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Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 21-Apr-2024 | Report No: PIDIA00501

Public Disclosure Authorized

BASIC INFORMATION

A. Basic Project Data

Project Beneficiary(ies)	Region	Operation ID	Operation Name
Guyana	LATIN AMERICA AND CARIBBEAN	P503393	Guyana Coastal Adaptation and Resilience Project
Financing Instrument	**Estimated Appraisal Date**	**Estimated Approval Date**	**Practice Area (Lead)**
Investment Project Financing (IPF)	22-Apr-2024	15-May-2024	Urban, Resilience and Land
Borrower(s)	**Implementing Agency**		
Co-operative Republic of Guyana	Ministry of Agriculture		

Proposed Development Objective(s)

The project development objective is to enhance climate adaptation and reduce flood risk in urban and rural areas in the coastal plain of Guyana.

Components

Improving drainage infrastructure
Improving flood management and drainage operations
Project management

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)?	No
Is this project Private Capital Enabling (PCE)?	No

SUMMARY

Total Operation Cost	**45.00**
Total Financing	**45.00**
Financing Gap	**0.00**

DETAILS

Non-World Bank Group Financing	
Trust Funds	45.00
Guyana REDD Plus Investment Fund Program	45.00

Environmental And Social Risk Classification

Moderate

Decision

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **The Co-operative Republic of Guyana is a small, sparsely populated country endowed with fertile lands along its coast**, and valuable mineral resources (e.g., bauxite, gold, and diamonds) with recent offshore oil discoveries. Extensive tropical forests cover 85 percent of the country, with 90 percent of its approximately 800,000 inhabitants living along the narrow 459 kilometer long coastal plain (only 10 percent of Guyana's land area), where much of the economic activity (including the capital city, Georgetown, in Region 4) are concentrated. Flooding (due to heavy rainfall or high tides) – exacerbated by climate change and associated sea level rise – is an ongoing risk, particularly in the low-lying areas along the Atlantic coast.

2. **Historically Guyana's GDP per capita was among the lowest in South America, but this has seen rapid increases, and the country's economy has become one of the fastest growing in the world (mostly due to oil production)**. This began in 2019 and reached 278,000 barrels per day (bpd) in 2022. Economic growth since 2020 (averaging 42.3 percent per year) brought GDP per capita from US$6,477 in 2019 to over US$18,199 in 2022. Real GDP is estimated to have increased by 62.3 percent in 2022,[1] primarily driven by the expansion of oil production, as well as the non-oil economy. Guyana is expected to remain one of the fastest growing economies, with a double-digit growth rate in 2024, as additional oil fields start operation. The development of the oil and gas (O&G) sector has enabled a notable scale-up of investment in urban infrastructure.

3. **Guyana is among the countries most vulnerable to climate change.** It is at high risk from climate-related hazards, including increases in heavy rainfall leading to pluvial flooding, and coastal flooding from extreme tidal levels exacerbated by sea-level rise. Studies showed that the impact of rising sea levels would already be among the highest in the world, exposing 100 percent of the country's coastal agriculture and 66.4 percent of coastal urban areas to flooding and coastal erosion, with potential GDP losses projected to exceed 46.4 percent (even prior to the O&G discovery). Flooding from rainfall routinely affects residents during two rainy seasons each year, with extreme flooding having severe social and economic impacts particularly for poor and other vulnerable groups. In 2005, extreme rainfall caused widespread flooding in the coastal lowlands, affecting almost 39 percent of the population

[1] Annual Report 2022. Bank of Guyana. https://bankofguyana.org.gy/bog/images/research/Reports/ANNREP2022.pdf

with damage estimated at 59 percent of GDP. In 2021, similar extreme flooding affected all administrative regions, causing a loss of 9.1[2] percent in the agriculture sector, with overall losses totaling 12 percent of GDP,[3] highlighting the need to improve flood risk management capabilities. The economic impacts of flooding due to rainfall are forecast to increase approximately 60 percent by 2050 due to climate change. By mid-century, it is estimated that a tidal flood with a 20 percent chance of happening in any year would cause US$150 million of economic damage, while a rainstorm that has a 20 percent chance of happening in any year could flood 5,000 households and over 1,000 commercial or industrial buildings in Georgetown alone, causing around US$30 million of economic damage. Managing these climate risks through sustainable adaptation and development is critical to keeping Guyana on its trajectory of economic growth and to maintain a positive environment for private sector investment.

