TC Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL
▪ TC Name:	Toolkit for Climate-Resilient Strategies for Sustainable Water and Sanitation Management in the Caribbean
▪ TC Number:	RG-T4611
▪ Team Leader/Members:	Cox, Kambiri Shannon (INE/WSA) Team Leader; Machado, Kleber B. (INE/WSA) Alternate Team Leader; Sasaki, Keisuke (INE/WSA) Alternate Team Leader; Rodrigues Carlos Antonio (INE/WSA); Garcia Nores, Luciana Victoria (INT/RIU); Ortega Oropeza Leticia (INE/WSA); Riquelme, Rodrigo (INE/WSA); Alleng, Gerard P. (CSD/CCS); Lee Lee Sergio Kyu Chul (INE/WSA); Nogueira Felipe Honorio (INT/RIU); Villarroel Toral Maria Soledad (INE/WSA); Lewis, Gilroy Francis (INE/WSA); Romero Burgos Maria Fernanda (INE/WSA); Diaz Gill Virginia Maria (LEG/SGO); Aiello, Roberto Gabriel (INE/ENE) Team Leader; Machado, Kleber B. (INE/WSA) Alternate Team Leader; Sasaki, Keisuke (INE/WSA) Alternate Team Leader; Rodrigues Carlos Antonio (INE/WSA); Garcia Nores, Luciana Victoria (INT/RIU); Ortega Oropeza Leticia (INE/WSA); Riquelme, Rodrigo (INE/WSA); Alleng, Gerard P. (CSD/CCS); Lee Lee Sergio Kyu Chul (INE/WSA); Nogueira Felipe Honorio (INT/RIU); Villarroel Toral Maria Soledad (INE/WSA); Lewis, Gilroy Francis (INE/WSA); Romero Burgos Maria Fernanda (INE/WSA); Diaz Gill Virginia Maria (LEG/SGO); Aiello, Roberto Gabriel (INE/ENE); Aiello, Roberto Gabriel (INE/ENE).
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	N/A
▪ Date of TC Abstract authorization:	August 12th 2024
▪ Beneficiary:	Belize, Guyana, Suriname and Trinidad and Tobago
▪ Executing Agency and contact name:	Inter-American Development Bank
▪ Donors providing funding:	OC SDP Window 1 - Regional Public Goods(W1A)
▪ IDB Funding Requested:	US$475,000.00
▪ Local counterpart funding, if any:	US$59,000.00 (In-Kind)
▪ Disbursement period (which includes Execution period):	36 months
▪ Required start date:	December 2024
▪ Types of consultants:	Individuals; Firms
▪ Prepared by Unit:	INE/WSA-Water & Sanitation
▪ Unit of Disbursement Responsibility:	INE/WSA-Water & Sanitation
▪ TC included in Country Strategy (y/n):	Y
▪ TC included in CPD (y/n):	N
▪ Alignment to the IDB Group Institutional Strategy: Transforming for Scale and Impact 2024-2030:	Environmental sustainability; Gender equality; Institutional capacity and rule of law; Productivity and innovation

II. Objective and Justification of the TC

2.1 **Objectives.** The general objective of the TC is to enhance the resilience and sustainability of water and sanitation services in the Caribbean by developing and disseminating a comprehensive toolkit that enables water utilities to implement

concrete actions to mitigate the impacts of climate change. The specific objectives are to: (i) Develop a toolkit to support water and sanitation utilities in the Caribbean in making decisions that enhance their resilience to climate change; (ii) Strengthen regional capacity by piloting the toolkit and training utility officials to implement climate-resilient strategies effectively; and (iii) Foster regional collaboration and knowledge sharing among utilities to enhance the adoption of climate-resilient practices across the Caribbean.

2.2 **Context.** The Caribbean countries have common challenges in terms of increasing the resilience of water and sanitation services against climate change, and yet have not been able to act duly owing to lack of tools that enable the water and sanitation sector to make decisions and implement concrete actions. These impacts are expected to exacerbate existing vulnerabilities by reducing freshwater availability, degrading water quality, and damaging critical water infrastructure. The region's dependence on groundwater sources, which are increasingly susceptible to saltwater intrusion and depletion, further heightens the risk to water security. Additionally, the Caribbean has widespread gaps in wastewater management systems, posing serious sustainability risks for industries and public health.

