

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

**BARBADOS**

**BARBADOS CLIMATE RESILIENT SOUTH COAST WATER RECLAMATION  
PROJECT**

**(BA-L1063)**

**LOAN PROPOSAL**

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<b>ABBREVIATIONS</b>	
ADWF	Average Dry Weather Flow
AOP	Annual Operating Plans
AWT	Advanced Water Treatment
BADMC	Barbados Agricultural Development and Marketing Corporation
BSTP	Bridgetown Sewage Treatment Plant
BWA	Barbados Water Authority
EA	Executing Agency
EOP	End of Project
EPC	Engineering, Procurement and Construction
EPD	Environmental Protection Department
ESMR	Environmental and Social Management Report
ESS	Environmental and Social Strategy
GAS	Government Analytical Services (a department of the MAFS)
GHG	Greenhouse Gases
GHS	Graeme Hall Swamp
GoB	Government of Barbados
ICAP	Institutional Capacity Assessment Platform
IDB	Inter-American Development Bank
IPCC	Intergovernmental Panel on Climate Change
MAFS	Ministry of Agriculture, Food and Nutritional Security
NHCA	Natural Heritage Conservation Area
NRW	Non-Revenue Water
OC	Ordinary Capital
O&M	Operation and Maintenance
PEP	Pluriannual Execution Plan
PEU	Project Execution Unit
PMO	Project Management Office, BWA
POM	Project Operations Manual
PP	Procurement Plan
PSC	Project Steering Committee
PWD	Persons with Disabilities
R2RP	Roofs to Reefs Programme
RCP	Representative Concentration Pathway
SCADA	Supervisory Control and Data Acquisition
SCSTP	South Coast Sewage Treatment Plant
SCWRRF	South Coast Water Reclamation and Re-use Facility
SIDS	Small Island Developing States
WASH	Water, Sanitation and Hygiene
WWTP	Wastewater Treatment Plant

**PROJECT SUMMARY**  
**BARBADOS**  
**BARBADOS CLIMATE RESILIENT SOUTH COAST WATER RECLAMATION PROJECT**  
**(BA-L1063)**

Financial Terms and Conditions						
<b>Borrower</b>			<b>Flexible Financing Facility<sup>(a)</sup></b>			
Government of Barbados (GoB)			<b>Amortization Period:</b>	25 Years		
<b>Executing Agency</b>			<b>Disbursement Period:</b>	5 Years		
Barbados Water Authority (BWA)			<b>Grace Period:</b>	5.5 Years <sup>(b)</sup>		
<b>Source</b>	<b>Amount (US\$)</b>	<b>%</b>	<b>Interest rate:</b>	SOFR Based		
<b>IDB (Ordinary Capital):</b>	40,000,000	36,4	<b>Credit Fee:</b>	<sup>(c)</sup>		
<b>Local:</b>	70,000,000	63,6	<b>Inspection and supervision fee:</b>	<sup>(c)</sup>		
<b>Total:</b>	110,000,000	100	<b>Weighted Average Life (WAL):</b>	15.25 years		
			<b>Currency of Approval:</b>	Dollars of the United States of America		
Project at a Glance						
<p><b>Objective.</b> The general objective of the operation is to enhance Barbados' water supply resilience and reliability with a focus on climate action, environmental sustainability, and food security.</p> <p><b>Specific Objectives.</b> The specific objectives of the operation are to: (i) diversify Barbados's water supply sources and reduce water insecurity through the reuse of reclaimed wastewater; and (ii) strengthen key sector institutions on water resource management, operational efficiency, monitoring, and gender mainstreaming.</p> <p><b>Special Contractual Conditions prior to the first disbursement:</b> The Borrower, through the Executing Agency (EA), shall provide evidence to the satisfaction of the Bank that: (i) the EA has established the Project Execution Unit (PEU) and has appointed its key personnel, in accordance with the terms previously agreed with the Bank, of the: a) project coordinator, b) project engineer, c) financial specialist, d) procurement specialist, and e) environmental management specialist; and (ii) the Project Operations Manual (POM) has been approved by the EA and has entered into effect on the terms previously agreed with the Bank (¶3.4).</p> <p><b>Special Contractual Conditions of execution:</b> (i) <b>Component 1.</b> Prior to the start of construction, the Borrower, through the EA, shall provide evidence to the satisfaction of the Bank in accordance with the laws of the Borrower that BWA holds sufficient legal possession of the land where the new water reclamation and reuse facility will be constructed; (ii) <b>Sub-components 2.1 and 2.2.</b> Prior to the start of construction, the Borrower, through the EA, shall provide evidence to the satisfaction of the Bank in accordance with the laws of the Borrower that the BWA holds sufficient legal rights on the land where the wells will be developed and adequate rights-of-way to the land where the new pipeline for irrigation and recharge will be installed; (iii) <b>Sub-component 3.2.</b> Prior to the start of construction, the Borrower, through the EA, shall provide evidence to the satisfaction of the Bank in accordance with the laws of the Borrower that BWA holds sufficient legal rights and adequate rights-of-way to the land where the panels and battery storage system will be installed; (iv) <b>All Components.</b> Prior to the start of construction for any of the works, the Borrower, through the EA, shall provide evidence to the satisfaction of the Bank, of its approval of the financial mechanism to guarantee the financial sustainability of the works financed by the Project (¶3.5).</p> <p>In addition, see special conditions in Annex B of the ESMR (<a href="#">REL#3</a>).</p> <p><b>Exceptions to Bank Policies:</b> A partial waiver is requested to the provisions of the Policies for the Procurement of Goods and Works Financed by the Inter-American Development Bank (document GN-2349-15, paragraph 1.8) and the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (document GN-2350-15, paragraph 1.13) so that firms, individuals, and goods originating from non-member countries of the Bank can participate in the selection, procurement and contracting processes relating to Component 1 of the Project (¶3.10).</p>						
Strategic Alignment						
<b>Objectives<sup>(d)</sup>:</b>	O1 <input checked="" type="checkbox"/>		O2 <input checked="" type="checkbox"/>		O3 <input type="checkbox"/>	
<b>Operational Focus Areas<sup>(e)</sup>:</b>	OF1 <input checked="" type="checkbox"/>	OF2-G <input checked="" type="checkbox"/> OF2-D <input checked="" type="checkbox"/>	OF3 <input checked="" type="checkbox"/>	OF4 <input type="checkbox"/>	OF5 <input type="checkbox"/>	OF6 <input checked="" type="checkbox"/> OF7 <input type="checkbox"/>

<sup>(a)</sup> Under the Flexible Financing Facility (document FN-655-1), the borrower has the option to request modifications to the amortization schedule, as well as currency, interest rate, commodity, and catastrophe protection conversions. In considering such requests, the Bank will take into account operational and risk management considerations.

<sup>(b)</sup> Under the flexible repayment options of the Flexible Financing Facility (FFF), changes in the grace period are possible as long the Original Weighted Average Life (WAL) and the last payment date, as documented in the loan agreement, are not exceeded.

<sup>(c)</sup> The credit fee and inspection and supervision fee will be established periodically by the Board of Executive Directors during its review of the Bank's lending charges, in accordance with the relevant policies.

<sup>(d)</sup> O1 (Reduce poverty and inequality); O2 (Address climate change); and O3 (Bolster sustainable regional growth).

<sup>(e)</sup> OF1 (Biodiversity, natural capital and climate action); OF2-G (Gender equality); OF2-D (Inclusion of diverse population groups); OF3 (Institutional capacity, rule of law, and citizen security); OF4 (Social protection and human capital development); OF5 (Productive development and innovation through the private sector); OF6 (Sustainable, resilient, and inclusive infrastructure); and OF7 (Regional integration).

## I. PROJECT DESCRIPTION AND RESULTS MONITORING

### A. Background, Problem Addressed, and Justification

- 1.1 **Macroeconomic context.** Barbados is a small developing island in the Caribbean with a population of 281,635 inhabitants<sup>1</sup> and Gross Domestic Product (GDP) of US\$21,442 per capita<sup>2</sup>. Prior to the COVID-19 pandemic, the country had been experiencing slow growth, which declined from an average of 1,4% (2000 -2009) to 0,0% (2010-2018). Fiscal imbalances led to an unsustainable accumulation of public debt, which peaked at 158,1% of GDP in FY2017/18 and remained high during the COVID-19 pandemic (148.1% in FY1020/21) owing to the strain on public finances and subdued economic activity.<sup>3</sup> With the economy slowly recovering post-pandemic, the debt-to-GDP ratio began to shrink and reached 114.8% in FY2023/24. The GoB continues efforts to achieve fiscal sustainability and decrease the debt-to-GDP ratio, including ongoing structural reforms in public financial management and state-owned enterprises, as well as an innovative debt to climate transaction, which support the sustainability of operations. The Barbados economy is primarily based around tourism and offshore banking. Services account for 75% of the GDP with agriculture accounting for less than 2% of GDP, underlining food insecurity challenges as Barbados relies on imports of near the full range of food products.
- 1.2 **High vulnerability to Climate Change (CC) and natural disasters.** Barbados is highly vulnerable to the impacts of CC and natural disasters, including hurricanes and tropical storms, whose intensity is projected to increase, as well as droughts and heat waves. Barbados experiences flooding caused by extreme rainfall events and is exposed to rising sea levels and storm surges<sup>4</sup>. Daily temperatures are expected to increase under future CC scenarios: projections for Caribbean Small Island Developing States (SIDS)<sup>5</sup> indicate a 1°C increase in temperature could result in a 60% increase in the number of people projected to experience severe water resources stress from 2043 to 2071<sup>6</sup>. Globally, the adverse effects of CC are felt more keenly by women than men due to systemic gender discrimination and societal expectations on gender roles<sup>7</sup>, and disproportionately impact vulnerable populations, contributing to increased poverty<sup>8</sup> and inequality<sup>9</sup>.
- 1.3 **Water and Sanitation institutional framework in Barbados.** Barbados Water Authority (BWA) is the governmental institution responsible for supplying potable water, wastewater treatment and disposal. BWA also acts as a regulator with respect to water resources management. Responsibility for the water sector falls under the Prime Minister's Office, as of January 2024. The Utilities Regulation Act mandates that the Fair-Trading Commission be the regulator of BWA's water and

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1 [OEL#1](#) [1]

2 [OEL#1](#) [2]

3 The fiscal year in Barbados runs from April 1 to March 31.

4 [OEL#1](#) [3]

5 According to the sixth assessment report of the Intergovernmental Panel on Climate Change, projections for Caribbean SIDS regarding drought risk based on the Shared Socioeconomic Pathway 2.

6 [OEL#1](#) [4]

7 [OEL#1](#) [5]

8 [OEL#1](#) [6]

9 [OEL#1](#) [7]

sewerage services. Environmental and water quality regulation of the sector is carried out by the Environmental Protection Department (EPD), under the Ministry of Environment and National Beautification, Green and Blue Economy (MENB) and the Environmental Health Department under the Ministry of Health and Wellness.

