021	-	-	-	-	-	50	50	Verification: Report from Agua Tumbes operations management. Calculated as 1 - (volume of water billed/volume of water produced) x 100 Responsibility: PMU.

OUTPUTS

Indicators	Unit of measure	Associated outcomes	Total Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Final	Comments/Mean of verification
Component 1: Works for drinking water supply and distribution, sewer systems, and wastewater treatment												
Final studies for projects updated, addressing climate change considerations	Studies	1 and 2	4,071,415	0	0	1	0	0	0	0	1	Verification: Technical dossier approved by the PMU. Responsibility: PMU.
Drinking water systems improved and expanded in Zarumilla District. Milestones:	System	1	16,626,240	0	0	0	0	0	0	1	1	Verification: Works acceptance certificates validated by the PMU. Responsibility: PMU.
▪ Wells	Unit		4,286,209	0	0	0	1	3	5	0	9	
▪ Reservoirs	Unit		4,417,169	0	0	0	2	2	1	0	5	
▪ Impulse lines and systems	Kilometers		4,554,599	0	0	0	18.00	23.00	15.03	0	56.03	
▪ Connections and public basins	Unit		3,368,263	0	0	0	0	3,100	2,070	0	5,170	

Indicators	Unit of measure	Associated outcomes	Total Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Final	Comments/Mean of verification
Sewer systems improved and expanded in Zarumilla District. Milestones:	System	2	18,575,265	0	0	0	0	0	0	1	1	Verification: Works acceptance certificates validated by the PMU. Responsibility: PMU.
▪ Pump chamber	Unit		2,996,750	0	0	0	0	2	0	1	3	
▪ Impulse lines and systems	Kilometers		13,071,737	0	0	0	14.00	23.00	22.40	0	59.40	
▪ Connections	Unit		2,506,778	0	0	0	0	1,000	2,000	2,099	5,099	
Drinking water systems improved and expanded in Aguas Verdes District. Milestones:	System	1	5,792,177	0	0	0	0	0	0	1	1	Verification: Works acceptance certificates validated by the PMU. Responsibility: PMU.
▪ Wells	Unit		1,955,320	0	0	0	0	0	1	1	2	
▪ Reservoirs	Unit		1,441,476	0	0	0	0	0	1	1	2	
▪ Impulse lines and systems	Kilometers		1,358,630	0	0	0	0	9.40	6.23	0	15.63	
▪ Connections and public basins	Unit		1,036,751	0	0	0	0	0	1,130	756	1,886	
Sewer systems improved and expanded in Aguas Verdes District. Milestones:	System	2	5,980,846	0	0	0	0	0	0	1	1	Verification: Works acceptance certificates validated by the PMU. Responsibility: PMU.
▪ Pump chamber	Unit		1,391,073	0	0	0	0	0	0	6	6	
▪ Impulse lines and systems	Kilometers		3,643,705	0	0	0	0	12.50	8.33	0	20.83	
▪ Connections	Unit		946,068	0	0	0	0	0	1,000	1,049	2,049	
WWTP built in Zarumilla	WWTP	2	11,293,694	0	0	0	0	1	0	0	1	Verification: Works acceptance certificates validated by the PMU. Responsibility: PMU.
WWTP improved in Aguas Verdes	WWTP	2	567,766	0	0	0	0	0	1	0	1	Verification: Works acceptance certificates validated by the PMU. Responsibility: PMU