2.3 Despite the shared nature of these challenges, Caribbean water and sanitation utilities have not been able to take coordinated, comprehensive action. The main impediment is a lack of innovative tools and resources to enable decision-making and implement concrete solutions. In this fragmented landscape, utilities have often been left to address problems in isolation, which limits the scalability and impact of their efforts. Consequently, addressing these challenges at the regional level is both a strategic and practical necessity, especially given the geographic and environmental similarities shared by the Caribbean countries.

2.4 The impacts of climate change are not uniform but severe in the water sector. Freshwater availability is predicted to decline due to changing precipitation patterns and the intensification of extreme weather events, such as hurricanes, which have already caused significant damage to water infrastructure in the region. Moreover, groundwater sources are increasingly at risk from both over-extraction and saltwater intrusion, which is accelerated by rising sea levels and coastal erosion. Without intervention, these factors will further compromise water security and threaten the long-term sustainability of water resources across the Caribbean.

2.5 Energy inefficiency is another critical issue facing Caribbean utilities. Most water and sanitation utilities in the region rely heavily on fossil fuels to power their operations, which not only increases greenhouse gas emissions but also exposes utilities to volatile energy costs. The need to diversify energy sources and adopt more efficient, renewable energy solutions is imperative to ensure long-term sustainability, reduce operational costs, and contribute to regional carbon neutrality goals[1]. This transition

[1] Electricity cost could be considered as the largest "controllable" operating costs for water and wastewater utilities, and international experiences indicates cost reductions of as much as 20% to 40% (link).

is crucial for building resilience to both climate change and energy market fluctuations.

2.6 Wastewater management in the Caribbean also remains largely underdeveloped. Insufficient wastewater treatment coverage[2] poses substantial risks to the environment, public health, and economic sectors such as tourism, agriculture, and fisheries. The lack of adequate infrastructure for wastewater treatment contributes to pollution, particularly in coastal areas, which can lead to the degradation of marine ecosystems and contamination of freshwater supplies. Adopting circular economy principles, such as wastewater reuse, greywater reuse, and/or rainwater harvesting, presents an opportunity to address these issues. This will not only improve water security but also offer avenues for energy recovery from sludge and reductions in greenhouse gas emissions.

2.7 Non-Revenue Water (NRW) is a major challenge that undermines the efficiency of water systems across the region. High levels of NRW, in many cases around 45% to 50% or more[3], caused by leaks, theft, and operational inefficiencies, lead to significant water losses and strain on financial resources. Several utilities, including those in Belize and Jamaica, have made strides in addressing NRW through capacity-building and performance-based contracts, but these efforts have largely been isolated. A regional approach to reducing NRW, supported by a comprehensive toolkit, will allow utilities to share best practices and collectively improve water conservation, access, and financial sustainability.

2.8 Climate change affects women and men differently. When climate-related disasters occur, unpaid care work (which is carried out by women 3.2 times more than men worldwide) increases due to the need to support the recovery and reconstruction of homes and communities, further deepening gender inequalities. During a climate crisis, women are more affected because many of their jobs are related to water—and therefore to the climate—such as in agriculture. For this reason, it is essential to include gender analysis when designing mitigation and adaptation strategies that aim to have a real impact on everyone, regardless gender issues. To mainstream gender equality in climate change actions, it is necessary to assess how and why gender inequalities are relevant to climate action in WASH sector. The main objective is to understand what women and men do, what resources each has, what challenges they face during climate crises, and what their needs and priorities are when implementing mitigation and adaptation strategies. Therefore, it is essential that people working in utilities receive training on issues relating to gender equality and climate change, in order to prevent gender inequalities from worsening as a result of climate-related events (e.g., droughts and floods). In this regard,

[2] According to the Caribbean Water Study (IDB, 2021), the percentage of wastewater treated is assumed to be below 10%.
[3] Water and Sanitation Sector Framework Document (IDB, 2021).

awareness-raising and training activities on these issues will be designed and implemented during the regional workshop for capacity building of utility officials.