- 1.4 **Water and sanitation sector.** BWA supplies approximately 116,000 customers, of whom 95% are residential<sup>10</sup>. Physical losses from the water distribution network are estimated to be between 38%<sup>11</sup> and 55%<sup>12</sup>. While the project is not directly addressing non-revenue water (NRW), BWA is currently executing two NRW reduction projects and a third under preparation. These will improve operational efficiency and water resources use, improving BWA's financials. Potable water supply from groundwater is supplemented by desalinated water, which costs around US\$ 0.88 per m<sup>3</sup> more than groundwater. According to BWA, 99.9% of the population have access to improved water supply and 99% to improved sanitation<sup>13</sup>. In sanitation, 96% of the population utilizes septic tanks and suck wells, 3% are sewered, and approximately 1% use pit latrines<sup>14</sup>. BWA currently operates two municipal sewage treatment plants. The 7,000 m<sup>3</sup>/day Bridgetown Sewage Treatment Plant (BSTP) commissioned in 1982 services approximately 2,000 properties in Bridgetown. It is currently being upgraded to tertiary treatment, including a wastewater reclamation facility<sup>15</sup>. The South Coast Sewage Treatment Plant (SCSTP) commissioned in 2003 has a capacity of 9,000 m<sup>3</sup>/day average dry weather flow (ADWF). The preliminary treatment plant services 2,900 properties in the south coast. The total equivalent population served is approximately 48,825 and ultimately is expected to grow to about 52,000.
- 1.5 **Main problem.** Under the context of high vulnerability to CC, the main problem this project aims to address is the limited resilience and reliability of water sources which exacerbates current water scarcity. Barbados ranks among the 10 most water-scarce countries in the world<sup>16</sup>. Specifically, according to the Falkenmark water stress indicator, Barbados has an estimated 285 m<sup>3</sup> of fresh water available per capita per year<sup>17</sup>, with increasing competing demands for freshwater as Barbados seeks to develop and grow its economy.
- 1.6 In terms of reliability of water sources, BWA estimates in 2019 and 2020 indicate that groundwater abstraction has varied between 57.6 and 74.9 Mm<sup>3</sup> per year, respectively<sup>18</sup> (¶1.8). The sustainable yield from annual groundwater abstraction varies between 65.7 Mm<sup>3</sup> and 89.8 Mm<sup>3</sup> per year, suggesting that the current average level of groundwater production is between 75% - 100% of renewable aquifer yield<sup>19</sup>. There is no reliable data on water balances in Barbados, however BWA estimates that there is unmet demand for water, especially for agriculture. Water for human consumption is supplied by a desalination plant when groundwater is insufficient. More recent data investigating the impact of abstraction

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<sup>10</sup> [OEL#1](#) [8]

<sup>11</sup> [OEL#1](#) [8]

<sup>12</sup> [OEL#1](#) [9]

<sup>13</sup> [OEL#1](#) [10]

<sup>14</sup> [OEL#1](#) [11]

<sup>15</sup> [OEL#1](#) [12]

<sup>16</sup> [OEL#1](#) [13]

<sup>17</sup> [OEL#1](#) [14]

<sup>18</sup> [OEL#1](#) [15]

<sup>19</sup> [OEL#1](#) [16]

regimes under various CC scenarios<sup>20</sup> support the view of progressive depletion of groundwater storage<sup>21</sup>. This limits the resilience of Barbados' primary water resource. Droughts have severe implications for water resources users, including the agriculture and tourism industries. For the 2016-2019 period, BWA's water production fell by 3 million gallons/day (12,000 m<sup>3</sup>/day equivalent) and resulted in prolonged water outages<sup>22</sup>.

- 1.7 The main factors contributing to the limited resilience and reliability of water sources and water scarcity are: (i) lack of diversity in water supply sources; (ii) over abstraction of aquifers contributing to water insecurity; (iii) non-optimal use of potable and/or groundwater for agriculture<sup>23</sup>; and (iv) operational inefficiencies and lack of monitoring capacity affecting water resource management.
- 1.8 **Lack of diverse water supply sources.** Despite substantial annual rainfall, surface water catchments are dry due to the permeable karst terrain<sup>24</sup>. The island therefore relies heavily on groundwater as its primary source of potable water<sup>25</sup>. According to BWA in 2020, estimated potable groundwater production was 64.37 Mm<sup>3</sup>, non-potable groundwater at 10.59 Mm<sup>3</sup> and desalinated from brackish<sup>26</sup> water was 11.5 Mm<sup>3</sup>, for a total production 86.4 Mm<sup>3</sup>. Based on current abstraction rates, groundwater yields estimates (¶1.6), and accounting for predicted CC effects on rainfall (¶1.2), the lack of alternative freshwater sources will result in deficits and rationing, underscoring the urgent need to reduce the country's dependency on groundwater and incorporate diverse water sources for more resilient and continuous water availability.
- 1.9 **Over abstraction of aquifers contributes to water insecurity.** Current groundwater production is near maximum sustainable yields (¶1.6), variability in rainfall is affecting timing and quantity of recharge, and aquifers are vulnerable to contamination from land sources and seawater intrusion. Abstraction of aquifers now exceeds the total renewable freshwater supply, and desalination and rainwater harvesting have become necessary to account for the deficit. This is exacerbated by the lack of data to conduct a water demand analysis, particularly of agriculture demand.
- 1.10 **Non-optimal use of water resources.** Population growth and the associated increase in demand for drinking water and for food, especially as the country strives to achieve an enhanced level of food security, can be expected to lead to an increase in demand for water for agriculture which would exacerbate water

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<sup>20</sup> Representative Concentration Pathway (RCP). In RCP 8.5, the high-emissions scenario, frequently referred to as "business as usual", sustainable yields could be 29 Mm<sup>3</sup>/year.

<sup>21</sup> [OEL#1](#) [17]

<sup>22</sup> BWA. Electronic communication, April 2024.

<sup>23</sup> To reduce use of groundwater in agriculture, the Project will distribute reclaimed water in areas currently outfitted for irrigation, and new areas where BADMC will provide irrigation infrastructure. Farmers have the capacity to adopt irrigation systems, and most already irrigate with drip systems. Technical assistance on agriculture sustainable practices will be provided to complement assistance and training from BADMC. These will promote a increase in crop production, a strategy GoB identified for increasing food security.

<sup>24</sup> [OEL#1](#) [18]

<sup>25</sup> [OEL#1](#) [19]

<sup>26</sup> Results from mixing seawater and fresh water.



scarcity<sup>27</sup>. According to available information<sup>28</sup> from BWA and the Ministry of Agriculture and Food Security (MAFS), most farmers in Barbados source water for farming either through the Barbados Agricultural Development and Management Corporation (BADMC) irrigated districts, which includes 0.5 Mm<sup>3</sup>/year potable water supplied by BWA to registered farmers and abstraction of 1.9 Mm<sup>3</sup>/year from BADMC groundwater wells, or via private wells where these farmers are licensed to abstract 13.3 to 20 Mm<sup>3</sup>/year from groundwater. During 2020-2023 the stakeholders in St. Philip, St. George, and Silver Hill/Christ Church irrigation districts abstracted on average 391,400 m<sup>3</sup> mainly from St. Michael, Belle and Christ Church Aquifers.<sup>29</sup> The use of potable water for irrigation purposes is not the most optimal use of the water resource given the cost of producing 1 m<sup>3</sup> of potable water compared to the cost of abstracting 1 m<sup>3</sup> from groundwater for agriculture use<sup>30</sup> (¶1.4).

- 1.11 **Operational inefficiencies due to lack of monitoring capacity for integrated water resource management.** The lack of real-time information on groundwater resources hinders informed decision-making, which results in operational inefficiencies. Specifically, there is a need to: (i) enforce the existing groundwater monitoring program, ensuring the collection of accurate and consistent abstraction data; (ii) collate, centralize and analyze on a regular basis all hydrological data, including climate and water quality data; (iii) make data readily available third-party analyses; and (iv) understand rainfall-runoff-recharge response dynamics and the behavior of the freshwater/seawater interface<sup>31</sup>.
- 1.12 There is a comprehensive water quality monitoring program by the EPD and BWA but a lack of capacity at the designated lab presents challenges. The Government Analytical Services (GAS), the entity responsible for chemical analyses of samples, lacks capacity (personnel, consumables etc.) to adequately respond to and maintain a regular testing regime that will include all the parameters identified by the EPD<sup>32</sup>.
- 1.13 **Operational inefficiencies and lack of capacity at BWA contribute to inadequate management of environmental impacts.** BWA sewerage systems have been subject to plant failures in recent years due to lack of maintenance. At the SCSTP, the screening units failed in 2014 and were not replaced for several years. Untreated wastewater discharge poses risks to public health, marine ecosystems, water quality of aquifers and nearshore waters, including the Graeme Hall Swamp (GHS)<sup>33</sup>. In 2016, breaks in the collection main and discharge force main caused raw sewage from the SCSTP to overflow onto streets, causing environmental, social and economic impacts<sup>34</sup>. The crisis also impacted the

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<sup>27</sup> [OEL#1](#) [20]

<sup>28</sup> Agricultural demand is not properly monitored. BWA will monitor BADMC water use and bring their systems onto the BWA SCADA system.

<sup>29</sup> The estimated amount of potable water that could become available requires detailed calculations, which will be included in a proposed MAFS study planned for mid-2024.

<sup>30</sup> According to BWA, the cost of treating 1m<sup>3</sup> of potable aquifer water for human consumption is US\$1.115 while the cost of desalinating 1m<sup>3</sup> is US\$2.03. BADMC charges farmers US\$1.80 per m<sup>3</sup> of piped water supply from BWA (potable water) and US\$0.60 for abstractions from their own wells (MAFS/APU, 2021).

<sup>31</sup> [OEL#1](#) [21]

<sup>32</sup> [OEL#1](#) [22,23]

<sup>33</sup> The GHS is a Ramsar site, a nationally designated Natural Heritage Conservation Area (NHCA), and a critical component of a wider ecosystem complex that includes seagrasses and coral reefs offshore.

<sup>34</sup> [OEL#1](#) [24]

surrounding protected area, which includes the GHS, affecting marine resources and biodiversity. It is therefore essential to improve operational efficiency of the SCSTP to avoid negative impacts from accidental or emergency discharges. Furthermore, an effective monitoring and reporting system for GHS will facilitate a comprehensive management plan to address anthropogenic environmental impacts and associated CC threats<sup>35</sup>.

- 1.14 **Government strategy for increasing resilient infrastructure investments and planning.** The [Updated Nationally Determined Contribution \(NDC\)](#) of Barbados emphasizes CC adaptation as a primary concern given CC challenges, while setting an aspirational goal in term of mitigation<sup>36</sup>. The NDC also establishes a mitigation ambition of 70% reduction in GHG emissions by 2030 that will be complemented with the strategies and plans such as supporting the development of renewable energy and energy storage technologies appropriate for SIDS. The country acknowledges the necessity of identifying its crucial assets and sensitive receptors vulnerable to potential CC impacts. The 2023 Physical Development Plan and the Roofs to Reefs Programme (R2RP)<sup>37</sup> provide the relevant framework for Barbados to achieve its resilience goal by 2030. In an effort to mitigate the effects of CC and protect the fragile coastal reef ecosystems, the GoB supports this project for increasing the country's resilience.
- 1.15 **Gender Considerations.** The Global Gender Gap Index in Barbados is 0.769 (parity = 1), ranking Barbados 31st out of 146 countries. In political empowerment the participation of women is less than 26%<sup>38</sup>. At BWA, at the operational and technical levels, women's participation is less than 8% and less than 25%, respectively, while at the administrative level, it exceeds 85%. At the management level, women surpass 55%, hence achieving parity in leadership positions.
- 1.16 The 2010 Barbados Census estimated the population of Persons with Disabilities (PWD) at 11,546 (4,2% of the total population), of which 43% were men and 57% were women<sup>39</sup>. PWD earn 77% of the monthly income of people without disabilities<sup>40</sup>. Although there are laws that establish non-discrimination against PWD, no specific laws were found that mandate accessibility in buildings and transportation, which creates significant barriers for PWD. There is also no regulation on this topic within BWA. In 2007 Barbados ratified the Convention on the Rights of PWD. Globally, the exclusion of PWD can represent a loss between 3 to 7% of a country's GDP<sup>41</sup>. An institutional diagnosis will be conducted to design a Gender and PWD Action Plan that promotes the participation of these groups within BWA ([OEL#7](#)).
- 1.17 **Project strategy and IDB Group synergy.** The project falls within the framework of the R2RP (¶1.3), contributing to developing resilient water supply infrastructure and improving marine ecosystems, including building the resilience of the GHS

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<sup>35</sup> [OEL#1](#) [25,26]

<sup>36</sup> The GoB set in its NDC 2021 an aspirational goal to achieve a fossil fuel-free economy and to reduce greenhouse gas (GHG) emissions across all sectors as close to zero as possible by 2030.

<sup>37</sup> To confront the challenges of CC, the GoB launched R2RP as a holistic, integrated national initiative for the resilient development of Barbados.

