

TC Document

I. Basic Information for TC

▪ Country/Region:	PERU
▪ TC Name:	Sustainable Infrastructure to Municipal Wastewater Treatment
▪ TC Number:	PE-T1524
▪ Team Leader/Members:	Paez Rubio, Tania (INE/WSA) Team Leader; Fernandez-Baca, Jaime (CSD/CCS) Alternate Team Leader; Ana Iju (CSD/CCS); Ana Macias (INE/ENE); Carlos Guiza (INE/WSA); Catacoli Jimenez, Ruth (VPS/ESG); Crespín Villatoro, Leslie Alexandra (INE/WSA); Irigoyen, Jose Luis (INE/ENE); Mendoza Benavente, Horacio (LEG/SGO); Nayeli Mayorga (INE/ENE); Sara Vila Saintetienne (LEG/SGO); Juan Pablo Mendez Saintetienne (LEG/SGO); Juan Pablo Mendez
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	.
▪ Date of TC Abstract authorization:	08 Jul 2022.
▪ Beneficiary:	SEDAPAL Ministerio de Vivienda, Construcción y Saneamiento. Perú
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	United Kingdom Sustainable Infrastructure Program(SIP)
▪ IDB Funding Requested:	US\$1,150,000.00
▪ Local counterpart funding, if any:	US\$0
▪ Disbursement period (which includes Execution period):	18 months
▪ Required start date:	January, 2023
▪ Types of consultants:	Individual and Firms
▪ Prepared by Unit:	INE/WSA-Water & Sanitation
▪ Unit of Disbursement Responsibility:	CAN/CPE-Country Office Peru
▪ TC included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2020-2023:	Environmental sustainability; Institutional capacity and rule of law; Productivity and innovation

II. Objective and Justification

- 2.1 The objective of this Technical Cooperation (TC) is to contribute with the implementation of measures for mitigation and adaptation of the impacts of climate change in infrastructure projects of water and sanitation sector in Peru, particularly wastewater treatment plants (WWTP), which are part of the Nationally Determined Contributions (NDC) established by the Ministry of Environmental in coordination with the Ministry of Housing, Construction and Sanitation (MVCS), through the following projects that are promoted by the MVCS and SEDAPAL as counterparts:
- (i) a prefeasibility study for a wastewater treatment plant in Huaraz City;
 - (ii) a prefeasibility study for energy optimization of operating wastewater treatment plants under the administration of SEDAPAL in the City of Lima; and
 - (iii) the updating of the national technical rules for designing wastewater treatment plants to include measures to reduce greenhouse gas (GhG) emissions and promote energy cogeneration, amongst others, within the framework of sustainable infrastructure.

- 2.2 Since July 22 of 2016, when the Peruvian Government ratified the climate change Paris Agreement,¹ it began to develop laws and rules for introducing and implementing measures for climate change² mitigation and adaptation. These laws declared as national interest the fostering of all public and private investments that contribute to the implementation of mitigation and adaptation actions against climate change. It also establishes the national and regional strategies for climate change, the NDC and the National Plan for mitigation and adaptation against climate change; as well as the roles of the different levels of government (national, regional, and local).
- 2.3 In December 2020, the Peruvian Government published an updating of NDC that will be done by the country in the following years. Regarding wastewater treatment management, the MVCS proposed the following mitigation measures: increase of the actual coverage of sanitation services considering technologies that reduce GhG emissions from wastewater treatment plants or as consequence of high energy consumption. For example, prioritize anaerobic technology when the climate conditions allow it and capture the biogas for cogeneration. Therefore, the present TC aims to contribute to the implementation of Peru's NDC in the water and sanitation sector.
- 2.4 According to the National Plan of Sanitation 2020-2026 (MVCS, 2021), in 2020 the cover of wastewater treatment reached only 90.4% in Metropolitan Lima and Callao, 54.9% in other cities and 66.9% in rural areas. While, according to the Diagnostic of Wastewater Treatment in the scope of Utilities in Peru (SUNASS, 2022), 78% of 171 WWTP are facultative lagoons, 6% are activated sludge, 5% are aerated lagoons, 5% are biological filters, between others. At the same time, 29% of those are operating with hydric overload and 50% with organic overload, which represents a poor efficiency of treatment and uncontrolled of GhG emissions. Furthermore, the energy matrix in Peru is composed by 44.5% gas and 48.9% hydro (COES, 2022), so the WWTPs with intensive use of energy, like activated sludge, have a significant climate impact. With the TC, we expect to contribute: (i) to reduce the gap in wastewater treatment through the prefeasibility study of WWTP in Huaraz; (ii) to identify opportunities for reducing energy consumption in WWTPs in Lima and Callao, which use activated sludge; and (iii) to promote a sustainable infrastructure approach in the sector's regulations.
- 2.5 Strategic Alignment. This TC is consistent with the Bank's Institutional Strategy 2020–2023 (AB-3190-2) and is align with its two overarching objectives: fostering sustainable growth and reducing poverty and inequality. The TC is aligned with Productivity and Innovation, through the optimization of wastewater treatment plants. In addition, it is aligned with the crosscutting areas of: (i) Institutional Capacity and Rules of Law, since it helps to upgrade the national technical regulations in the water and sanitation sector, (ii) Climate Change and Environmental

¹ Decreto Supremo N° 058-2016-RE.