2.9 **Justification.** Given the scope of these challenges, there is a pressing need for a unified, regional response that equips utilities with the tools and knowledge to enhance resilience and sustainability. This TC seeks to address these issues by developing and disseminating a climate-resilient toolkit specifically designed for Caribbean water and sanitation utilities. The toolkit will focus on three key areas: (i) circular economy, transforming wastewater to water resources, and adaptation actions for changes in weather patterns; (ii) reducing non-revenue water (NRW), making the water systems more efficient; and (iii) making better use of renewable energy and improving energy efficiency to bolster self-dependency in energy, while contributing to carbon neutrality. Climate financing, including carbon credits, that helps utilities enhance activities in these areas is also a transversal element to be considered in the development of the toolkit.

2.10 By addressing these areas, the TC will provide practical solutions for utilities to mitigate the impacts of climate change, while also improving operational efficiency and reducing costs. The toolkit will be developed with the active participation of beneficiary institutions, ensuring that it is tailored to the region's specific needs and challenges. Moreover, the inclusion of pre-feasibility cost-benefit analysis tools will allow utilities to demonstrate the economic and environmental benefits of implementing these strategies, further encouraging adoption.

2.11 The TC responds directly to the requests made by Caribbean ministers during recent High-Level Forums (HLF) for Water (including the HLF 2023 in Guyana and the HLF 2024 in Trinidad and Tobago), where they called for international support to enhance water sector resilience. By fostering regional collaboration, the TC will promote knowledge sharing and the exchange of best practices, enabling utilities to learn from each other's experiences and successes. This approach will not only strengthen the capacity of individual utilities but will also contribute to the collective resilience of the Caribbean water and sanitation sector.

2.12 Furthermore, the introduction of renewable energy and energy efficiency practices will help reduce the sector's reliance on fossil fuels, contributing to the region's climate change mitigation goals. By addressing both water and energy inefficiencies, this TC will support sustainable regional growth and contribute to the resilience of key economic sectors such as tourism, agriculture, and fisheries, which are heavily dependent on reliable water and sanitation services.

2.13 **Strategic Alignment.** This TC is consistent with the IDB Group's Institutional Strategy: Transforming for Scale and Impact (CA-631) and is aligned with the objectives: (i) Address climate change, by supporting the development of a toolkit for water and sanitation utilities in the Caribbean to make decisions that enhance their resilience to climate change; and (ii) Bolster sustainable regional growth, by providing a regional approach to building climate resilience and fostering

collaboration among Caribbean utilities. The TC is also aligned with the operational focus areas of (i) Biodiversity, Natural Capital, and Climate Action; (ii) Gender Equality; (iii) Inclusion of Diverse Population Groups; (iv) Institutional Capacity, Rule of Law, and Citizen Security; (v) Sustainable, Resilient, and Inclusive Infrastructure; and (vi) Regional Integration.

2.14 Accordingly, the TC is aligned with the IDB Country Strategies of the participating countries: (i) Belize (GN-3086), through the strategic objective of "Support the reactivation of key economic sectors through the continued provision of services, improving their resilience to natural hazards and climate change."; (ii) Guyana (GN-3187), through the strategic objective of "Improved quality of resilient infrastructure"; (iii) Suriname (GN-3065), through the strategic objective "Reduce inequalities in access to utilities"; and (iv) Trinidad and Tobago (GN-3071) through the strategic objective "Enhancing the Digital Delivery of Service through promoting digitalization of operation processes, and adoption of smart water infrastructure technologies and related information and communication technologies".