Indicators	Unit of measure	Associated outcomes	Total Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Final	Comments/Mean of verification
Contract for the supported technical operation of the WWTP in Zarumilla concluded	Contract	2	901,168	0	0	0	0	0	1	0	1	Verification: Final report from operation contract approved by the provider and validated by the PMU. Responsibility: PMU.
Program for connectivity to the sewer system implemented	Program	2	562,902	0	0	0	0	0	0	1	1	Verification: Final report for consulting contract validated by the PMU. Responsibility: PMU.
Component 2: Improvements in delivery of water and sanitation services												
Program to reduce nonrevenue water in Zarumilla and Aguas Verdes implemented ⁴	Program	3	1,584,740	0	0	0	0	0	1	0	1	Verification: Consulting assignment report validated by the PMU. Responsibility: PMU.
Business management program for Agua Tumbes implemented ⁵	Program	3	375,000	0	0	0	0	0	1	0	1	Verification: Final report for consulting assignment approved by the provider and validated by the PMU. Responsibility: PMU.
Training program ⁶ for Agua Tumbes staff implemented for administration, operation, and maintenance of water and sanitation services	Program	3	380,000	0	0	0	0	0	1	0	1	Verification: Final report for the training approved by the provider and validated by the PMU. Responsibility: PMU.
Data system for technical surveys of systems and nonlinear works updated	System	3	1,320,489	0	0	1	0	0	0	0	1	Verification: Final report for consulting assignment validated by the PMU. Responsibility: PMU.

⁴ Includes providing macro and micrometering, control of physical losses, and clandestine users.

⁵ Implemented is considered as having a system to actively monitor the provider's customer portfolio, which establishes the active portfolio (to date and previous years), payment deadlines for users, and collection period for past-due payments (agreed upon payment date).

⁶ The training includes management, administration, and operation of sanitation services.

Indicators	Unit of measure	Associated outcomes	Total Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Final	Comments/Mean of verification
Plan for discharge monitoring and control prepared ⁷	Plan	3	219,419	0	0	0	0	0	0	1	1	Verification: Record that the plan for discharge monitoring and control was submitted to the Environmental Affairs Bureau (DGAA). Responsibility: PMU.
Artificial intelligence system for system management prepared	System	3	120,000	0	0	0	0	0	0	1	1	Verification: Final report for consulting assignment approved by the provider and validated by the PMU. Responsibility: PMU.
Management plan for WWTPs prepared	Plan	3	30,000	0	1	0	0	0	0	0	1	Verification: Final report for consulting assignment approved by the provider and validated by the PMU. Responsibility: PMU.
Plan to protect and monitor drinking water wells prepared	Plan	3	215,124	0	0	0	0	0	1	0	1	Verification: Final report for consulting assignment approved by the provider and validated by the PMU. Responsibility: PMU.
Energy efficiency plan determined and implemented ⁸	Plan	3	155,000	0	0	0	0	0	1	0	1	Verification: Final report for consulting assignment approved by the provider and validated by the PMU. Responsibility: PMU.

⁷ Prepared based on the Protocol to Monitor the Quality of Outflows from Household or Municipal Wastewater Treatment Plants and submitted to the DGAA of the MVCS.

⁸ The energy efficiency plan should include short-, medium-, and long-term actions, coordinated with and validated by Agua Tumbes. If short-term actions are planned for physical and financial execution within the project's execution period, implementation of these actions will be considered for the indicator. Otherwise, the indicator will be achieved with the plan's approval by the provider and the PMU.

Indicators	Unit of measure	Associated outcomes	Total Cost (US\$)	Baseline	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Final	Comments/Mean of verification
Strategy for gender equality and inclusion of persons with disabilities designed and implemented ⁹	Strategy	3	753,059	0	0	0	0	0	0	1	1	Verification: Final report on implementation of the strategies approved by the provider and validated by the PMU. Responsibility: PMU.
Agua Tumbes provider equipped ¹⁰ to administer, operate, and maintain water and sanitation services	Provider	3	1,473,423	0	0	0	0	0	1	0	1	Verification: Receipt records of equipment approved by the provider and validated by the PMU. Responsibility: PMU.

⁹ This should be coordinated with the current Gender Equality Sector Committee.

¹⁰ Being equipped includes the procurement of equipment, furniture, and tools for operation and maintenance.