<sup>38</sup> [OEL#1](#) [27]

<sup>39</sup> [OEL#1](#) [28]

<sup>40</sup> [OEL#1](#) [29]

<sup>41</sup> [OEL#1](#) [30]

- and minimizing locally generated stressors from the SCSTP. The renewable energy sub-component further builds resiliency by increasing the sustainability of the Barbados' power grid, fostering the resilience of BWA's pumping stations, and mitigating the additional carbon footprint of the upgraded wastewater treatment facilities. The GoB can access long-term financing for climate-resilient investments without increasing the debt stock through a potential IDB financing for a Policy-Based Guarantee (BA-U0002 under preparation) to support an innovative Debt-for-Climate Transaction. The policy measures of BA-U0002 include strengthening the enabling environment for resilient investments. Additionally, climate-resilient investments complementary to this operation, such as NRW interventions, additional sewer connections, and capacity building, will contribute to further increasing water availability and enhancing the sustainability of the sector. Moreover, IDB Invest will provide advisory services to BWA to support the feasibility study of the renewable energy sub-component, and to develop a cost analysis and a tariff, rates, and charges study for water, sewerage, and wastewater treatment services in Barbados (Advisory Engagement 14977).
- 1.18 **The Bank's sector knowledge and value added.** The IDB has provided programmatic interventions in building the sanitation systems in Barbados. The South Coast Sewerage System project approved in 1992 ([709/OC-BA](#), [710/OC-BA](#)) provided primary treatment of sewage. The Water and Sanitation Systems Upgrade project approved in 2009 ([2255/OC-BA](#)) sought to support GoB efforts to modernize the institutional setting of the water and sanitation sector and improve the efficiency of the operations of the BWA. The Bank has supported the GoB in relevant reforms through policy-based operations. In particular, Water Reuse Bill (2023), supported under the Sustainable Development Policy Program II ([5439/OC-BA](#)), regulates the reuse of wastewater, and this Project is an application of this bill.
- 1.19 IDB brings considerable experience in tertiary wastewater treatment plants (WWTP). The Bank has financed several tertiary WWTP in Trinidad and Tobago: the 40 MLD Malabar WWTP and 45 MLD San Fernando WWTP under the Multi-Phase Wastewater Rehabilitation Program Phase I ([2890/OC-TT](#)) and the 4.3 MLD Trincity WWTP and Waste Stabilization Pond Systems in South West Tobago under the WASA Modernization and Wastewater Infrastructure Rehabilitation Program ([2600/OC-TT](#)). IDB also leverages its expertise in water resources management to improve resilience to climate change. IDB is preparing a technical cooperation (BA-T1107) to support the preparation and execution of this Project, with a focus on technical/ procurement aspects and initial support to the PEU.
- 1.20 **Lessons learned.** Lessons learned from past Bank operations highlighted challenges in project execution, specifically regarding capacity at the EA, and in procurement processes. This operation will therefore include: (i) robust results monitoring: full involvement of the BWA during project preparation and definition of the Results Matrix, and strengthening of BWA's monitoring and reporting systems (¶1.32); and (ii) enhanced procurement planning: ongoing guidance to BWA to support streamlining of processes, including the provision of advisory services to procurement (¶3.6).
- 1.21 **Alignment with the Public Utilities Policy (document GN-2716-6).** The proposed operation is aligned with the Public Utilities Policy criteria: (i) financial sustainability (¶1.53); and (ii) economic feasibility (¶1.51); and its objectives:

(a) promote access: by improving the resilience of the potable water services infrastructure and improving wastewater treatment; (b) deliver reliable service quality: by implementing systems to track water quality and quantity; (c) deliver a service efficiently: by utilizing energy-efficient equipment and renewable energy i to reduce operating costs, and supporting BWA's capacity strengthening; (d) improved governance, accountability and transparency through implementation of AquaRating action plan; (e) create suitable incentives and programs to manage demand: by reducing agriculture demands for potable water, and promoting water resources conservation; and (f) promote sustainability of public utilities: through financial, environmental and social sustainability.

## **B. Objective, Components, and Cost**

- 1.22 **Objectives.** The general objective of the operation is to enhance Barbados' water supply resilience and reliability with a focus on climate action, environmental sustainability, and food security. The specific objectives are to: (i) diversify Barbados's water supply sources and reduce water insecurity through the reuse of reclaimed wastewater; and (ii) strengthen key sector institutions on water resource management, operational efficiency, monitoring, and gender mainstreaming.
- 1.23 **Component 1: Water Reclamation Infrastructure – US\$63.4 Million** (OC:US\$27.4M; Local: US\$36M). This component will finance the construction of the New South Coast Water Reclamation and Re-use Facility (SCWRRF) with an ADWF of 9,000 m<sup>3</sup>/day <sup>42</sup> under a Design Build EPC/Turnkey modality and operation and maintenance (O&M) costs for one year including climate proofing considerations. It will include all process units and ancillary facilities to provide secondary and tertiary treatment, followed by an Advanced Water Treatment (AWT) side stream including safe and sustainable treatment and management of sludge with the aim to reduce pollution and GHG emissions.
- 1.24 Additionally, this component will finance the upgrade of the existing SCSTP upgrading equipment in the existing influent lift pump station and headworks including interconnecting piping to the SCWRRF and the design and installation of the odor control system. This component will also finance Construction Supervision services.
- 1.25 **Component 2: Reclaimed Water Reuse – US\$19.6 Million** (OC: US\$1.1M; Local: US\$18.5M). This component will finance:
- 1.26 **Sub-component 2.1: Agriculture Reuse of Reclaimed Water Pipeline** consisting of the installation of a 25 km pipeline for transporting reclaimed water for irrigation for potentially some 1,320 hectares at River Plantation along the old trainline (Trailway), Haggatt Hall, Salters, Marchfield, and Sanford irrigation districts, and ancillary equipment, and a reservoir.
- 1.27 **Sub-component 2.2: Aquifer Recharge Infrastructure** consisting of the installation of 4 km water pipeline, 5 injection wells, 6 exploratory boreholes, 3 monitoring wells, 3 abstraction boreholes and pumping stations, and ancillary equipment for aquifer recharge.

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<sup>42</sup> The proposed design flows are: ADWF is 9,000 m<sup>3</sup>/day, average wet weather flow (AWWF) 24,000 m<sup>3</sup>/day and peak wet weather flow (PWWF) 28,000 m<sup>3</sup>/day.

- 1.28 This component will also finance **Construction Supervision** services.
- 1.29 **Component 3: Climate change and biodiversity opportunities – US\$16 Million** (OC: US\$2M; Local: US\$14M). This component will finance:
- 1.30 **Sub-component 3.1: Graeme Hall Swamp Natural Heritage Conservation Area (NHCA) Conservation** consisting of: (i) the development of baseline assessments for the NHCA, inclusive of the GHS, associated beach, and buffer zone; (ii) the development of a results-based management plan for GHS; and (iii) upgrade the drainage system to facilitate efficient discharge from the swamp to the sea.
- 1.31 **Sub-component 3.2: Solar Energy Generation with Battery Storage** consisting of 7MW solar photovoltaic plant and associated energy storage, to be co-located with existing 3MW solar systems.
- 1.32 **Component 4: Institutional Strengthening – US\$1.5 Million** (Local: US\$1.5M). This component will finance institutional strengthening activities including: (i) Improving the governance and project management capacity of BWA through the implementation of an action plan based on AquaRating and training in O&M of the SCWRRF; (ii) Implementing an Institutional Gender and PWD Action Plan to promote the increased participation of women and PWD within BWA, and data collection on PWD within BWA (¶1.46); (iii) Implementing robust monitoring, reporting and verification (MRV) systems to track water quality and quantity, soil quality and climate-related parameters; (iv) Developing and implementing a project planning, management and monitoring system for BWA; (v) Developing and implementing an action plan to increase capacity at GAS; (vi) Strengthening the BADMC Farmers' Empowerment and Enfranchisement Drive program; and (vii) Designing and implementing public awareness and stakeholder engagement campaigns to promote the benefits of wastewater reuse and build community support.
- 1.33 **Project Administration and Other Costs – US\$3.15 Million** (OC: US\$3.15M). This component will finance project execution unit (PEU) dedicated staff, audits, monitoring and evaluation, communication, and supervision and implementation of an Environmental and Social Management Plan (ESMP).
- 1.34 **Contingency Resources – US\$6.35 Million** (OC: US\$6.35M). This component will finance unanticipated costs arising from risks factors during infrastructural works.

### **C. Key Results Indicators**

- 1.35 The Results Matrix (Annex II) includes the products and results of the Project. Table I-1 presents some key Impact and Outcome Indicators.

**Table I-1 – Key Impact and Outcome Indicators**

Impact Indicators	Unit of Measure	Baseline* (year)	Target EOP
Yearly per capita water availability	m <sup>3</sup> /hab./year	285 (2020)	273
Biochemical Oxygen Demand (BOD) in reuse facility effluent	(mg/l)	190	30
Percentage of food products sold in markets that are locally produced	Index (base=100)	100	145
Outcome Indicators	Unit of Measure	Baseline* (year)	Target EOP
Yearly volume of reclaimed water available for productive uses that meets local and international standards	Mm <sup>3</sup> /year	0	2.05
Yearly volume of reclaimed water injected to the Christ Church aquifer	Mm <sup>3</sup> /year	0	1
Percentage of operating expenses covered with BWA's operating revenues	%	111 (2023)	111
Verification reports from the Monitoring, Reporting and Verification (MRV) system for the project produced	Report / year	0	3
Results-based management plan for the GHS Natural Heritage Conservation Area implemented	Plan	0	1
Internal policy aimed at promoting the participation of PWD within BWA approved by the Board	Policy	0	1
BWA personnel that are women who complete the leadership training program	%	0	30

(\*) Unless otherwise noted, the year of the base line is 2024.

1.36 **Developmental Impacts, Benefits and Expected Beneficiaries.** The main development impact expected is a slowing down of the rate of forecasted decrease in water availability per person per year due to CC impacts (increasing temperatures and decreasing precipitation) because of the additional 3.05 Mm<sup>3</sup> of reuse water that will enter Barbados water cycle per year. This water will come from the SCWRRF, contributing to improve resilience (adaptation to CC) and diversifying water sources for agricultural irrigation and aquifer recharge. By 2050, the models used estimate that water availability (all things being equal) will be 98 m<sup>3</sup>/person/year without the project and 238 m<sup>3</sup>/person/year with the project, improving water security. The availability of water for irrigation coupled with investing in sustainable agricultural practices will contribute to improve food security, impact incomes, reduce food imports, and increasing employment opportunities<sup>43</sup>. It will also contribute to safeguard public health and protect the environment because of the increased sewerage treatment levels. This in turn, will potentially have a positive impact in the economy through tourism activity given Barbados' tourism high dependency on the quality of its marine ecosystems.

1.37 The project will also directly benefit 2,900 existing connections (some 48,825 persons) who will benefit from an upgraded service and, indirectly all the population of Barbados by: (i) Improving the resilience of the potable water services infrastructure; and (ii) Improving the quality of the effluent discharged thus

<sup>43</sup> Based on a MAFS 2021 study [31 in [OEL#1](#)], the project will have an impact on increase sustainable employment for those individuals hired to work on the area under irrigation, contributing to reduce unemployment rates, currently at 8.3%; reduce demand on the welfare services since more persons will be employed, contributing to reduce the poverty rate in Barbados, currently around 23%; and boost businesses in the surrounding communities with a possible demand for food supplies and after work recreational activities, as well as agricultural input suppliers from an increase in agricultural activity. This will, through the multiplying effect, contribute to Barbados' economic growth.

reducing impacts on the marine ecosystems and the pressure on the GHS. Replacement of the potable water customarily used for agricultural irrigation in the Silver Hill and Gibbon's Boggs area with reclaimed water, will allow for unused potable water redistribution to customers within the surrounding districts. Additionally, by increasing groundwater reserves, BWA will be better positioned to weather any prolonged droughts by having additional water sources beyond desalinization capacity, to meet potable water demand. Further, by installing a 7MW capacity solar energy plant and battery storage capacity, BWA will increase the resilience of its services, and improve its energy efficiency which, in turn, improve operational efficiency by reducing O&M costs.

- 1.38 The project will directly benefit some 210 small farmers, of which 41% are below the poverty line<sup>44</sup>. Specifically, with the agriculture reuse of reclaimed water, some 114 small farmers leasing government land mainly in the River Plantation farming district will benefit with a sustainable source of water. Some 260 additional smallholder farmers located along the proposed irrigation water pipeline could also benefit. With aquifer recharge, it is expected that 96 farmers in 2 districts at Silver Hill and Gibbon's Boggs (630 acres) will benefit from improved groundwater abstraction from the Christ Church aquifer, as the project can supplement groundwater resources by up to 1 Mm<sup>3</sup> per year, resulting in the improved reliability of the water supply for irrigation.
- 1.39 The project will benefit the BWA, GAS, and BADMC to improve governance, efficiency, monitoring capabilities, and sustainable management of water resources; and in the case of BWA, also improve operational capacity, gender equality, and diversity.