2.15 Further, the TC is aligned with the Sustainable Infrastructure for Competitiveness and Inclusive Growth IDB Infrastructure Strategy (GN-2710-5), particularly the priority area "Support the construction and maintenance of an environmentally and socially sustainable infrastructure", and is consistent with: (i) the Water and Sanitation Sector Framework's Dimensions of Success (GN-2781-13) with line of action 2 "The design of policies and programs incorporates disaster and climate change risk management and promotes water security"; (ii) the Climate Change Sector Framework Document (GN-2835-13) with line of action 1, "Adapt and build climate resilience". The TC further aligns with IDB Group ONE Caribbean (Partnering for Caribbean Development Framework) (GN-3201-5), with the priority area "Climate adaptation, disaster risk management and resilience" and with the crosscutting area of "Institutional Strengthening". Additionally, this TC is aligned with Window 1 A (Regional Public Goods) from the Ordinary Capital Strategic Development Program for Economic Integration (OC SDP - W1A) (GN-2819-14), as it promotes cooperation and collective actions among the beneficiary's countries to promote resilience and sustainability of water and sanitation services.

2.16 The TC is complementary to other regional TCs for resilient infrastructure, including the following: (i) Support for virtual community: data sharing and pool procurement among water utilities in the Caribbean (RG-T4645, under preparation), which will support building resilience of water utilities in the Caribbean through a virtual community with a network effect and piloting of a pool procurement; (ii) Structuring of the Caribbean Water Utility Insurance Company (CWUIC SP) as a Segregated Portfolio within CCRIF SPC (RG-T4109, ATN/CF-19544-RG), which helps water and sanitation utilities in the Caribbean build resilience to natural hazards—which are expected to become more frequent and more intense due to climate change—through disaster risk finance and technical assistance in risk management and resilience investments; and (iii) Energy Resilience for Sustainable Development in the Caribbean (RG-T4613, under preparation), and Resiliency of Power

Infrastructure and Response Preparedness for Energy Service Restoration (RG-T4623, under preparation), which aim at providing assistance on climate resiliency in the energy sector.

2.17 The TC further builds on outputs of relevant soon closing or completed regional initiatives financed by the Bank toward building water resilience, including: (i) From the COVID-19 Crisis to Resilience: A Toolbox for Actors in the Water, Sanitation and Energy Sector in Latin America and the Caribbean (RG-T3763; ATN/OC-18431-RG), a Regional Public Good (RPG) TC approved in 2020 for developing a toolkit with common standards for improving risk preparedness, prevention and management, as well as increasing disaster response capacity in the sector; (ii) Regional Strategic Action Plan for the Water Sector in the Caribbean to Develop Resilience to the Impacts of Climate Change (completed in 2022 under RG-T3467; ATN/OC-17510-RG); and (iii) Caribbean Water Study (2021), which reviewed the operational and financial performance of selected water utilities in the Caribbean, including the status of non-revenue water (NRW) and the resilience of these utilities to natural disasters and other climate hazards.

III. Description of Activities/Components and Budget

3.1 **Component I: Toolkit for climate resiliency actions**. This component will finance the development of toolkit for climate resiliency actions that covers circular economy and adaptation actions for changes in weather patterns, NRW reduction and RE/EE for carbon neutrality. The toolkit is expected to cover both planning aspects as well as operational aspects, with focus on structuring interventions based on assessed risks and existing capacities (e.g. guidelines, best practices, and case studies relevant to the Caribbean context). An initial diagnosis on the climate risks in each country to dimension the challenges will be included as part of the toolkit's development process, which will be an important input for the identification of priorities and also serve as the baseline for evaluation. It will be developed with active participation of beneficiary institutions, through three Technical Working Groups. Such participation will (a) allow the tools to be developed based on the beneficiary countries' needs and incorporating user friendliness in their design, as well as (b) ensure proper piloting by the beneficiaries. The expected output of this Component is the aforementioned toolkit.