Country: Peru

Division: INE

Operation No.: PE-L1256

Year: 2022

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Executing agency: Ministry of Housing, Construction, and Sanitation (MVCS)

Operation name: Project to Invest in, Improve, and Expand Water, Sanitary Sewer, and Wastewater Treatment Services in the Zarumilla and Aguas Verdes Districts of the Province of Zarumilla, Department of Tumbes

I. FIDUCIARY CONTEXT OF THE EXECUTING AGENCY

1. Use of country systems in the operation. (Any system or subsystem that is subsequently approved may be applicable to the operation, in accordance with the terms of the validation by the Bank.)

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

2. Fiduciary execution mechanism

<input checked="" type="checkbox"/>	Fiduciary execution specifics	The executing agency will be the MVCS, acting through the National Urban Sanitation Program (PNSU). The project management unit (PMU), which reports to the PNSU, will be responsible for the project's technical, administrative, socioenvironmental, fiduciary, and operational execution, including general coordination and resource management. The PMU will act as the direct contact with the Bank. The Electronic Government Procurement System (SEACE) and the Procurement Plan Execution System (SEPA) will be used for procurement management. In addition, the Integrated Financial Management System (SIAF) and its Project Execution Module will be used for financial management.
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3. Fiduciary capacity

Fiduciary capacity of the executing agency	The results of the evaluation of the PMU's fiduciary capacity, using the Institutional Capacity Assessment Platform, showed that this unit has sufficient capacity to execute the project. This PMU is currently executing operation PE-L1238. The operation presents a medium-low fiduciary risk. Internal coordination processes between the PMU and the PNSU need to be improved, to manage the justification of expenditures and disbursements. There is also a need to strengthen the procurement team because of the increased workload.
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4. Fiduciary risks and risk response

Risk taxonomy	Risk	Risk level	Risk response
Organizational structure	Since the PMU will manage two projects (PE-L1238 and PE-L1256), if the procurement team lacks enough employees to handle the additional workload, procurement management might be impacted, resulting in delays, errors, and omissions in the operation's procurement.	Medium-low	The procurement team will be strengthened with one coordinator and one specialist, under the terms of reference reviewed by the Bank.
Internal processes	If the coordination processes between the PMU and the PNSU are unclear, there might be delays in submitting disbursement requests and expenditure justifications.	Low	The Project Operations Manual will establish the coordination level between the PNSU and the PMU for the project's fiduciary processes.

5. Policies and guidelines applicable to the operation: Financial Management Guidelines for IDB-financed Projects (document OP-273-12); Disbursement Guidelines; Audited Financial Reports and External Audit Management Handbook; Policies for the Procurement of Goods and Works Financed by the Inter-American Development Bank (document GN-2349-15); and Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (document GN-2350-15).
6. Exceptions to Bank policies and guidelines: Not applicable.

II. CONSIDERATIONS FOR THE SPECIAL PROVISIONS OF THE LOAN CONTRACT

<p>Exchange rate: For the purposes of Article 4.10 of the General Conditions, the parties agree that the exchange rate to be used will be the rate stipulated in Article 4.10(b)(i). For the purpose of determining the equivalency of expenditures incurred in local currency chargeable against the local contribution, or the reimbursement of expenditures chargeable against the loan, the agreed exchange rate will be the one in effect on the effective date on which the borrower, the executing agency, or any other person or corporation with delegated authority to incur expenditures makes the respective payments to the contractor, vendor, or beneficiary.</p>
<p>Type of audit: The project's financial statements will be audited by an external audit firm acceptable to the IDB, annually within 120 days after the end of each fiscal year and 120 days after the end of the original disbursement period or any extensions. The terms of reference will be previously agreed upon with the Bank. The contracting for the audit will follow the guidelines of document OP-273-12.</p>