#### **D. Strategic Alignment**

- 1.40 **Bank's strategy with the country.** This operation is aligned to the IDBG Country Strategy 2019-2023 (GN- 2953-1) with the Government of Barbados (extended through May 2025 (GN-2953-3)), under the Strategic Objective – 3.4 Promote private sector engagement that encourages greater productivity, as well as in resilient infrastructure investments. The project is included in the 2024 Operational Program Report (GN-3207).
- 1.41 **Strategic Alignment.** The project is consistent with the IDB Group Institutional Strategy: Transforming for Scale and Impact (CA-631) and is aligned with the development challenges of: (i) reducing poverty and inequality by improving access to irrigation water for small farmers who lease land, through reuse of reclaimed water year round, allowing them to increase irrigated areas, productivity, income, and contributing to improve food security (¶1.7, ¶1.23, ¶1.25); and (ii) addressing CC by improving resiliency of Barbados' water resources through the reuse of reclaimed water to recharge aquifers and to supplement potable water supplies (¶1.23, ¶1.26), and by contributing to mitigation by reducing GHG emissions by implementing a solar energy generation plant and improving energy efficiency in the SCSTP (¶1.30) and promoting sludge sustainable management (¶1.31, ¶1.23). Furthermore, the project also aligns with the operational focus areas of: (i) biodiversity, natural capital, and climate action (¶1.29, ¶1.46);

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<sup>44</sup> Using the Barbados Poverty Study [32 in [OEL#1](#)] poverty line values, of the 102 farmers for whom information is available, 41% of beneficiaries are below the poverty line, of which 6% are below the extreme poverty line.

(ii) gender equality and inclusion of diverse population groups (¶1.47);  
(iii) institutional capacity, rule of law, and citizen security (¶1.32); and  
(iv) sustainable, resilient, and inclusive infrastructure (¶1.23, ¶1.25).

- 1.42 According to the MDB methodology for [Climate Finance](#), 81.67% of the resources provided by the IDB are invested in mitigation and adaptation activities (see Annex CCS) In accordance with the methodology adopted by the Bank for green financing (GN-3101), the operation also contributes to the environmental sustainability objective of “sustainable use and protection of water and marine resources”. Since this contribution is concurrent to climate finance, the aggregate sum of green and climate finance is also 81.67% of the operation.
- 1.43 **Alignment with the Paris Agreement (n2).** This operation has been analyzed using the [Joint Framework of the MDBs](#) for the Analysis of Alignment with Paris and the [PAIA of the IDB Group](#) (GN-3142-1); it has been determined: (i) aligned with the adaptation goal of the Paris Agreement; and (ii) universally aligned with the mitigation goal of the Paris Agreement, under the following conditions: the SCWRRF requires to address its carbon footprint and will ensure it is designed and built under CC considerations.
- 1.44 **Other strategies and sector frameworks.** The operation 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-2781-8) for universal access and improved service and social and environmental sustainability; (ii) the Climate Change Sector Framework Document (GN-2835-8) with the premise of Dimension of Success 4, “countries make progress on mainstreaming climate considerations across sectors”; and (iii) the Gender and Diversity Sector Framework Document (GN-2800-8) on the provision of quality public services that promote gender equality or the empowerment of women, and projects that support social inclusion of PWD.
- 1.45 Further, the operation is aligned with ONE Caribbean (Partnering for Caribbean Development Framework) (GN-3201-5), particularly the key priority area of “Climate adaptation, disaster risk management and resilience” and the crosscutting area of “Institutional Strengthening”. Specifically, the objective of the project to enhance Barbados’ water supply resilience and reliability with a focus on climate action, environmental sustainability, and food security will support the realization of ONE Caribbean's thrust towards increasing the number of beneficiaries and the value of public investments of enhanced resilient infrastructure.
- 1.46 **Coordination with Green Climate Fund (GCF) and European Investment Bank (EIB).** In order to further support climate and resilient activities in Barbados, the GoB is seeking resources from the GCF for the financing of this Project. As an accredited entity, the IDB has therefore worked closely with GCF on project design and preparation of an aligned GCF funding proposal. Additionally, activities contemplated in the Project under Component I may benefit from a Partial Credit Guarantee to be provided by EIB to the GoB with the main objective of generating fiscal space for resilient investments. Further support to the water sector would be complemented by



the IDB through a policy-based guarantee (¶1.17), aiming at enhancing climate and financial resilience in Barbados by (i) strengthening the institutional framework of the country to support sustainable finance and investments in climate and water resilience; and (ii) improving fiscal management capacity to increase fiscal and CC resilience. The IDB and EIB are collaborating on structuring the financial operation, with EIB participating in the due diligence of this Project. Additionally, the Project supports GoB coordination efforts of multilateral banks and organizations via the coalition formed by GoB to develop resilient infrastructure, including water and waste treatment infrastructure, and to drive new social and nature capital investments.<sup>45</sup>

- 1.47 **Gender and Diversity strategy.** An in-depth institutional diagnosis of the situation regarding gender equality and the inclusion of PWD in BWA will be conducted to prepare an Action Plan aimed at promoting increased participation of these groups in the workplace (¶1.15). This Gender and PWD Plan will include, at least: (i) an internal policy to promote the participation of PWD within the institution and (ii) a leadership training program specifically targeted at women, which may include mentoring plans, self-esteem and assertiveness courses, and why gender and diversity matter in WASH, among others. Given that women are the most important clients of WASH services, a more diverse workforce integrated into the design, operation, and maintenance of WASH services can help better understand and efficiently respond to the priorities and needs of female and PWD users.
- 1.48 **Climate Change strategy.** Considering Barbados' high vulnerability to CC and natural disasters (¶1.2) and the expected impacts on water resources (¶1.5, ¶1.6) the operation contributes to enhancing the resiliency of Barbados water supply to CC, as well as Barbados' decarbonization pathway through the inclusion of the solar energy generation with battery storage component. Enhanced WWTP and water reuse opportunities allowing water availability increase are vital to the country's resilience strategy. Furthermore, the operation contributes to protecting ecosystems which are under pressure when extreme weather events impact storage capacities in WWTP and risk effluent pollution.
- 1.49 **Innovation and Digitalization strategy.** Compared to other WWTPs, the SCWRRF will be equipped with an innovative AWT process consisting of Ultrafiltration and Reverse Osmosis. This will produce a high-quality effluent that complies with international standards for reclaimed water reuse. The facility, pipelines and wells will be equipped with Smart Water Infrastructure Technologies such as smart meters, valves, and loggers. An assessment of the digital maturity of BWA will be conducted as part of the AquaRating implementation (¶1.32). The project introduces managed aquifer recharge, an innovative and replicable method for sustainable groundwater management in the Caribbean.

## E. Feasibility Analysis

- 1.50 **Technical feasibility.** The proposed technical solutions fully meet the needs for improving BWA's capacity to treat wastewater collected at SCSTP and further treat flows at the SCWRRF to international standards for reuse in agriculture and aquifer recharge. The works defined fully meet the technical requirements for this type of operation (see Technical Options and Design - [OEL#3](#)). The Employer's Requirements outlines required infrastructural works to ensure technical viability

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<sup>45</sup> IDB supported via a programmatic policy-based loan series to improve Barbados' governance for sustainability (5439/OC-BA).

and effective training in O&M. The long-term operational success of the project will require BWA's continuous monitoring, adaptation to changing conditions, and adherence to best practices.

- 1.51 **Socioeconomic feasibility.** A cost-benefit analysis was performed for all the works related to sewerage treatment, reclamation, distribution, and reuse infrastructure financed by the project, and the solar plant and battery storage infrastructure for which economic benefits could be quantified. The costs analyzed were the incremental investments and O&M costs expressed in social prices. The economic benefits were quantified using willingness to pay estimates (updated to 2023 prices) for marine ecosystems protection, net incremental income generated from irrigated areas during dry season in economic prices (less taxes and levies), net savings (economic cost) on water treatment due to augmented water availability in the aquifer rather than desalinated water, and the socioeconomic value of GHG emissions reductions using the shadow cost of carbon<sup>46</sup>. The economic value of benefits associated to CC adaptation and mitigation and environmental protection of marine resources account for 43.7% of the total economic value of benefits attributable to the project. The results of the analysis show that under different CC scenarios<sup>47</sup> the project is socioeconomically feasible with internal rates of return above 12%, ranging from 15.31% to 17.78%. The evaluation was supplemented with a sensitivity analysis ([OEL#2](#)).
- 1.52 **Institutional feasibility.** An institutional assessment of BWA was conducted using the Institutional Capacity Assessment Platform (ICAP). The results show the presence of: (i) technical project management capacities, and the organizational structure that permeates institution-wide support through BWA's Project Management Office (PMO) – the office responsible for the execution of externally funded investment projects under a collaborative mechanism with other departments; and (ii) a governance structure that supports BWA's responsibilities with respect to investments, administration, financial management and operations. Specific recommendations include: (i) complete the staffing of vacant positions in the PMO; (ii) strengthen the planning, monitoring, and evaluation functions of the PMO; and (iii) establish a Project Steering Committee (PSC).
- 1.53 **Financial sustainability.** While the water tariff schedule for domestic users has not been adjusted since 2009, a regional benchmarking study<sup>48</sup> suggests that BWA's domestic water tariff (for 15 m<sup>3</sup>, US\$20.77/month/user) is comparable to other utilities (US\$23.87/month/user on average). The water tariff schedule for commercial users was adjusted in 2019, and the Garbage and Sewage Contribution Levy, introduced in 2018, provides BWA revenues to cover O&M cost of sewerage systems. The financial analysis indicates that: (i) in recent years, BWA has maintained positive earnings before interest, taxes, depreciation, and amortization margin (on average 13% during the last three years of the historical analysis), despite a significant impact from an increase in non-payments (currently estimated at 20.51%), which arose due to suspension of disconnections adopted during the COVID-19 pandemic; (ii) under a scenario with improvement in the non-payment level, BWA could cover its operational costs with operational revenues in the medium term; and (iii) BWA's long-term financial sustainability is dependent on

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<sup>46</sup> Following the EIB's methodology (see [OEL#2](#)).

<sup>47</sup> Using the expected yield by 2050 and simulating linearly and hyperbolically yearly yield reductions: RCP 2.6, RCP 4.5 and RCP 8.5 for which two different yield estimates exist ([OEL#2](#)).

<sup>48</sup> [OEL#1](#) [33]

tariff revisions and/or the government providing financial support ([OEL#4](#)). Aiming to strengthen BWA’s long-term financial sustainability, an IDB Invest Advisory Engagement will include a cost analysis and tariff assessment (¶1.17). A special contractual condition has also been included to ensure the financial sustainability of the investments (¶3.5). Furthermore, in considering BWA estimates on the potential loss of revenue from NRW to be US\$43M/year<sup>49</sup>, the IDB has included NRW reduction among proposed complementary investments (¶1.17). This will have a significant impact on BWA’s financial viability and capacity to provide a sustainable and more reliable water supply, strengthening resilience of the sector.

## II. FINANCING STRUCTURE AND MAIN RISKS

### A. Financing Instruments

- 2.1 **Modality and financial structure.** This operation is structured as a specific investment loan since the activities of the Project are clearly defined. It will be financed with resources from the Bank’s Ordinary Capital (OC) for an amount of up to US\$40 million and US\$70 million from local contribution<sup>50</sup> and will have a disbursement period of five years.
- 2.2 **Cost and financing.** The costs and financing of the operation respond to the breakdown in Table II-1. See detailed budget in [REL#1](#).