² Climate Change Framework Law N° 30754, published in April 17 of 2018.

Sustainability, through the improvement in the waste water system in Ancash, and lessening vulnerability to climate change by including climate resilience in the design of the infrastructure, (iii) Also the TC is aligned, with the pillars of action against climate change by promoting mitigation and adaptation actions in the water and sanitation sector, which represents a significant percentage of LA countries' GhG emissions.

- 2.6 The TC is strategically aligned with the United Kingdom Sustainable Infrastructure Programme since its components aim to mitigate/control GhG emissions from the water and sanitation sector. This will include targeting policies and regulations as well as specific projects that will adopt/implement those new, more sustainable practices. Likewise, it is aligned with (i) the Climate Change Sector Framework Document (GN-2835-8), by mainstreaming climate change considerations into sectors; (ii) the Water and Sanitation Sector Framework Document (GN-2781-13), by promoting the universal access to water and sanitation with equity, inclusion, and affordability. and the fifth line of action that involves the promotion of innovation in the sector; (iii) the IDB Group Country Strategy with Peru 2022-2026 (GN-3110-1), with priority areas II. Environmental sustainability and climate change and III. Institutional strengthening and delivery of basic services at the regional level. Additionally, the TC will contribute to the Corporate Result Framework 2020-2023 (GN-2727-12) by the following indicators "Number of Technical regulations in water and sanitation sector with low carbon policies incorporated" and "Number of low carbon infrastructure projects of wastewater treatment ready to continue to the investment phase".

III. Description of Activities/Components and Budget

- 3.1 **Component I: Prefeasibility Studies for Wastewater Treatment Plant (WWTP) in Huaraz city, department of Ancash (US\$850,000.00).** The objective of this component is to perform a prefeasibility study for a new wastewater treatment plant in the Huaraz³ city including: (i) diagnosis, (ii) identification of problems and propose the measures of solution, (iii) formulation of technical solution with climate change mitigation measurements, (iv) social rentability evaluation, and (v) the preliminary environmental impact assessment. This study will allow to continue with the process of private investment promotion for structuring a public private partnership for constructing the sustainable infrastructure. The study will be performed by a consult firm. As output of Component I, is expected to deliver one (1) prefeasibility study for a wastewater treatment plant to Huaraz City, approved by the Formulation Unit (UF) of Programs and Projects Department (DGPP) of Ministry of Housing, Construction & Sanitation (MVCS). This study will support a future public private partnership,

³ The Ministry of Housing, Construction and Sanitation of Peru, proposed the city of Huaraz, because it's a prioritized project in the portfolio of projects of that entity to close coverage gaps in wastewater treatment for medium size cities, but they didn't have financing to conduct the pre-feasibility study.

which could require a contingent recovery technical cooperation between IDB and ProInversion.⁴

- 3.2 **Component II: Energy optimization of the wastewater treatment plants (WWTPs) of SEDAPAL in Lima (US\$200,000.00).** The objective of this component is to perform a study that include activities such as diagnosis and technical proposal to improve the energy consumption of the 20 WWTPs under SEDAPAL administration and estimate the investment costs and the savings costs in operational and maintenance. SEDAPAL it's a State-Owned Enterprise (SOE) responsible to supply drinking water, to collect the sewage and to treat and disposal the wastewater from the Lima and Callao city, it's mean almost 5 million of inhabitants. The study will include state of the art technology availability, energy cogeneration from biogas, improve the process of aeration, improve the process of sludge treatment, etc. As output of Component II, is expected to have one (01) study (probably IOARR study⁵) to reduce the consume of energy from wastewater treatment plants operated by SEDAPAL with its approval or non-objection, which will support a probable future finance operation with the IDB.
- 3.3 **Component III: Upgrade the national technical regulations in the water and sanitation sector (US\$50,000.00).** The objective of this component is to update and upgrade the regulations of the water and sanitation sector to include the principles of sustainable infrastructure and technological improvements to reduce and control GhG emissions, to develop some guidelines for the commercialization of wastewater and the secondary products from the wastewater treatment process. The output of Component III is expected to have a draft regulation that will modify or replace an existing one. At least the new regulation must be published in the web page of MVCS to receive opinions from all stakeholders.
- 3.4 **Component IV: Dissemination and communication (US\$50,000.00).** The objective of this component is to disseminate, by workshops, the studies and to publish the associated publications, including the guidance for the upgraded technical regulation (Component III) and a discussion paper with the findings of the WWTPs energy optimization study (Component II).
- 3.5 The results of this TC are: 1) Low carbon related policies reflected in planning and procurement processes and/or infrastructure investments y 2) Low carbon infrastructure projects which reach financial close that have benefited from SIP TA.