III. AGREEMENTS AND REQUIREMENTS FOR PROCUREMENT EXECUTION

<input checked="" type="checkbox"/>	Bidding documents	For procurement of works, goods, and nonconsulting services pursuant to the procurement policies (documents GN-2349-15), subject to international competitive bidding (ICB), the Bank's standard bidding documents or those agreed upon by the executing agency and the Bank for a specific procurement process will be used. The selection and contracting of consulting services will be undertaken in accordance with the corresponding policies (document GN-2350-15), using the standard request for proposals issued by the Bank or agreed upon between the executing agency and the Bank for the specific selection process. For national competitive bidding (NCB), a procurement document will be prepared and agreed upon between the country's competent authorities and the Bank. The project's sector specialist is responsible for reviewing the technical specifications and terms of reference for procurement during preparation of the 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	Since the Board of Executive Directors has approved the advanced use of Peru's country procurement system (document GN-2358-22 of 2017), that system may be used after completion of the actions included in the "Report for Acceptance of Use of the Country Procurement System in Peru" and once the procurement plans have been amended. The subsystems for electronic reverse auctions, electronic price lists for framework agreements, NCB, and individual consultants can be used once the implementation phase of the previous recommendations is completed.								
<input checked="" type="checkbox"/>	Procurement supervision	<p>The supervision method will be ex post, except in cases where ex ante supervision is warranted. For procurement executed using the country system, supervision will be performed with the country's national supervision system. The method of supervision, (i) ex ante, (ii) ex post, or (iii) country system, will be determined for each selection process. Ex post reviews will be conducted in accordance with the project supervision plan, subject to changes during execution. Ex post review reports will include at least one physical inspection visit, selected from procurement processes subject to ex post review (sample of +/- 10%). The inspection verifies the existence of the procurement, leaving verification of quality and compliance with specifications to the sector specialist. The thresholds for ex post review are as follows:</p> <table><tr><th>Executing agency</th><th>Works</th><th>Goods and services</th><th>Consulting services</th></tr><tr><td>PNSU</td><td>US\$3,000,000</td><td>US\$250,000</td><td>Firms US\$200,000; Individuals US\$50,000</td></tr></table>	Executing agency	Works	Goods and services	Consulting services	PNSU	US\$3,000,000	US\$250,000	Firms US\$200,000; Individuals US\$50,000
Executing agency	Works	Goods and services	Consulting services							
PNSU	US\$3,000,000	US\$250,000	Firms US\$200,000; Individuals US\$50,000							

Main procurement processes

Description of procurement	Selection method	New procedures / Tools	Estimated date	Estimated amount (US\$)
Goods				
Procurement of equipment for the sanitation service provider	ICB		10/01/2026	1,473,423
Works				
Works contract for the construction of the wastewater treatment plant (WWTP) and the main pumping station in Zarumilla and Aguas Verdes	ICB		11/01/2024	11,842,823
Works contract for the construction of wells and reservoirs in Zarumilla and Aguas Verdes	ICB		11/01/2024	11,157,201
Works contract for the construction of water and sewer systems in Zarumilla and Aguas Verdes	ICB		11/01/2024	24,911,081
Consulting firms				
Contracting of consulting firm to conduct technical survey of systems and nonlinear works	Quality and cost-based selection (QCBS)		07/01/2023	1,320,489
Contracting of consulting firm for implementation of the program to reduce nonrevenue water in Zarumilla and Aguas Verdes	QCBS		06/01/2025	1,584,740
Contracting of consulting firm to prepare the technical dossier for the drinking water, sanitary sewer, and WWTP projects in Zarumilla and Aguas Verdes	QCBS		02/01/2023	3,435,253
Contracting of consulting firm for works supervision	QCBS		08/01/2024	4,580,560
Individual consultants				
Contracting of individual consultant for the position of procurement specialist of the PMU	Individual consultant (3 CVs)		01/01/2023	222,108
Contracting of individual consultant for the position of general coordinator of the PMU	Individual consultant (3 CVs)		01/01/2023	222,108
Contracting of individual consultant for the position of financial specialist of the PMU	Individual consultant (3 CVs)		01/01/2023	277,635

For access to the 18-month procurement plan, see [here](#).