Sectoral and Institutional Context

4. **As a country that is highly vulnerable to climate change and climate-induced natural disasters, Guyana's national development is anchored in its recently revised Low Carbon Development Strategy 2030 (LCDS).**[4] The LCDS includes a medium-term priority to initiate investment in physical infrastructure (through upgrading of sectors such as water) on a low-carbon, non-polluting trajectory. Guyana's LCDS will inform, and was informed by, Guyana's Nationally Determined Contribution (NDC) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2016[5]. The NDC covers land use, energy, and climate adaptation. It reflects Guyana's position as a high-forest cover, low-deforestation jurisdiction (and therefore a predominant net carbon sink), whilst outlining areas of climate action in land-use and energy, and outlines programs for adapting to climate impacts and vulnerabilities. An integral element of the LCDS, Guyana's Climate Resilience Strategy and Adaptation Plan sets out a comprehensive and overarching framework for building resilience to climate change impacts, the key elements of which include: (i) emergency and extreme events/flood control and management, (ii) sea defense enhancement and maintenance, and (iii) strengthening drainage and irrigation systems.

5. **Since the 2005 floods, the Government of Guyana (GoG) has demonstrated its commitment to addressing the country's flood risk and climate resilience needs.** The GoG has taken an active role in coordinating the activities of development partners to maximize efficiency, notably by investing payments received from avoided deforestation into strategic low carbon sectors, including climate change adaptation. In 2009, the Governments of Guyana and Norway established the Guyana REDD+ Investment Fund (GRIF), through which Guyana earned US$212.6 million dollars (US$224 million including investment income) in payments for forest climate services (limiting emissions from deforestation and forest degradation) from Norway. The GRIF: (i) receives payments for forest climate services; and (ii) transfers these payments (and any investment income earned on these payments) into projects and activities that support the implementation of Guyana's LCDS, including this Project.

6. **Guyana's coastal drainage system, installed during Dutch and English colonial periods, consists of a unique, complex network of drainage and irrigation canals, culverts, sluices, and pumps**. The system allows discharge of inland waters into the Atlantic Ocean or rivers for flood mitigation purposes, and for irrigation of agricultural land. A seawall or dyke along the Atlantic Ocean protects the low lying coastal populations from coastal flooding. However, in the decades leading up to the 2005 and 2006 floods, the operational capacities of the coastal drainage systems declined due to insufficient physical investments and inadequate emergency preparedness and disaster risk

[2] Government of Guyana Budget Speech 2022 https://finance.gov.gy/wp-content/uploads/2022/01/Budget%20Speech%202022.pdf
[3] Guyana Second Voluntary National Review of the SDGs, July 2023. https://finance.gov.gy/wp-content/uploads/2023/07/Guyana_VNR-2023.pdf
[4] Guyana's Low Carbon Development Strategy 2030 (2022), https://lcds.gov.gy/
5 https://unfccc.int/documents/497557 and https://unfccc.int/sites/default/files/NDC/2022-06/Guyana%27s%20revised%20NDC%20-%20Final.pdf

management (DRM) capacity. Following the floods, the GoG re-emphasized the importance of flood risk management to Guyana's economic and social well-being, increasing the budget for the National Drainage and Irrigation Authority (NDIA) in the Ministry of Agriculture. The NDIA is responsible for the management, improvement, extension and provision of drainage, irrigation, and flood control infrastructure and services in Guyana.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

The project development objective is to enhance climate adaptation and reduce flood risk in urban and rural areas in the coastal plain of Guyana.

