

TC Document

I. Basic Information for TC

▪ Country/Region:	BELIZE
▪ TC Name:	Design of Wastewater Treatment Solutions in Coastal Areas
▪ TC Number:	BL-T1125
▪ Team Leader/Members:	Grau Benaiges, Javier (INE/WSA) Team Leader; Ortiz Stradtman, Silvia (INE/WSA) Alternate Team Leader; Arauz Herrera, Alison (INE/WSA); Bocco, Maria Julia (INE/WSA); Collins, Steven Charles (VPS/ESG); Escala, Victor H. (VPC/FMP); Gouvea Berto, Maria Eduarda (INE/WSA); Lopez, Liliana M. (INE/WSA); Perroni, Maria Alejandra (INE/WSA); Salazar, Astrid Danielle (CID/CBL); Sanmartin Baez, Alvaro Luis (LEG/SGO); Watson, Brodrick Raylando (VPC/FMP) Benaiges, Javier (INE/WSA) Team Leader; Ortiz Stradtman, Silvia (INE/WSA) Alternate Team Leader; Arauz Herrera, Alison (INE/WSA); Bocco, Maria Julia (INE/WSA); Collins, Steven Charles (VPS/ESG); Escala, Victor H. (VPC/FMP); Gouvea Berto, Maria Eduarda (INE/WSA); Lopez, Liliana M. (INE/WSA); Perroni, Maria Alejandra (INE/WSA); Salazar, Astrid Danielle (CID/CBL); Sanmartin Baez, Alvaro Luis (LEG/SGO); Watson, Brodrick Raylando (VPC/FMP)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	
▪ Date of TC Abstract authorization:	30 Jul 2020.
▪ Beneficiary:	Belize
▪ Executing Agency and contact name:	Belize Water Services Limited
▪ Donors providing funding:	OC Strategic Development Program for Infrastructure(INF)
▪ IDB Funding Requested:	US\$250,000.00
▪ Local counterpart funding, if any:	US\$50,000.00 (In-Kind)
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	Jan. 15, 2021
▪ Types of consultants:	Firms
▪ Prepared by Unit:	INE/WSA-Water & Sanitation
▪ Unit of Disbursement Responsibility:	CID/CBL-Country Office Belize
▪ TC included in Country Strategy (y/n):	N
▪ TC included in CPD (y/n):	Y
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Social inclusion and equality; Environmental sustainability

II. Objectives and Justification of the TC

2.1 The general objective of this TC is to conduct the feasibility studies and design of a sanitation system for Caye Caulker¹, which is aimed at improving the sanitary and

¹ This operation could lead to an investment program for the Bank. If a request from the Government were to be received by the Bank, an investment operation could be structured in two components, one for South Caye Caulker, which includes the main village, comprising most of the residential population and the longer established hotels; and another one for North Caye Caulker which is currently less developed and less populated, but comprises a larger land mass and therefore has capacity for faster and larger development.

environmental conditions of Caye Caulker, by providing wastewater collection and treatment services in the northern and southern islands. The specific objectives of the TC are to T: (i) develop the feasibility studies for the wastewater collection and treatment systems for North and South Caye Caulker; and (ii) prepare the detailed designs for South Caye Caulker and preliminary designs for North Caye Caulker. This TC and the associated investment program will be executed by Belize Water Services Limited (BWS), the national water and sewerage utility.

- 2.2 BWS is a regulated utility – the regulatory controls include a statutory regulator, the Public Utilities Commission (PUC), the Water Industry Act (2001), an operating license issued by the PUC and a Code of Practice which is agreed by the Regulator and BWS and updated periodically. BWS operates in licensed service areas, serving all the municipalities of the country as well as some 44 villages. As at March 2019, BWS serves over 60,000 connections or approximately 257,000 consumers, with a total average water demand of approximately 225 million US gallons per month.
- 2.3 Caye Caulker is a small limestone coral island located approximately 20 miles north-northeast of Belize City. Caye Caulker is divided in two islands by a split (north and south Caye Caulker). The island measures about 5 miles (north to south) by less than 1 mile (east to west). The population of Caye Caulker is approximately 2,000 inhabitants with most residing in the southern portion. Caye Caulker is a key tourist destination in Belize; as of June 2019, it was the destination chosen by over 30% of the overnight visitors to Belize, second only to San Pedro/Ambergris Caye.