Other relevant information for the operation

IV. FINANCIAL MANAGEMENT AGREEMENTS AND REQUIREMENTS

☒	Programming and budget	<p>Expenses related to project activities will have been assessed for viability within the framework of the regulations issued by the Ministry of Economy and Finance (MEF). At present, the National Multiyear Programming and Investment Management System (www.invierte.pe) is in effect.</p> <p>The annual programming and budget will be prepared on the basis of guidelines issued by the MEF's Public Budget Bureau.</p> <p>The project's multiyear execution plan will be prepared and used to formulate the annual budget, considering the project disbursement schedule. The budget allocated to the project will be approved by the MEF and Congress and reported annually to the Bank. The budget will be administered through the SIAF.</p>
☒	Treasury and disbursement management	<p>The country's treasury system will be used, following the directives issued by the National Debt and Treasury Bureau. Expenditures are subject to the budgetary and financial execution process, with data being recorded in the SIAF's Project Execution Module as the expense is formally processed under the regulatory framework applicable to each of its stages: commitment, accrual, authorization, and payment. The Bank's disbursements will be made into the single treasury account, based on the operation's actual liquidity needs. The PMU will submit disbursement requests to the Bank, along with a financial plan reflecting estimated expenditures for up to 180 days. Supporting documentation for disbursements will be provided for at least 80% of total cumulative balances pending justification, using the Bank's forms.</p> <p>For accounting and expenditure justification purposes, an eligible expense incurred in the borrower's local currency will be converted into the currency in which disbursements are made, using the exchange rate in effect on the date of conversion from the currency of disbursement into the borrower's local currency.</p> <p>The records and supporting documentation for activities and transactions will be subject to ex post review by the external auditors. All documents and records will be kept for a period of at least three years from the date of the last disbursement. Any Bank-ineligible expenditures will be repaid from the local contribution or other funds that the executing agency determines.</p>
☒	Accounting, information systems, and reporting	<p>The SIAF's Project Execution Module will be used for project accounting and reporting, as it offers transparency and specific controls on budget execution. Using this module, financial reports can be generated, including disbursement requests, exchange rate controls, project financial statements, and other reports required by the Bank. Accounting will be on a cash basis and will follow international accounting standards and the directives issued by the National Public Accounting Bureau.</p>
☒	Internal control and internal audit	<p>The executing agency's control environment and activities, communication and information, and activity monitoring are governed by the country's regulations, which are based on the National Control System Act and the regulations of the Office of the Comptroller General</p>

		of the Republic (CGR). The Project Operations Manual defines the operational procedures for project management.
<input checked="" type="checkbox"/>	External control and financial reports	According to the CGR (lead agency of the National Control System) and its regulations, external audits of projects are outsourced to independent audit firms acceptable to the Bank. The firms are evaluated periodically by the Bank. The CGR authorizes the process of selecting and contracting the audit firm, pursuant to Bank policies, for the entire project execution period, including extensions of the final disbursement. The project's financial statements include: the cash flow statement, the cumulative investment statement, the notes to the financial statements, and the declaration by project management. The audit report will include an evaluation of the internal control system. The external audits will be covered with the loan proceeds. The process of selecting and retaining an eligible audit firm will follow the Bank's policies and procedures.
<input checked="" type="checkbox"/>	Financial supervision of the operation	The plan may be adjusted depending on project execution and external audit reports. Activities include a biannual review of the portfolio with the executing agency, reviews of disbursement requests, and at least one annual financial supervision visit.

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-___/23

Peru. Loan ____/OC-PE to the Republic of Peru. Project to Invest in, Improve, and Expand Water, Sanitary Sewer, and Wastewater Treatment Services in the Zarumilla and Aguas Verdes Districts of the Province of Zarumilla, Department of Tumbes

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such contract or contracts as may be necessary with the Republic of Peru, as borrower, for the purpose of granting it a financing aimed at cooperating in the execution of the Project to Invest in, Improve, and Expand Water, Sanitary Sewer, and Wastewater Treatment Services in the Zarumilla and Aguas Verdes Districts of the Province of Zarumilla, Department of Tumbes. Such financing will be for the amount of up to US\$60,000,000, 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 ____ 2023)