**Table II-1. Summary of Project costs (in US\$ thousands)\***

Components	IDB	Local	Total	%
<b>Component 1: Water Reclamation Infrastructure</b>	<b>27,400</b>	<b>36,000</b>	<b>63,400</b>	<b>57.64</b>
New South Coast Water Reclamation and Re-use Facility (SCWRRF)	13,602	20,000	33,602	30.55
Upgraded South Coast Sewage Treatment Plant (SCSTP)	13,798	16,000	29,798	27.09
<b>Component 2: Reclaimed Water Reuse</b>	<b>1,100</b>	<b>18,500</b>	<b>19,600</b>	<b>17.82</b>
New Reclaimed Water Pipeline for Agriculture Reuse	780	13,500	14,280	12.98
New Aquifer Recharge Infrastructure	320	5,000	5,320	4.84
<b>Component 3: Climate Change and Biodiversity Opportunities</b>	<b>2,000</b>	<b>14,000</b>	<b>16,000</b>	<b>14.55</b>
Graeme Hall Swamp NHCA Conservation	2,000	0	2,000	1.82
Solar energy generation with battery storage	0	14,000	14,000	12.73
<b>Component 4: Institutional Strengthening</b>	<b>0,000</b>	<b>1,500</b>	<b>1,500</b>	<b>1.36</b>
<b>Project Administration and Other Costs</b>	<b>3,150</b>	<b>0</b>	<b>3,150</b>	<b>2.86</b>
<b>Contingency Resources</b>	<b>6,350</b>	<b>0</b>	<b>6,350</b>	<b>5.77</b>
<b>Total</b>	<b>40,000</b>	<b>70,000</b>	<b>110,000</b>	<b>100</b>

\* Costs per component or main activity are indicative.

- 2.3 **Disbursement schedule.** The disbursement schedule for the operation is presented in Table II.2.

<sup>49</sup> [OEL#1](#) [34]

<sup>50</sup> The GoB is expecting a soft loan of US\$30 Mn and a grant of US\$40 Mn from GCF. IDB is expected to be the accredited agency for processing these resources. While the GCF funding is expected to be approved in October 2024, in the unlikely scenario the funding does not come through, the risk will be mitigated by GoB providing counterpart resources.

**Table II.2 Disbursement Schedule (US\$ thousands)**

<b>Components</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Total</b>
IDB	8,394	17,249	32,049	37,762	40,000	<b>40,000</b>
%	7.6%	15.7%	29.1%	34.3%	36.4%	<b>36.4%</b>
Local	2,608	29,592	58,587	67,033	70,000	<b>70,000</b>
%	2.4%	26.9%	53.3%	60.9%	63.6%	<b>63.6%</b>
<b>Total</b>	11,002	46,841	90,636	104,795	110,000	<b>110,000</b>
%	<b>10.0%</b>	<b>42.6%</b>	<b>82.4%</b>	<b>95.3%</b>	<b>100.0%</b>	<b>100.0%</b>

**B. Environmental and Social Safeguard Risks**

- 2.4 In accordance with the IDB’s Environmental and Social Policy Framework (ESPF) and the environmental and social due diligence, this operation was classified as “Category B” since the works that will be financed are likely to cause local and short-term negative environmental and social impacts for which there are effective mitigation measures available. Due to the Project’s infrastructure works, there are potentially adverse environmental and social impacts during construction and operation (pollution, economic disruptions, etc.). The ESMP addresses the potential adverse environmental and social risks during all project stages. The ESMP further contains strict contractor requirements. The impacts include potential soil erosion and contamination; water pollution (surface and groundwater); increased noise, vibrations, dust, and emissions; and disruption of biological communities. Additionally, during the operation phase, there is a risk of improper disposal of wastewater and sludge if specific avoidance measures are not implemented. Nevertheless, the Project is expected to have mostly positive impacts by improving access to water for irrigation, improving potable water supply management and increased wastewater treatment.
- 2.5 There is no physical displacement or land acquisition identified for the project. However, temporary economic displacement of vendors could happen especially during pipeline construction. Appropriate prevention measures are outlined in the Environmental and Social Management Plan (ESMP) and, if required, Livelihood Restoration Plans (LRP) and compensation plans will be prepared. No direct adverse impacts on indigenous peoples or other vulnerable groups are anticipated. The Environmental and Social Risk Rating was classified as “Substantial”, mainly due to the magnitude of the proposed physical works and their direct impacts and the capacity of the EA. The Disaster Risk Rating was classified as “High”, given that potential project areas are typically affected by natural hazards such as floods, drought, and the consequences of CC. A Disaster Risk Assessment (narrative) was prepared, and a qualitative Disaster Risk Management Plan will be prepared during execution.
- 2.6 A fit-for-disclosure version of an Environmental and Social Assessment (ESA) and an ESMP were prepared. An Environmental Social Management System (ESMS) will also be developed. These documents were disclosed on the [Bank’s external website](#) prior to the analysis mission, in accordance with the Access to Information policy, ESPF 10.
- 2.7 A Consultation and Participation Strategy, including a grievance mechanism, was developed and disclosed in the ESMP. The first stage – project consultations – were conducted between May 9-11, 2024. The results are documented in a [Consultation report](#) have been published on IDB’s website and incorporated into

the ESMP ([OEL#9](#)) on Jun 12, 2024. Key resulting actions include: (i) Strengthening of the Stakeholder Engagement Plan (identification of additional stakeholders, specific activities to inform stakeholders on accident prevention measures and changes in pricing for reclaimed water); and (ii) Measures to prevent impacts on trees along the pipeline route. In alignment with IDB’s Environmental and Social Policy Framework (GN-2965-3), the IDB Group Measures to Address the Risk of Forced Labor in the Supply Chain of Solar Panels with Silicon Components (GN-3062-1) and IDB’s Procurement Policies (GN-2349-15 and GN-2350-15), the Borrower will be required under the ESMP to conduct due diligence regarding the risk of forced and child labor in the solar panel provider’s supply chain. Due diligence will include requirements for the supplier in the bidding documents on labor audits/certifications or sworn statements.

**C. Fiduciary Risks**

2.8 Based on the results of the ICAP and risk assessment, there are two medium-high fiduciary risks: (i) Due to potential procedural delays and governance complexities for the GOB release of funds to the EA, there could be delays in payments to contractors and goods and services providers, delaying Project execution. Mitigation – BWA will conduct monitoring of the timely availability of budgetary resources for Project implementation in coordination with the Public Investment Unit of the Ministry of Finance, Economic Affairs and Investment (MFEI). Specific administrative resources will be allocated to discharge the planning, monitoring and evaluation functions of the Project, so as to introduce timely adjustments to the PEP, while aiming to minimize any possible disruptions in physical and financial implementation over planned critical path for implementation as established in the POM. (ii) Due to international inflation, global supply chain disruptions, as well as possible constraints in availability of contractors, services, equipment, materials and human resources, there may be delays in procurement processes and cost overruns. Mitigation – Early during Project preparation and execution, BWA will conduct contractor and supplier information training and communication, providing for timely private sector engagement and understanding of the scope of the Project and the reach of its procurement activities. BWA will also issue timely general procurement notices, including prequalification of contractors for selected components, with the objective of ensuring optimal and effective bidding processes, based on the real capacity of contractors and goods and services providers. BWA with the support of the PEU will provide for constant monitoring of bills of quantities, prices, and supplier availability and performance to anticipate with the necessary measures to avoid cost escalations.

**D. Other Risks and Key Issues**

2.9 The project has other risks identified as **medium-high**:

RISK DESCRIPTION	RISK TAXONOMY	MITIGATION
Due to BWA’s limited revenue-generation capacity and corresponding budget, the EA may face limitations in its financial and operational capacity to effectively and adequately operate and maintain the	Sustainability	The EPC contract will include O&M costs for a one-year period as a transition/bridge to BWA/GOB resource allocation.

<p>plants and ancillary equipment funded under the Project.</p>		<p>BWA will conduct the necessary due diligence and work closely with key stakeholder institutions for maintaining the necessary tariffs, as well the optimal budgetary allocations to guarantee the necessary flow of financial resources to sustain the O&amp;M costs.</p>
<p>Due to the geographic location of Barbados, which makes it vulnerable to natural disasters, there can be potential damage to infrastructure and equipment during construction and operation, leading to delays in the project execution.</p>	<p>Sustainability</p>	<p>Technical specifications will contain specific provider and contractor requirements to increase the resilience of the assets in case of water and wind events.</p> <p>The ESMP contains specific technical guidelines with respect to disaster risk and recovery for securing Project assets.</p> <p>The POM will establish procedures and measures for asset management.</p>
<p>Due to lack of experience of BWA with contract management under the Engineering, Procurement and Construction (EPC) modality, this could lead to potential contractual conflicts, limitations in contract enforcement by BWA, and contractor compliance, thereby delaying Project execution.</p>	<p>Technical Design</p>	<p>Project pre-qualification procurement arrangement for the turnkey EPC will provide BWA with early exposure and training and capacity building in anticipation of contract management responsibilities.</p> <p>The BWA will retain the services of a Construction Supervision Firm with the relevant experience in EPC contracts to support in the implementation and monitoring of the contract</p>
<p>Due to challenges in BWA's capacity to manage the quantity fluctuation of the influent from the existing sewer network (27 years old) to the new treatment plant and, correspondingly the need for repairs and incremental maintenance costs under a limited budget, there can be significant financial burdens for the EA. In addition, if the minimum level of influent is not achieved, expected volumes of reused water would not be realized and Project targets not attained.</p>	<p>Technical Design</p>	<p>Technical studies have been conducted during Project preparation to support the technical, financial and institutional viability of proposed investments, along with the management structure for its operations. BWA is also installing equipment to support improved monitoring of flows.</p> <p>BWA will provide for monitoring of flows from the existing sewage system, along with system performance, introducing the necessary technical adjustments to existing and new infrastructure.</p>

### III. IMPLEMENTATION AND MANAGEMENT PLAN

#### A. Summary of Implementation Arrangements

- 3.1 **Borrower and Executing Agency.** The Borrower will be the GoB. The EA will be BWA (¶1.3). A PEU will be established in BWA's PMO. This structure will ensure dedicated management, technical, administrative, financial, planning, and monitoring and control capacities in the PEU, while leveraging BWA's

organizational structure. Additionally, a PSC will be established with the main objective to provide a strategic oversight framework and to facilitate coordination among relevant institutions (¶1.52). The PSC will be chaired by the BWA, and participating institutions will include the Prime Minister's Office, MEFI, MAFS, BADMC, and MENB, and will convene, at least, quarterly. The PSC's main responsibilities will include: (i) monitoring progress in the implementation of the Project; and (ii) ensuring an appropriate and sustained stakeholder participation and coordination. The POM ([OEL#5](#)) details the governance structure, the institutions, and procedures of the PSC.

- 3.2 **Project Execution Unit.** Project implementation will be the responsibility of the PEU in direct coordination with BWA's PMO. The PEU will be responsible for: (i) acting as focal point with the Bank; (ii) conducting the financial management; (iii) executing the overall procurement for the Project, and providing contract management; (iv) undertaking the planning, monitoring and evaluation activities, and reporting; (v) monitoring and supervising all technical activities; (vi) leading the Project's stakeholder engagement activities and (vii) implementing and monitoring the activities contained in the ESMP.
- 3.3 **Project Operations Manual (POM).** Project execution will be governed by the provisions of the Loan Contract and those established in the POM, which will include, at a minimum: (i) the organizational structure, including the composition of the PEU, and corresponding execution mechanism of the Project, including the PSC; (ii) the activities and responsibilities of the various actors of the Project including BWA, PMO, and other public institutions; (iii) the main technical, administrative, and control activities; and (iv) the main environmental and social management procedures.
- 3.4 **Special Contractual Conditions Precedent to the First Disbursement. The Borrower, through the EA, shall provide evidence to the satisfaction of the Bank that: (i) the EA has established the PEU and has appointed its key personnel, in accordance with the terms previously agreed with the Bank, of the: a) project coordinator, b) project engineer, c) financial specialist, d) procurement specialist, and e) environmental management specialist ; and (ii) the POM has been approved by the EA and has entered into effect on the terms previously agreed with the Bank.** These conditions are essential to ensure the timely execution of the project, as they will guarantee the definition of detailed governance arrangements and regulations on operational and fiduciary issues, including the roles and responsibilities of the PEU key personnel.
- 3.5 **Special Contractual Conditions for Execution. (i) Component 1.** Prior to the start of construction, the Borrower, through the EA, shall provide evidence to the satisfaction of the Bank in accordance with the laws of the Borrower that BWA holds sufficient legal possession of the land where the new water reclamation and reuse facility will be constructed; (ii) **Sub-components 2.1 and 2.2.** Prior to the start of construction, the Borrower, through the EA, shall provide evidence to the satisfaction of the Bank in accordance with the laws of the Borrower that the BWA holds sufficient legal rights on the land where the wells will be developed and adequate rights-of-way to the land where the new pipeline for irrigation and recharge will be installed; (iii) **Sub-component 3.2.** Prior to the start of construction, the Borrower, through the EA, shall provide evidence to the satisfaction of the Bank in accordance with the laws of the Borrower that BWA holds sufficient legal rights and adequate rights-of-way to the land where the

panels and battery storage system will be installed; and (iv) **All Components**. Prior to the start of construction for any of the works, the Borrower, through the EA, shall provide evidence to the satisfaction of the Bank, of its approval of the financial mechanism to guarantee the financial sustainability of the works financed by the Project. These conditions are critical to ensure that the project is appropriately supervised and managed, and to facilitate the financial sustainability of the investments and BWA's long-term coverage of O&M costs of the works.