Figure 1: Map of Caye Caulker



- 2.4 The Government of Belize (GOB) and BWS successfully completed a joint project to provide residents of Caye Caulker access to potable and reliable water in 2010. BWS owns and operates a Water Desalinization Plant, currently capable of producing 150,000 gallons per day. The plant is supplied from two beach wells. Concentrate water is disposed via deep well injection. Permeate water is then chlorinated and stored in a 150,000-gallon reservoir and then distributed to customers. As of July 2019, there were 870 customer connections with 839 of these in the south and 31 in the
-

north. The Water Desalination Plant is powered by electricity from the national electricity provider and also obtains a small portion of its energy from its own solar farm located on the property.

- 2.5 In recent years, the island has become a popular tourist destination for both foreign visitors and locals. Prior to the COVID-19 pandemic, about 1,000 tourists visited the island daily during the peak season including holidays such as Easter and the annual Lobster Fest, the vast majority visiting South Caye Caulker. In the southern island, there are over 50 hotels and several restaurants and shops that provide service to the public in general. It is therefore very important to design and build an adequate wastewater system to protect public health and the Belize Barrier Reef Ecosystem.
- 2.6 Caye Caulker does not have a centralized wastewater system. At present, the population uses individualized systems consisting mostly of septic tanks with leach fields; some pit latrines are also used for disposal of wastewater. Most of the septic tanks are of poor design and quality due to the high-level water table. It has been documented that there is a high potential of human health risk implications with the current wastewater management on the island. Because of the proximity of the Belize Barrier Reef (less than ½ mile away), there are additional concerns regarding the reef's ecosystem. In addition to this, as development in North Caye Caulker is still at an early stage, it is the right moment to properly plan for an adequate collection and treatment system, including the location of a WWTP.
- 2.7 The potential for ground water contamination is obvious due to the high-water table, soil conditions and its inter-connectivity to the open sea, especially during tidal actions. There has been fecal contamination of the existing private wells and surrounding water environment due to the nature of the island, and its connectivity. This concern is exacerbated by the presence of an extensive under water cavern system below Caye Caulker that is yet to be properly mapped. Based on the above, there is an urgent and critical need for a wastewater collection and treatment system to protect the overall environment and economy as well as the health of the residents and visitors of Caye Caulker.
- 2.8 It is estimated that the Belizean economy will be one of the tourism-dependent economies most impacted by COVID-19 in the world. Tourism represented 37% of Belize's GDP and 48% of total exports². Given its dependence on tourism inflows, the IMF estimates the economy would contract 16% in 2020³. This TC and its related potential investment operation would contribute to Belize's economic recovery. According to preliminary analysis and considering present and future demands for water and sanitation services, the investments needed to build the sewage networks and wastewater treatment plant (WWTP) in Caye Caulker may reach US\$12 million, which would result in job creation in this island that has been greatly affected by the pandemic as a result of the reduction in tourist arrivals. Additionally, this operation would help ensure that Caye Caulker is well prepared to receive new tourism inflows in relation to one of its main attributes, ecotourism, and environmental sustainability.
- 2.9 If BWS wants to have an investment program ready for approval by the end of 2021, it is necessary to count with the respective technical, economic, financial, environmental, social, and institutional studies completed by the third quarter of 2021.

² World Travel & Tourism Council. Belize 2020 Annual Research Key Highlights
<https://wtcc.org/Research/Economic-Impact>

³ International Monetary Fund. World Economic Outlook (WEO), October 2020 Edition. Washington, D.C.

This TC will focus on the development of the needed technical studies, which are expected to be ready by the third quarter of 2021.