3.2 **Component II: Institutional strengthening and knowledge dissemination.** This component will finance: (i) Dissemination the toolkit, including the production of relevant materials; (ii) A regional workshop for capacity building of utility officials including gender actions. The dissemination will be led by the IDB with wide participation of water and sanitation utilities in the Caribbean region. The IDB has been organizing the High-Level Forum for Caribbean Ministers Responsible for Water, and as such the dissemination of this RPG will benefit from the IDB's leadership in the regional dialogues in the sector. The workshop will target utility officials at the middle management level, at the same time duly involving the upper management (in particular, regarding aspects related to decision making in the areas of the RPG). Gender balance will be considered during the design and

implementation of the capacity-building workshop. The expected outputs of this Component are (i) toolkit disseminated; and (ii) capacity building workshop conducted.

3.3 **Final evaluation.** The TC will also finance the cost of the final evaluation.

IV. Budget

4.1 The total cost of the TC is US$534,000, of which US$475,000 will be financed by the Bank through the Ordinary Capital Strategic Development Program (OC SDP), Window 1, Core Commitment 1 - Regional Public Goods (W1A) (GN-2819-14) and the rest consists of counterpart funding (in kind) of estimated US$59,000[4]. The indicative budget is presented in the following table:

Indicative Budget

Activity/Component	IDB (W1A)	Counterpart Funding (In Kind)	Total Funding
Component I: Toolkit for climate resiliency actions	**US$340,000.00**	**US$18,000.00**	**US$358,000.00**
(i) Development of toolkit for climate resiliency actions that covers (a) circular economy and adaptation actions for changes in weather patterns; (b) NRW reduction; and (c) RE/EE for carbon neutrality. This activity will entail a needs assessment, information collection that includes an initial diagnosis on climate risks in beneficiary countries, development of a preliminary toolkit, and refinement through piloting.	US$340,000.00	US$18,000.00	US$358,000.00
Component II: Institutional strengthening and knowledge dissemination	**US$120,000.00**	**US$41,000.00**	**US$161,000.00**
i) Dissemination the toolkit, including the production of relevant materials.	US$50,000.00	US$6,000.00	US$56,000.00
ii) A regional workshop for capacity building of utility officials, including gender activities..	US$70,000.00	US$35,000.00	US$105,000.00

[4] The utilities in the following countries have indicated their counterpart funding (in kind): (i) Belize (US$25,000); (ii) Guyana (US$25,000); (iii) Suriname (US$4,000); and (iv) Trinidad and Tobago (US$5,000).

Final Evaluation	**US$15,000.00**	**US$0.00**	**US$15,000.00**
Total	**US$475,000.00**	**US$59,000.00**	**US$534,000.00**

4.2 Final Evaluation. As part of the requirements established by the Regional Public Goods (RPG) Initiative, resources (US$ 15,000) will be allocated for the project evaluation in order to measure the achievement of objectives and indicators and to systematize the lessons learned from such components under this technical cooperation. The final evaluation should be conducted based on the terms of reference previously agreed by the Bank and submitted no later than 90 days after the last disbursement of funds from the Bank's financing. The final evaluation of this project will focus on assessing the effectiveness of the interventions, efficiency, and the achievement of the objective and the outcome. It will also generate recommendations, such as insights into how to enhance the toolkit's deployment and adoption even after the execution period of the TC. A robust data collection process will be established, involving regular monitoring and reporting from WSA's team and technical working groups that will also inform the final evaluation.

V. Executing Agency and Execution Structure

5.1 The Bank through the Water and Sanitation Division (INE/WSA) will be the Executing Agency (EA) of the project at the request of the beneficiary countries. The IDB will be responsible for the selection and contracting of consulting firms and individual consultants in accordance with the Bank's current procurement policies and procedures for Bank-executed operations. This execution arrangement is justified under OP-619-4 Annex 2 due to: (i) the Bank's experience in the implementation of technical support in the areas of water and sanitation that will contribute more effectively to the achievement of the TC objectives in a timely manner; (ii) likewise, execution by the Bank helps to ensure that the lessons learned from the activities carried out are properly disseminated within the region.