- 3.6 **Advance Procurement.** The Borrower requested the Bank to proceed with the initial steps of procurement in respect of Component 1 before signing the loan. As such, the Borrower has agreed that the procurement procedures, including advertising, will be in accordance with the Bank's Core Procurement Principles, prohibited practices and eligibility for the eventual contracts to be eligible for Bank financing, and the Bank will review the process used by the Borrower. Borrower undertakes such advance contracting at its own risk, and any concurrence by the Bank with the procedures, documentation, or proposal for award does not commit the Bank to make and/or approve a loan for the project in question (See Section 1.11 of GN-2349-15).
- 3.7 **Procurement Execution.** Procurement activities will be carried out in accordance with the Policies for the Procurement of Goods and Works financed by the IDB (GN-2349-15), and the Policies for the Selection and Contracting of Consultants Financed by the IDB (GN-2350-15). All procurement processes must be included in the procurement plan approved by the Bank through the client portal and will be conducted in accordance with the methods, supervision modalities, and thresholds established therein. The EA and the Bank have agreed on a procurement plan for the first 18 months of execution ([REL#4](#)). The bidding documents may include additional sustainability requirements in the procurement process, as well as requirements for the Contractor to employ a primarily local labor force during execution of infrastructural works.
- 3.8 **Advance of funds.** The advance of funds will be governed by the provisions of the Financial Management Guidelines for IDB-financed Projects (OP-273-12). After the first disbursement, subsequent disbursements will be subject to justification of 65% of the previous advance.
- 3.9 **Auditing.** During the loan disbursement period, the EA will submit to the Bank the project's annual audited financial statements within 120 days of the close of the fiscal year. The audit is to be performed by a Bank-eligible independent audit firm. The determination of the scope and other related aspects will be Governed by the Financial Management Guidelines for IDB-financed Projects (OP-273-12) and the Audited Financial Reports and External Audit Management Handbook. Audits may be financed with project funds.
- 3.10 **Partial waiver of Bank policies on procurement and consultants.** Given that the EIB's guarantee facilitates the financing of activities under Component I of the Project (¶1.1.46), and considering that the Bank's procurement policies will apply to all procurement procedures where the Bank takes the lead in executing and monitoring the project's procurement activities, a partial waiver needs to be requested for the Policies for the Procurement of Goods and Works Financed by the Inter-American Development Bank (document GN-2349-15, paragraph 1.8) and the Policies for the Selection and Contracting of Consultants Financed by the



Inter-American Development Bank (document GN-2350-15, paragraph 1.13), so that firms, individuals, and goods originating from non-member countries of the Bank can participate in the selection, procurement, and contracting processes relating to Component I of the Project, pursuant to the mutual reliance agreement on procurement entered into between the EIB and the Bank in April 2022<sup>51</sup>.

## **B. Summary of Arrangements for Monitoring Results.**

- 3.11 **Monitoring.** A monitoring and evaluation plan was agreed for the Project ([REL#2](#)), which establishes the use of the PP, PEP, AOP, Financial Plan, and the RM and Progress Monitoring Report. The PEU will send to the Bank, within the following 60 days at the end of each semester, a progress report which will include, among other, the results obtained and an action plan for the following semester.
- 3.12 **Evaluation.** A mid-term and a final evaluation following Project Completion Report (PCR) Guidelines are planned. A mid-term evaluation will be carried out when the operation reaches 50% disbursement or 30 months since Project eligibility. The methodology to assess effectiveness at the end of the project will be a “before and after” analysis, which consists of comparing the baseline values of the Project’s results indicators with the values achieved after the interventions have been implemented. Attribution of the results to the Project will be based on a revision of the Project’s vertical logic and evidence that supports the links between the results and the products in similar contexts. An ex post economic evaluation will also be carried out, as part of the final evaluation. The ex post economic evaluation will be part of the PCR, which will be carried out up to 24 months after the end of execution of the Project ([REL#2](#)).

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<sup>51</sup> “Procedural Framework between the European Investment Bank and the Inter-American Development Bank in respect of mutual reliance in procurement for jointly co-financed public sector projects in common countries of operations,” April 2022 (EIB-IDB Agreement). Pursuant to paragraph 5.1 of the agreement, projects cofinanced by the EIB and the Bank will not be subject to country-of-origin eligibility restrictions for the selection of firms or individuals or the procurement of goods, so long as the Bank’s Board of Executive Directors provides such authorization at the time of approval of each operation.

Development Effectiveness Matrix		
Summary		BA-L1063
<b>I. Corporate and Country Priorities</b>		
<b>Section 1. IDB Group Institutional Strategy Alignment</b>		
Operational Focus Areas	-Biodiversity, natural capital, and climate action -Gender equality and inclusion of diverse population groups -Institutional capacity, rule of law, citizen security -Sustainable, resilient, and inclusive infrastructure	
[Space-Holder: Impact framework indicators]		
<b>2. Country Development Objectives</b>		
Country Strategy Results Matrix	GN-2953-1	Promote private sector engagement that encourages greater productivity, as well has in resilient infrastructure investments.
Country Program Results Matrix	GN-3207	The intervention is included in the 2024 Operational Program.
Relevance of this project to country development challenges (If not aligned to country strategy or country program)		
<b>II. Development Outcomes - Evaluability</b>		Evaluable
<b>3. Evidence-based Assessment &amp; Solution</b>		9.1
3.1 Program Diagnosis		2.1
3.2 Proposed Interventions or Solutions		3.5
3.3 Results Matrix Quality		3.5
<b>4. Ex ante Economic Analysis</b>		7.5
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		0.0
4.4 Sensitivity Analysis		2.0
4.5 Consistency with results matrix		1.0
<b>5. Monitoring and Evaluation</b>		9.5
5.1 Monitoring Mechanisms		4.0
5.2 Evaluation Plan		5.5
<b>III. Risks &amp; Mitigation Monitoring Matrix</b>		
Overall risks rate = magnitude of risks*likelihood		Medium High
Environmental & social risk classification		B
<b>IV. IDB's Role - Additionality</b>		
The project relies on the use of country systems		
Fiduciary (VPC/FMP Criteria)	Yes	Budget, Treasury, Accounting and Reporting. Procurement: Information System.
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	BA-T1107

The general objective of the operation is to enhance Barbados' water supply resilience and reliability with a focus on climate action, environmental sustainability, and food security. The specific objectives of the operation are to: (i) diversify Barbados's water supply sources and reduce water insecurity through the reuse of reclaimed wastewater; and (ii) strengthen key sector institutions on water resource management, operational efficiency, monitoring, and gender mainstreaming.

The diagnosis is adequate, as it clearly presents the problem on which the program is focused, as well as its determinants. However, this is weakened by the limited information presented to quantify the dimensions of food security and its relationship to the agricultural production, a sector that is key for the economic benefits of the project to materialize. The Results Matrix has a clear vertical logic and SMART indicators that allow for the evaluation of the achievement of the specific objectives. Only one of the indicators is not considered SMART, since it is not clear that it measures a result and not an output.

The economic analysis assesses the net benefits associated with the increase in reused water available for irrigation that will allow an expansion of total cropland and an increase in the number of harvests per year. It also includes the net benefits from net savings in water treatment, marine ecosystem protection and the reduction in Greenhouse Gas Emissions.

The program has a Monitoring and Evaluation Plan that specifies: (i) the methodology for measuring indicators; (ii) attribution of project results; (iii) data requirements; and (iv) those responsible and the estimated budget. The evaluation of the results will be done with a before-and-after analysis, where the attribution of the results depends on the link between the implemented solutions and the associated results, which is considered appropriate in this case. The Project also proposes an ex-post economic analysis and has a plan and budget to collect the necessary data.

## Results Matrix

<b>Project Objectives</b>	The specific objectives are to: (i) Diversify Barbados' water supply sources and reduce water insecurity through the reuse of reclaimed wastewater and (ii) Strengthen key sector institutions on water resource management, operational efficiency, monitoring, and gender mainstreaming. Achieving these objectives will contribute to the general objective to enhance Barbados' water supply resilience and reliability with a focus on climate action, environmental sustainability, and food security.
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## Impacts

Indicators	Unit of measurement	Baseline (BL) value	BL year	Expected year for achievement	Target	Means of verification	Comments <sup>1</sup>
<b>General development objective:</b> To enhance Barbados' water supply resilience and reliability with a focus on climate action, environmental sustainability, and food security.							
I.1 Yearly per capita water availability	m <sup>3</sup> /hab./year	285	2020	2030	273	Reports from BWA's Monitoring, Reporting and Verification (MRV) system	The impact indicators associated to the development objective will be observed during the life of the project.  For details, refer to the Monitoring and Evaluation Plan.
I.2 Biochemical Oxygen Demand (BOD) in reuse facility effluent	(mg/l)	190	2023	2030	30		
I.3 Greenhouse gas (GHG) emissions reduction	tCO <sub>2</sub> eq	0	2024	2030	3,705		
I.4 Percentage of food products sold in markets that are locally produced	Index (base=100)	100	2024	2030	145	Farm surveys and official records (MAFS/BADMC)	The baseline and target values will be updated at Start-up Plan based on pre-preprogram information that will become available from data collected by MAFS and BADMC.

<sup>1</sup> For more details, please refer to the Monitoring and Evaluation Plan ([REL#2](#))

## Outcomes

Indicators	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
<b>Specific development objective 1:</b> Diversify Barbados' water supply sources and reduce water insecurity through the reuse of reclaimed wastewater											
R.1.1 Yearly volume of reclaimed water available for productive uses that meets local and international standards	Mm <sup>3</sup> /year	0	2024				1.32	2.05	2.05	Operational reports from BWA and readings from distribution system BADMC	It is estimated that the agricultural sector will use most of the reclaimed and reuse water primarily during the dry season.  Measurement will be taken on the main distribution pipeline meter.
R.1.2 Percentage of agricultural stakeholders adopting reused water as part of their water sources in the area of influence of the program	%	0	2024				50	75	75		It is expected that the project will benefit some 114 small farmers leasing government land mainly in the River Plantation farming district with reuse water for irrigation.  With the aquifer recharge, it is expected that 96 farmers in 2 districts at Silver Hill and Gibbon's Boggs will benefit from improved groundwater abstraction from the Christ Church aquifer.  75% of stakeholders adopting reused water equals 158 farmers
R.1.3 Yearly volume of reclaimed water injected to the Christ Church aquifer	Mm <sup>3</sup> /year	0	2024				1	1	1		Measure volume of treated effluent discharged to recharge wells, infiltration basins etc. to replenish aquifers, using flow meters.  Recharge to the Christ Church Aquifer equal to 4 months of during the wet season.