- 2.10 This TC is consistent with the IDB's Country Strategy with Belize 2013-17 (GN-2746), and the 2020-2021 Country Strategy Update (GN-2746-3) through the tourism priority area and the strategic objective of increasing overnight visitor demand and expenditures in a sustainable manner. The Country Strategy notes that the continued and sustained growth of the tourism sector depends on the preservation of Belize's natural and cultural assets considering increased pressure on these assets from tourism, among others. The TC is also consistent with the strategic objective of the CS update on Climate Change and Disaster Risk Management priority area and the strategic objective of improving resilience to natural hazards and climate change along coastal areas.
- 2.11 The proposed TC is also consistent with the Ordinary Capital Strategic Development Program (OC-SDPs for Infrastructure, GN-2819-1), specifically with the following objectives: (i) improve the quality of infrastructure projects in Latin America and the Caribbean; (ii) promote greater investment in the region's infrastructure sector and enhance the performance, quality, and sustainability of infrastructure services; and, (iii) enhance the quality of design and efficiency in the execution of infrastructure projects.
- 2.12 It is also consistent with the Bank's Update to the Institutional Strategy 2010-2020 and it is aligned with the development challenges of social inclusion and equality, given that it supports the development of a sanitation system that aims to increase access to sanitation services to unserved tourist populations that have been greatly affected by the current pandemic. The results achieved with this TC will contribute to the objectives of the Sustainable Tourism Program II - BL-L1020 (STP II), which prioritized Caye Caulker as one of the four destinations to benefit from the program. The TC will contribute to STP II's specific objective of promoting environmental sustainability in tourism destinations.
- 2.13 Sanitation projects, including the financing of sewage networks and WWTPs, have played an important role in the Bank's financing in Latin America and the Caribbean. Between 1997 and 2018, the Bank approved US\$ 7.5 billion in sanitation projects, representing 4% of the Bank's total lending in the region. Central American countries have been important recipients of financing for sanitation projects, most notably Panama for the Panama Bay Sanitation Program, which has exceeded US\$300 million in IDB financing. Belize has also received financing for wastewater collection and treatment, as it was part of the first Caribbean Regional Fund for Wastewater Management (CReW), which, through a revolving fund of US\$5 million, financed the improvements in Belmopan Waste Water Treatment Works and the sewage network in Belmopan for US\$3.8 million.

III. Description of activities/components and budget

- 3.1 The TC will be executed through the following components.
- 3.2 **Component 1- Feasibility studies and Designs:** The feasibility study should include the identification, feasibility studies, and selection of the most appropriate wastewater collection and treatment solutions for both North and South Caye Caulker, taking into consideration, among others, environmental, social, technical, economic and financial aspects. The analysis will contemplate key climate change considerations as a cross-cutting issue for the design and management aspects.

Based on the feasibility studies, the TC will finance preliminary designs for North Caye Caulker and final designs for South Caye Caulker for the wastewater collection and treatment systems. South Caye Caulker includes the main village, comprising most of the residential population and the longer established hotels. North Caye Caulker is currently less developed and less populated but comprises a larger land mass and therefore has capacity for faster and larger development. The products to be funded and developed are: i) optimization of the wastewater collection and treatment systems for North and South Caye Caulker, ii) preliminary designs of the optimal solution for North Caye Caulker and iii) final designs and bidding documents of the optimal solution for South Caye Caulker. The studies will consider innovation aspects in wastewater collection and treatment given the particularities in both islands, especially related to land availability issues, high water table and proximity to fragile ecosystems.

- 3.3 **Component 2-Project Executing Unit (PEU) and audit costs:** This component will be financed using both Bank and counterpart resources. The audit costs will be covered with Bank resources. Local counterpart resources will be in kind and for general support to the execution. BWS, which will be the PEU for this TC, is staffed with personnel that is technically and administratively capable for managing projects funded by multilateral funding agencies.

Indicative Budget (in US\$)

Activity/Component	Description	IDB (JQI)	Counterpart Funding	Total Funding
Component 1	Feasibility Studies and Designs	243.000	0	243.000
Component 2	Project Executing Unit and Audit	7.000	50.000	57.000
Total		250.000	50.000	300.000

- 3.4 The products of this TC will be complemented with other environmental, social, financial and economic studies⁴ needed for Bank's approval of the potential investment program for Caye Caulker. The financial analysis will include an assessment of the current financial situation of BWS to determine the possible areas of focus to improve its financial efficiency indicators, as well as to estimate the financial situation of the entity in the coming years. The environmental and social analysis will include the appropriate assessment instruments and consultation activities for the proposed activities funded by this TC under Component 1, Feasibility Studies and Designs.

- 3.5 **Disbursement and Execution Period:** The TC resources will be disbursed within 24 months and executed within 20 months from the date of effectiveness of the TC agreement.

⁴ These complementary studies will be funded by the operation RG-T3412 GEF CReW+: An integrated approach to water and wastewater management using innovative solutions and promoting financing mechanisms in the Wider Caribbean Region.