5.2 The beneficiary countries of this TC are Belize, Guyana, Suriname, and Trinidad and Tobago. These four countries have been identified as beneficiary countries, as their national water and sanitation utilities have submitted letters requesting support to be executed by the IDB under the RPG Initiative. Non-objection letters from the IDB's official liaison entities of Belize, Guyana, and Suriname have already been received. The team will ensure the reception of the non-objection letter from Trinidad and Tobago before starting activities in the country. Other countries may join once they submit letters of non-objection through their respective IDB official liaison institutions. To promote a regional approach, the Bank will encourage, in particular, the rest of the IDB member countries in the Caribbean region (namely, The Bahamas, Barbados, and Jamaica) to become beneficiaries of this TC.

5.3 A Project Steering Committee (PSC) will be established, comprising representatives from each participating country. The PSC will provide strategic guidance, oversee implementation, and ensure alignment with regional and national objectives. The

main functions of a Steering Committee are: (i) to consult on the development of the project's work program, procurement plan, and budget, as well as progress reports; (ii) review the scope of works for activities to be carried out under the project; and (iii) facilitate the development of activities in order to achieve the objectives of the project, including contact and cooperation with relevant institutions in each country, the provision of the necessary information to project consultants to carry out their work, the participation in meetings and workshops organized, and the review of technical inputs and products generated within the framework of the project. Regular meetings will review progress and address challenges. The IDB, through the Water and Sanitation Division (WSA) will serve as the executing agency, responsible for overall project management, budget oversight, and reporting. WSA will facilitate communication among stakeholders and coordinate with other divisions, such as CCS.

5.4 The execution and disbursement period will be 36 months. The IDB will be responsible for the selection and contracting of consulting firms, individual consultants and non-consulting services in accordance with the Bank's current procurement policies and procedures for Bank-executed operations. The activities to be executed are included in the Procurement Plan and will be contracted in accordance with Bank policies as follows: (a) Hiring of individual consultants, as established in the regulation on Complementary Workforce (AM-650) and (b) Contracting of services provided by consulting firms and non-consulting services in accordance with the Corporate procurement Policy (GN-2303-33) and its Guidelines. The TC does not present fiduciary management risks as it will be implemented by the Bank. Therefore, no financial audit is required.

5.5 Any knowledge products generated within the framework of this technical cooperation will be the property of the Bank and may be made available to the public under a creative commons license. However, upon request of the beneficiary, the intellectual property of said products may also be licensed and/or transferred to the beneficiary through specific agreements.

VI. Project Risks and Issues

6.1 The risk level for the execution of this TC is considered low. The identified risks are: (i) the challenge of aligning the interests and expectations of multiple countries with achieving the objectives of the TC; and (ii) long-term sustainability of the toolkit and the results obtained during the TC execution. To mitigate the first risk, the following is proposed: (i) ensuring that broad consultations with stakeholders to align interests and expectations of participating countries and active participation in the project execution via the PSC; and (ii) utilizing virtual means and digital platforms to conduct training and meetings and to communicate with stakeholders. To mitigate the second risk, the following is proposed: (i) the toolkit will be designed in a manner that does not require future data inputs for its sustainability, but can serve as a baseline that further country-level or regional initiatives can build on; and (ii) the materials developed under the TC will be made available to the public (through the IDB website, and, where possible, linked to the Water and Sanitation Observatory

for Latin America and the Caribbean (OLAS, for its acronym in Spanish)), to facilitate engagement and self-training by future users, both within and external to beneficiary countries. In this context, it is highlighted that, aiming for replication and scaling-up, the dissemination of the toolkit and the regional workshop will not necessarily be exclusively for beneficiary country utilities, as far as the resources permit.

VII. Exceptions to Bank Policy

7.1 This TC does not contemplate any exceptions to Bank policy.

VIII. Environmental and Strategy

8.1 This TC will not finance feasibility or pre-feasibility studies of investment projects associated with environmental and social studies; therefore, it falls outside the scope of the Bank's Environmental and Social Policy Framework (ESPF).

Required Annexes:

Request from the Client_35691.pdf

Results Matrix_16748.pdf

Terms of Reference_78616.pdf

Procurement Plan_99692.pdf