⁴ Up until now, the IDB have agreements with the Peruvian Agency for Promotion of Private Investments (PROINVERSION) for structuring 7th wastewater treatment plants projects in the cities of Puerto Maldonado, Chincha, Cajamarca, Cusco, Tarapoto, Trujillo y Cañete. Those projects are part of a sectorial national program in PPP WWTP Projects in a more advance phase than Huaraz city because those have a prefeasibility study approved by the Minister of Housing, Construction and Sanitation.

⁵ IOARR, named by its capital letters in Spanish, mean investments in optimization, marginal increase of capacity, rehabilitation, and/or replacement. This kind of project does not require the same approvals as a traditional investment project in the invierte.pe regulation, because don't have the goal of creates new capacity of production but improve the efficiency and effectiveness of existent infrastructure.

- 3.6 **Budget.** The total cost of this TC will be US\$1,150,000.00 which will be financed by the United Kingdom Sustainable Infrastructure Programme (SIP). The budget is described below:

Indicative Budget

Activity/Component	Total Funding
Component I: Prefeasibility Studies for Wastewater Treatment Plant (WWTP) in Huaraz city, department of Ancash.	US\$850,000.00
Component II: Energy optimization of the wastewater treatment plants (WWTPs) of SEDAPAL in Lima.	US\$200,000.00
Component III: Upgrade the national technical regulations in the water and sanitation sector.	US\$50,000.00
Component IV: dissemination and communication	US\$50,000.00
Total	US\$1,150,000.00

- 3.7 This TC will be led by the project Team Leader, a Water Sector Specialist and will have the support of the Co-team leader, Climate Change Sector Specialist. The TC team will monitor its execution in cooperation with SEDAPAL and MVCS technical team.

IV. Executing Agency and Execution Structure

- 4.1 The Inter-American Development Bank will execute the TC through the water & sanitation and climate change teams in Peru, in response to the request of the beneficiaries.⁶ This execution is justified by the Bank's experience in developing the operational and technical instruments proposed for this type of operation. Additionally, according to the OP-619-4, Annex II, the Bank will execute this TC due to the lack of sector institutional capacity to execute a TC with more than one beneficiary institution (Ministry of Housing, Construction & Sanitation and SEDAPAL).
- 4.2 The IDB follow its acquisition policies and guidelines in regarding with the procurement process: (i) independent consultants will be hired in accordance with the guideline AM-650; (ii) consultants firms whose develop intellectual products will be hired in accordance with the "Policy for selection and procurement of consultant firms for operative work executed by the IDB" (GN-2765-4) and its Operational Guidelines (OP-1155-4); and (iii) other services of none consultancy in the accordance with the "Policy of institutional acquisitions from IDB" (GN-2303-28).

⁶ Letters No. 772-2022-GG on June 24th of 2022 from SEDAPAL, and No. 293-2022-VIVIENDA-DM on July 19th of 2022 from Ministry of Housing, Construction & Sanitation.

V. Major Issues

- 5.1 No important risks are identified related to the execution of this TC, which will be executed by the Bank in close collaboration with the MVCS and SEDAPAL. Nevertheless, risk of delay in approval of studies or projects exists, particularly if a change of authorities occurs in those entities. This risk is considered low due to the low probability of change in the IDB specialists and therefore it will be able to assure continuity and have results in time.
- 5.2 No risks related to the impact of COVID-19 on the studies to be carried out are identified. The Bank will ensure that the chosen consultants and beneficiaries have all the resources to guarantee the safety and continuity of the work to be carried out in person or virtually.

VI. Exceptions to Bank policy

- 6.1 There are no exceptions to the IDB policies identified in this operation.

VII. Environmental and Social Classification

- 7.1 This TC will finance feasibility and pre-feasibility studies of investment projects with associated environmental and social studies, whose terms of reference and deliverables will be consistent with the applicable requirements of the Bank's Environmental and Social Policy Framework (ESPF).

Required Annexes:

[Request from the Client - PE-T1524](#)

[Results Matrix - PE-T1524](#)

[Terms of Reference - PE-T1524](#)

[Procurement Plan - PE-T1524](#)