- 3.6 **Monitoring and Supervision.** The monitoring and supervision of the TC will be carried out by the Bank, specifically by the Team Leader (Javier Grau) and the Alternate Team Leader (Silvia Ortiz) from the Bank's Water and Sanitation Division (INE/WSA) in collaboration with Country Office in Belize (CID/CBL).

IV. Executing agency and execution structure

- 4.1 The GOB through its Ministry of Finance requested on January 30, 2020 (Communication No. C/GEN/125/01/20) to the Bank a Non-Reimbursable Technical Cooperation to finance a Masterplan for wastewater systems in Belize and designs for the Caye Caulker Wastewater System. This TC will finance the designs of a wastewater collection and treatment system in Caye Caulker.
- 4.2 The Executing Agency will be BWS, which is the authorized utility mandated by the Government of Belize to provide water and wastewater services in Belize and will act as executing agency for this TC. BWS will be responsible for the administration, planning, monitoring and supervision of the TC funding assigned.
- 4.3 BWS has executed and completed several IDB funded projects in the past, including, most recently, the Belmopan Sewerage Expansion Project under a GEF-IDB project (Establishment of a Revolving Fund for Financing Water Projects in Belize - GRT/FM12724-RG) as well as BL-T1148 (Detailed Design of a Wastewater Collection and Treatment System in Placencia).
- 4.4 **Reporting and Accountability.** BWS will prepare an initial work program, semi-annual progress reports and a final TC report. These reports will focus on program activities and finances, as well as results achieved. The format of these reports will be agreed between the Executing Agency and the Bank.
- 4.5 **Procurement of consultants.** Procurement will be conducted in accordance with the Policies for the Selection and Contracting of Consultants financed by the IDB, contained in GN-2350-15 and in accordance with the provisions laid down in the grant funding agreement and procurement plan of the program, which will be updated as necessary. The procurement plan indicates the procedures to be used for the procurement processes, the selection method, the estimated cost of each contract, and the requirement for ex ante or ex post review by the Bank.
- 4.6 **Audit and Final Evaluation.** The Audit will be carried out in accordance with the OP-273-12 Financial Management Guidelines for IDB financed Projects. The Executing Agency will hire an independent auditor acceptable to the Bank to audit the financial statements to be submitted within 120 days of the date of the last disbursement. The project will include a final evaluation report which will describe and analyze progress in reaching the targets contained in the results matrix of the TC. This final evaluation will be carried out by the Bank⁵.
- 4.7 **Conditions to be fulfilled prior to first disbursement.** The appointment of a project coordinator, procurement officer and a financial specialist who will oversee the implementation of this TC will be a condition to be fulfilled prior to first disbursement.

V. Major issues

⁵ The final evaluation will be prepared by the Bank's team or by an individual consultant that would be hired with Bank's resources to supervise the implementation of the TC.

- 5.1 The main risk is the lack of land available for the WWTP in Caye Caulker. This risk would be mitigated by including in the study the identification, evaluation and selection of the most suitable available sites, including: 1) in the South Island, there may be land available near the Transfer Station for solid waste management. A lot of 5 acres is owned by the Belize Solid Waste Management Authority and currently approximately only 1.5 acres are being used; and 2) The North Island is beginning to be urbanized and it may be possible to find public land for the location of a small WWTP. A second risk is related to potential travel restrictions to Belize because of the COVID-19 pandemic. However, this risk might be mitigated by the recent decision by the Government of Belize to reopen the international airport in Belize City. This situation could also be mitigated by the presence in Belize of well experienced engineering firms that could undertake the studies or part of them

VI. Exceptions to Bank policy

- 6.1 There are no exceptions to Bank policies.

VII. Environmental and Social Strategy

- 7.1 This Technical Cooperation has been classified as Category “B” as it supports the preparation of a potential sanitation program for Caye Caulker, a program that would be Category B, per the safeguards policies. Nevertheless, since the TC will only finance studies, there is no requirement for the TC itself to carry out socioenvironmental studies or consultations. If a formal loan request from the Government of Belize is received, such studies will be funded and elaborated with other funding sources for loan preparation to comply with the safeguard requirements of the Bank.

Required Annexes:

[Request from the Client - BL-T1125](#)

[Results Matrix - BL-T1125](#)

[Terms of Reference - BL-T1125](#)

[Procurement Plan - BL-T1125](#)