Indicators	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
<b>Specific development objective 2:</b> Strengthen key sector institutions on water resource management, operational efficiency, monitoring, and gender and PwD mainstreaming											
R.2.1 Percentage of operating expenses covered with BWA's operating revenues	%	111	2023						111	Operational reports from BWA	<p>Operating revenues and operating expenses based on BWA's financial statements. Operating costs do not include the cost of depreciation and amortization. BWA's fiscal year ends in March each year, and the latest available data is March 2023.</p> <p>The minimum target at the end of the project is 111%. It is expected that BWA will maintain its current level by implementing efficiency improvement measures, despite the expected cost increases owing to the project as well as inflation.</p>
R.2.2 Verification reports from the Monitoring, Reporting and Verification (MRV) system for the Program produced	Report	0	2024			1	1	1	3	Operational Reports from BWA validated by an independent verification agent	<p>The MRV system will allow BWA to improve accuracy, accountability, decision-making, transparency, and stakeholder engagement related to its environmental performance.</p> <p>The reports must include information on the use of resources and the impact of the project, in particular, on whether or not the milestones included in the Resilience Commitments and KPIs have been met.</p> <p>Yearly reports. The report for year 3 will be a baseline (w/o project) and annual and final targets of agreed milestones and the protocol to measure progress.</p>

Indicators	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
R.2.3 Operational reports from the integrated information systems of BWA approved by the Board	Report / year	0	2024			1	1	1	3	Report from the planning and monitoring platform for BWA approved by the Board	From the institutional assessment of BWA there is a lack of a software platform and procedures to download the overall strategic, operations and investments planning of the institution (physical and financial).
R.2.4 Percentage of BWA technical and operational personnel that are certified on O&M practices for the SCWRRF	%	0	2024				50	50	100	Certification lists from the course (part of the Firm building SCWRRF) validated by BWA	It is expected that the training will be imparted by the same Firm(s) that will design and build the SCWRRF and SCWTP works.  Technical and operational staff operating Bridgetown Sewage Treatment Plant (BSTP) and SCWTP will be rotated and require training (currently 44 employees total, expected to increase).

Indicators	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
R.2.5 Results-based management plan for the Natural Heritage Conservation Area implemented	Plan	0	2024					1	1	Reports of activities approved by Ministry of Environment and National Beautification (MENB), Blue and Green Economy	For the Plan to be considered in implementation, at least the following activities have resources budgeted and is in execution: (i) At least one report on the State of the GHS Ecosystem approved. (ii) At least one meeting of the Interministerial coordination committee has taken place and Minutes are available. (iii) At least one report on the performance of the Hydraulic System at GHS has been produced. (iv) At least three reports on the results of the collection and analysis of samples on the condition of biodiversity of the freshwater sedge, mangrove swamp, seagrass bed and coral reef.
R.2.6 Internal policy aimed at promoting the participation of PWD within BWA approved by the Board	Policy	0	2024					1	1	BWA Board Meetings Minutes	GDI Flag
R.2.7 BWA personnel that are women who complete the leadership training program	%	0	2024				15	15	30	Completion lists from the courses and training sessions approved by BWA	Specifically targeted at women, which may include mentoring plans, self-esteem, and assertiveness courses, and why gender and diversity matter in WASH, among others.  GDI Flag: Disaggregated by Gender

Indicators	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
R.2.8 Technical assistance packages on sustainable agriculture practices in implementation through BADMC Farmers' Empowerment and Enfranchisement Drive (FEED) Program in the area of influence of the Program	Assistance package	0	2024			1	1	1	3	Reports from BADMC	<p>Technical assistance packages include assessment and implementation of activities and training on sustainable agriculture practices.</p> <p>In implementation means that at least one technical assistance activity identified in the FEED assessment has resources budgeted and is in execution.</p>



## Outputs

Output Indicators	Corresponding Outcomes	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
<b>Component 1: Water reclamation infrastructure</b>												
1.1.1 New South Coast Water Reclamation and Re-use Facility (SCWRRF) constructed and operating	R.1.1, R.1.2, R.1.3.	Facility	0	2024				1		1	Progress Reports approved by BWA	
1.1.2 Existing South Coast Sewage Treatment Plant (SCSTP) upgraded and operating	R.1.1, R.1.2, R.1.3.	Plant	0					1		1		Upgraded means that the plant will be able to treat wastewater to the tertiary level (removal of nutrients).  Refurbished means that all equipment that is not functioning or functioning inefficiently (energy consumption) has been replaced.
<b>Component 2: Reclaimed Water Reuse</b>												
2.2.1. Agriculture Reuse of Reclaimed Water Distribution Pipeline Installed	R.1.1, R.1.2, R.1.3.	Pipeline	0	2024			1				Progress Reports approved by BWA	
2.2 Aquifer Recharge Infrastructure	R.1.1, R.1.3.	Infra-structure	0	2024			1			1	Progress Reports approved by Ministry	Includes pipeline, monitoring and injection wells,

Output Indicators	Corresponding Outcomes	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
installed and operating											of Environment, National Beautification (MENB), Blue and Green Economy	and ancillary equipment.
<b>Component 3: Climate Change and Biodiversity Opportunities</b>												
3.1 Natural Heritage Conservation Area (NHCA) Management Plan developed and implemented	R.2.4	Plan	0	2024					1	1	Final Report approved by BWA's Board	The results-base Plan for the NHCA includes the Graeme Hall Swamp, associated beach area and buffer zone and will inform activities and interventions to minimize locally generated stressors such as CC and pollutants on the downstream ecosystems and improve the health and resilience of the NHCA.
3.2 Solar Energy Generation Plant with Battery Storage implemented	R.2.1	Plant	0	2024					1	1	Final Report and Plan approved by BWA and FTC	7 MW generation capacity and one BESS system with specifications based on feasibility study funded by IDB Invest.

Output Indicators	Corresponding Outcomes	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
<b>Component 4: Institutional Strengthening</b>												
4.1 AquaRating action plan developed and implemented	R.2.1, R.2.4.	Plan	0	2024					1	1	Final Reports approved by BWA	The AquaRating action plan will be considered "implemented" when at least two of the activities prioritized have been executed.
4.2 Groundwater Modeling System (GMS) in BWA implemented	R.2.1, R.2.4.	System	0	2024					1	1		It will complement actions undertaken by BWA to model groundwater resources. It includes training.
4.3 Plan to increase participation of women and people with disabilities (PWD) within BWA with technical and operational roles and leadership training developed and implemented	R.2.4, R.2.6, R.2.7.	Plan							1	1	Final Report, including draft Gender and PWD Policy Proposal from Consulting Firm approved by BWA's Board	Includes: (i) an internal policy to promote the participation of PWD within the institution; (ii) a leadership training program specifically targeted at women, which might include mentoring plans, self-esteem, and assertiveness courses, and why gender and diversity matter in WASH.

Output Indicators	Corresponding Outcomes	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
4.4 BWA's Monitoring, Reporting and Verification (MRV) to track water quality, quantity, and climate-related parameters implemented	R.2.1, R.2.2, R.2.3.								1	1	Final Report form approved by BWA's Board	
4.5 BWA's project planning, management, and monitoring platform designed, integrated, and implemented	R.2.1, R.2.3	Platform	0	2024	1					1		Integrated with BWA's existing monitoring systems for project and financial management.
4.6 Government Analytical Service (GAS) laboratory capacity plan developed and implemented	R.1.3, R.2.1, R.2.2.	Plan	0	2024	1					1	Final Report, approved by GAS	Plan to address capacity challenges at GAS (personnel, equipment and training needs). Equipment can include upgrading obsolete equipment for determining organic environmental contaminants. Training to include soil analysis to meet increasing demand for soil testing.

Output Indicators	Corresponding Outcomes	Unit of measurement	BL value	BL year	Year 1	Year 2	Year 3	Year 4	Year 5	End of Project	Means of verification	Comments
4.7 BADMC's Farmers' Empowerment and Enfranchisement Drive (FEED) Program strengthened.	R.1.2, R.1.3, R.2.8.	Program	1						1	1	Final report approved by BADMC/MAFS	The plan will detail the nature of technical assistance packages, delivery protocols, expected results, and number of farmers benefitted
4.8 Stakeholder awareness and engagement plan designed/upgrade d and implemented	R.1.1, R.1.2.	Plan	0	2024					1	1	Final Report approved by BWA	Implementation of public awareness and stakeholder engagement campaigns to promote the benefits of wastewater reuse and build community support, with gender and diversity considerations

Country: Barbados

Division: WSA

Operation No.: BA-L1063

Year:2024

### Fiduciary Agreements and Requirements

**Executing Agency (EA):** Barbados Water Authority (BWA)

**Operation Name:** Barbados Climate Resilient South Coast Water Reclamation Project

#### I. Fiduciary Context of EA

##### 1. Use of country system in the operation<sup>1</sup>

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

##### 2. Fiduciary execution mechanism

<input checked="" type="checkbox"/>	Particularities of the fiduciary execution	The EA of the operation will be the BWA. A department called the Project Management Office, (PMO), that comes under the Office of the Chief Executive Officer (CEO) of BWA, will be ultimately responsible for the financial management responsibilities of the Program. For this purpose, the Finance Section of such office will work in direct coordination with the Financial Specialist of the Program Execution Unit (PEU) to be established under the Office of the Project Manager of the Project Management Office. In addition, financial execution will count on the support from the Finance Department of BWA.
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##### 3. Fiduciary Capacity

Fiduciary Capacity of the EA	<p>The PMO was established during 2017 under the approval of the Board of Directors of BWA. It has implemented an IDB-funded project Water and Sanitation Systems Upgrade (BA-L1015 or 2255/OC-BA), which was concluded in 2016. The execution of the said Loan gave BWA a solid experience and exposure to, among others, IDB financial management policies and internal control requirements. However, IDB has updated their procurement policies since the conclusion of the project, and there is a need to fill in specific fiduciary positions within the PMO with new personnel who will potentially be new to IDB project execution</p> <p>The PMO has implemented various infrastructure development programs, via loans and grants, from organizations such as the Caribbean Development Bank (CDB), the European Investment Bank (EIB), the Green Climate Fund (GCF), the CARICOM Development Fund, and CAF Development Bank.</p>
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<sup>1</sup> (Any system or subsystem that is subsequently approved may be applicable to the operation, in accordance with the terms of the Bank's validation).

It is expected that under a PMO, which will provide technical guidance with its experience, a fully staffed and dedicated PEU will be created to allow for strong fiduciary capacity to implement the operation.

#### 4. Fiduciary risks and risk response

Risk Taxonomy	Risk	Risk level	Risk response
Institutional	FINANCIAL MANAGEMENT- There are several factors that contribute to a Medium High: 1. Despite the PMO is established, a newly created PEU will be inexperienced, 2. Lack of a Project Operations Manual, (POM).	Medium-High	The Risk will be mitigated by the appointment and training, (on Bank policies and procedures) of a dedicated Financial Specialist, increased supervision activities in the early stages the creation of an Operations Manual with complete authority levels and process flow charts.
Institutional	If a procurement officer with the required skills is not contracted within the first month of execution of the project, key procurement activities will experience significant delays in the award of the contracts	Medium-High	Accelerate hiring process with involvement of highest management/executive levels of BWA
Internal processes	If systemic delays related to procurement, negotiation, closing, and initiation of contracts for key procurement activities are not resolved, this will impact the achievement of results associated which these activities	High	An in-depth assessment of the origin of such bottlenecks to be conducted or delegated by the Procurement, Audit and Finance Committee of the Board of Directors, and taking into consideration both: (a) internal processes under the responsibility of the Finance Department (Procurement Unit), the Project Management Office, and the Engineering Department, among others; and (b) external processes under the responsibility of the GPD and its Special Tenders Committee, and the Ministry of Finance, Economic Affairs and Investment (MFEI).
Institutional	If the necessary capacity building of BWA and the PEU is not conducted, the uptake of the use of IDB procurement policies will be slow and affect the overall execution of the project	Medium-High	Even though the in recent years and currently BWA has executed investment project with external funding from various funding agencies including CDB, EIB, and CAF, it is imperative that during the preparation and eligibility stages, the Bank's fiduciary team conducts the necessary training activities at BWA with respect to the adoption, application and compliance with Banks' procurement regulations and procedures.

5. Policies and Guides applicable to operation: The procurement processes financed in full or in part by Bank resources will be conducted in accordance with the Policies for the Procurement of Goods and Works Financed by the IDB (GN 2349-15) and the Policies for the Selection and Contracting of Consultants Financed by the IDB (GN 2350-15), or those in effect at the time of project execution.

6. Exceptions to Policies and Rules: A partial waiver is requested to the provisions of the Policies for the Procurement of Goods and Works Financed by the Inter-American Development Bank (document GN-2349-15, paragraph 1.8) and the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (document GN-2350-15, paragraph 1.13) so that firms, individuals, and goods originating from non-member countries of the Bank can participate in the selection, procurement and contracting processes relating to Component I of the Project.

## **II. Aspects to be considered in the Special Conditions of the Loan Agreement**

Exchange Rate: For purposes of Article 4.10 of the General Conditions, the Parties agree that the applicable exchange rate shall be that indicated in paragraph (b)(i) of said Article. For purposes of determining the equivalency of expenditures incurred in Local Currency chargeable to the Additional Resources or of the reimbursement of expenditures chargeable to the Loan, the agreed exchange rate shall be the exchange rate on the effective date on/in which the Borrower, the EA, or any other person or legal entity in whom the power to incur expenditures has been vested makes the related payments to the contractor, supplier, or beneficiary.

Type of Audit: Annual Audited Financial Statements (AFS) of the operation are to be submitted to the Bank within 120 days after the close of each fiscal period. In addition, Final AFS are due for submission to the Bank within 120 days of the close (last disbursement date) of the program. The AFS should report on the overall program and be in the expressed currency of the Loan. The AFS of the program should include, in addition to the main financial statements, an internal control report

## **III. Agreements and Requirements for Procurement Execution**

☒	Bidding Documents	For procurement of Works, Goods and Services Different of Consulting executed in accordance with the Procurement Policies (document GN-2349-15), subject to ICB, the Bank's Standard Bidding Documents (SBDs) or those agreed between EA and the Bank will be used for the particular procurement. Likewise, the selection and contracting of Consulting Services will be carried out in accordance with the Policies for the Selection and Contracting of Consultants (document GN-2350-15) and the Standard Request for Proposals (SRP) issued by the Bank or agreed between the EA and the Bank will be used for the particular selection. The revision of the technical specifications, as well as the terms of reference of the procurements during the preparation of selection processes, is the responsibility of the sectorial specialist of the project. This technical review can be ex-ante and is independent of the procurement review method.
☒	Recurrent Expenses	The recurrent expenses required to put the project into operation approved by the Project Team Leader, which are financed, will be made following the executing agency's administrative procedures. Such procedures will be reviewed and accepted by the Bank, provided that they do not violate the principles of value for money, economy, efficiency, equality, transparency, and integrity.



<input checked="" type="checkbox"/>	<p>Advanced Contracting Retroactive financing</p>	<p>The Borrower requested the Bank to proceed with the initial steps of procurement before signing the loan for the design and construction of the new South Coast Water Reclamation and Re-use Facility and the associated supervision services. As such, the Borrower has agreed that the procurement procedures, including advertising, will be in accordance with the Bank's Core Procurement Principles, prohibited practices, and eligibility for the eventual contracts to be eligible for Bank financing, and the Bank will review the process used by the Borrower. Borrower undertakes such advance contracting at its own risk, and any concurrence by the Bank with the procedures, documentation, or proposal for award does not commit the Bank to make and/or approve a loan for the project in question (See Section 1.11, of GN-2349-15). (See GN-2349-15, GN-2350-15 y I(a) Policy on Cost Recognition, Retroactive Financing and Advance Procurement (GN-2259-1)).</p>
<input checked="" type="checkbox"/>	<p>Special procurement provisions applicable to the operation</p>	<p>The applicable policies for co-financed procurement under component I will be those of the IDB (documents GN-2349-15, GN-2350-15). The IDB will be the lead cofinancing entity. The applicable thresholds for international competitive bidding or the selection of consulting firms under contracts jointly cofinanced by the EIB and the IDB will be €5 million for works and €200,000 for goods and services (consulting and non-consulting), or the equivalent in U.S. dollars. General and specific procurement notices will be published in a newspaper with national circulation or the official bulletin, the United Nations Development Business (UNDB) online, the Official Journal of the European Union (OJEU), or the IDB website. Contract awards will be published, at a minimum, in the UNDB online, the OJEU, and the IDB website.</p> <p>Pursuant to the antifraud policies and prohibited practices of the EIB, the IDB, respectively, all selection or bidding documents will include a covenant of integrity. In the event that a bidder makes a positive statement under this covenant, the banks will agree on the steps to be taken based on their own policies and procedures, which includes ruling on contract financing or the ineligibility of the bidding firm. The content of this commitment will be agreed upon by the financiers.</p> <p>-All protests will be processed collaboratively by the banks, with the IDB taking the lead. Protests received by the EIB will be sent to the IDB for review and final decision.</p> <p>-Other provisions that will apply to this operation are the mutual agreement between the IDB and the EIB for the exchange of information regarding investigations of prohibited conduct or practices, protests, and information related to procurement, as well as requirements of prohibitions for commercial and financial sanctions in each case.</p> <p>-Contract amendments that exceed 15% of the original contract value, or that exceed the amount of €5,000,000 for works or €200,000 for goods or services, will only be eligible with a joint no objection from the IDB and the EIB, under the terms of the respective cofinancing agreements.</p>

☒	Procurement supervision	The method of supervision shall be ex post, except in cases where ex ante supervision is justified. The supervision method((i)ex ante, (ii) Ex post o (iii) national system) must be determined for each selection process. The ex-post reviews will be each 6 months according to the Project Supervision Plan, subject to change during execution. Ex-post review reports will include at least one physical inspection visit(to verifies the existence of the acquisitions, leaving the quality check and compliance with specifications to the sector specialist), chosen from procurement processes subject to the ex-post review Percentage of Physically Reviewed Contracts - Not Less 10%]
☒	Records and Archives	BWA will be responsible for maintaining proper records and supporting documentation of all procurement processes financed with the project resources along with the relevant payment supporting documents in accordance with the terms of the loan contract.

### Main Acquisitions

Description of the procurement	Selection Method	New Procedures / Tools	Estimated Date	Estimated Amount US\$
Goods				
Repair, operation, and maintenance of hydraulic systems (automated pump system/sluice gate, other), including the scheduled removal of the sand bar.	International Competitive Bidding (ICB)		[06/15/2026]	1,250,000
Works				
Contracting under the EPC modality of the design and construction of the new South Coast Water Reclamation and Re-use Facility (SCWRRF) and the upgrade, refurbish, or replacement of equipment in the existing South Coast Sewage Treatment Plant (SCSTP).	International Competitive Bidding with Prequalification		[02/15/2024]	60,000,000
Design and installation of solar photovoltaic plant/panels (PV), and battery energy storage system (BESS) at the pumping station.	ICB		[09/15/2024]	14,000,000
Contracting of the installation of pipeline for irrigation, and a high-water mark catchment area.	ICB		[09/15/2024]	13,500,000

Description of the procurement	Selection Method	New Procedures / Tools	Estimated Date	Estimated Amount US\$
Consulting Firms				
International consultancy to conduct the supervision of the EPC design and construction of the new South Coast Water Reclamation and Re-use Facility (SCWRRF); and the upgrade, refurbish, or replacement of equipment in the existing SCSTP.	Quality- and Cost-Based Selection (QCBS)		[06/15/2024]	3,400,000

To access, see Procurement plan [here](#)

#### **IV. Agreements and Requirements for Financial Management**

<input checked="" type="checkbox"/>	Programming and Budget	Each year, the MFEI approves estimates of income and expenditure from ministries and other agencies for inclusion in the National Budget for the following fiscal year, April 1 to March 31.
<input checked="" type="checkbox"/>	Treasury and Disbursement Management	<p>The Project Cash Flow is characterized by advances, direct payment to suppliers and Direct Payment to Borrowers, (Re-Imbursements), and will use a dedicated account. The disbursement mechanism shall entail using the online disbursement methodology by default, with a paper-based method as a contingency. The operating currency will be USD, with the ability to make expenditure in local currency. The exchange rate to be used in the transaction will be the effective exchange rate on the date of payment of the expense in the local currency.</p> <p>A separate bank account will be established for the disbursement and management of resources disbursed to the loan and will be used to conduct all financial activities related to the loan resources in accordance with the terms and conditions specified in the Project Operations Regulations. The BWA, (inclusive of the PMO) commits to maintaining strict control over the utilization of the resources disbursed to ensure the easy verification and reconciliation of balances between the PEU's and IDB records. Bank policies allow for the following disbursement methodologies will be used for the program:</p> <ol style="list-style-type: none"> <li>a. Reimbursement of Payments Made.</li> <li>b. Direct Payment to Supplier.</li> <li>c. Advance of Funds (only to provide for the liquidity needs to meet eligible financial commitments, and to facilitate the day-to-day operations).</li> </ol> <p>The project will provide adequate justification of the existing Advance of Funds balance, whenever 65% of said balance has been spent. The reasons that make flexibility necessary are that the PEU will be executing several works of different characteristics, the execution mechanism is complex, and the administrative and financial systems and processes of the Government.</p>

		Advances will normally cover a period not exceeding 180 days and no less than 90 days.
<input checked="" type="checkbox"/>	Accounting, information systems and reporting	<p>The PMO deploys the ERP/accounting platform Sage AccPac for the financial administration of each individual externally-funded project under its umbrella. Under its present deployment, it has the following management capabilities: general ledger, accounts payable, accounts receivable, purchase order, multi-currency transactions, other.</p> <p>Most institutions of the Central Administration of the GOB, including statutory agencies have implemented and deployed the platform "CloudSuite" (previously SmartStream) to discharge their overall budget, accounting, and treasury administration responsibilities. The current capacities of such platform as procured by the MFEI (Treasury Department), include: (a) budget (estimates of income and expenditure and execution; (b) general ledger; (c) accounts and financials; (d) payables; (e) purchasing; and (f) vendor requests.</p> <p>Project accounting will be performed within the legal framework contained in the Financial Management and Audit Act (Act 2007-11) and corresponding Financial Management and Audit (Rules), 2011, and the Public Finance Management Act, 2019, which includes statutory agencies and corporations, IDB's financial management requirements; the modified cash basis of accounting, which is a comprehensive basis of accounting other an IFRS.</p>
<input checked="" type="checkbox"/>	Internal Control and Internal Audit	<p>The management of the project, at the level of both the Borrower and BWA level, will assume the responsibility for designing and implementing a sound system of internal control for the project.</p> <p>There exists at BWA an Internal Audit Unit, which reports to the Procurement, Audit and Finance Committee of the Board of Directors. The Internal Audit Unit discharges its responsibilities under its Internal Audit Charter, 1999 and follows the Global Internal Audit Standards as purported by the Institute of Internal Auditors (IIA) and the Public Finance Management Act, 2019. The scope is to evaluate and improve risk management, control, and governance processes about the operations of BWA and third-party engagements.</p> <p>Notwithstanding, activities of the Internal Audit Unit in BWA is severely constrained by the level of staffing which comprises four members including: Unit Manager, Internal Auditor, and Internal Audit Assistants (2).</p>
<input checked="" type="checkbox"/>	External control: external financial audit and project reports	For each fiscal year during project execution, BWA will be responsible to submit Audited Financial Statements, (AFS) for the loan, within 120 days after the close of each fiscal year. The audit shall be performed by independent auditors who have been previously accepted by the Bank or by a supreme audit institution previously accepted by the Bank, in accordance with auditing principles and standards acceptable to the Bank. The Borrower, directly or through the EA, as the case may be, shall authorize the supreme audit institution or the independent auditors to provide the Bank with such additional information it may reasonably request with respect to the external financial audit reports. A final AFS is to be submitted to the Bank within 120 days from the date of last disbursement.

<input checked="" type="checkbox"/>	Project Financial Supervision	<p>Financial Supervision will be developed based on the initial and subsequent risk assessments carried out for the program. Financial, Accounting and Institutional Inspection visits will be performed at least once per year, covering, among other things, the following topics:</p> <ul style="list-style-type: none"><li>a. Review of AFS findings.</li><li>b. Review of the bank reconciliations and supporting documentation for Advances and Justifications.</li><li>c. Review of compliance with the Project Operations Manual (POM).</li><li>d. Conducting ex-post reviews on an as needed basis.</li></ul>
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DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

PROPOSED RESOLUTION DE-\_\_\_/24

Barbados. Loan \_\_\_\_/OC-BA to the Government of Barbados. Barbados Climate Resilient South Coast Water Reclamation Project

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 Government of Barbados, as borrower, for the purpose of granting it a financing aimed at cooperating in the execution of the Barbados Climate Resilient South Coast Water Reclamation Project. Such financing will be for the amount of up to US\$40,000,000, 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 \_\_\_\_\_ 2024)