Key Results

The PDO will be measured by the following outcome-level indicators:

a. People with enhanced resilience to climate risks (disaggregated by gender) [number] - *CRI*
b. People provided with improved urban living conditions (disaggregated by gender) [number] - *CRI*
c. Area provided with improved drainage/irrigation services [ha] – *CRI*
d. Staff with enhanced capacity (NDIA and relevant agencies) to manage/operate/maintain drainage infrastructure [number]

D. Project Description

7. Guyana's coastal Regions 4, 5, 6, and the part of Region 3 east of the centerline of the Essequibo river are the geographic focus of this project. Characterized by a relatively densely populated strip of land, largely built from alluvial mud from the Amazon River, the four regions account for approximately 27 percent of GDP. An extensive network of over 1500 kilometers of drainage canals, over 300 sluices, and 182 pumps, combined with a 450-kilometer-long seawall have been built over the past centuries to protect these regions from pluvial flooding, saltwater intrusion, and coastal flooding.

Component 1: Improving drainage infrastructure (~US$ 40 million)

8. This component will finance civil works for the repair, rehabilitation, and replacement of approximately 45 existing eligible[6] drainage infrastructure, particularly sluices. In line with the project's focus on asset management (Component 2) and sustainability of investments, this Component may also finance goods and equipment for maintenance of drainage infrastructure. These investments will consider both existing and projected future land uses (rural, semi-urban, urban), population growth and urbanization, exposed assets, and relevant climate change impacts to support climate adaptation. The structural measures to be financed under this component will improve the functionality of the drainage sluices to: (i) discharge rainfall runoff efficiently, (ii) enhance protection against coastal/riverine flooding, and (iii) improve general drainage and irrigation services. Following a selection and prioritization process, sluices deemed to be eligible for financing under the project will be categorized into those requiring repairs (Category 1), significant rehabilitation (Category 2), and complete replacement (Category 3).

(a) *Sub-component 1.1 Repairs to existing sluices.* Category 1 drainage sluices are defined as needing repairs, within the existing footprint, with relatively small costs (e.g., less than 15 percent of full replacement). Repairs could include, for instance, a portion of the revetment surrounding the inlet/outlet channel to prevent progressive soil erosion/embankment instability, or replacement of the pulley system to lift the sluice doors.

[6] Low or Moderate E&S risk.

While small, these repairs are critical in that they enable the drainage functionality and/or safe operation of the sluice under current conditions. The condition of the main elements (main structure, doors, etc.) should be such that the remaining lifetime of the sluice can be extended via repairs for at least 10 years.

(b) *Sub-component 1.2 Rehabilitation or replacement of drainage infrastructure.* This sub-component will finance *in situ* rehabilitation (Category 2) and complete replacement (Category 3) of sluices. Category 2 sluices would need significant rehabilitation, but not complete replacement as the main structure has sufficient design life (at least 20 years) and the functionality (i.e., drainage capacity) remains adequate for the relevant catchment area and land use. Interventions may include the replacement of entire revetments/retaining walls or new sluice doors. Combinations of interventions may also be considered, although the total cost should not exceed a threshold (provisionally, 60% of full replacement). Should total rehabilitation costs exceed this threshold, complete replacement of the sluice (Category 3) would be considered to ensure cost-effectiveness, particularly with respect to design life and adapting to longer-term climate impacts. Category 3 structures would need to be completely replaced because: (i) the main structure can no longer be rehabilitated, (ii) the required functionality has changed significantly (e.g., due to urbanization of agricultural land), (iii) persistent overtopping by ocean waves requires vertical extension of the structure to better protect against sea-level rise, or (iv) coastal erosion has shifted the coastline inland and a sluice would be better protected and more functional farther inland. The footprint of the works will not be increased, and sites will be selected to minimize E&S impacts (low to moderate). New drainage and/or flood management works that replace existing structures will not be located on the Essequibo or Corentyne rivers, their tributaries, or connected canals.

(c) *Sub-component 1.3 Design and Construction Supervision***.** Consulting services for condition assessments, geotechnical/site investigations, feasibility studies, climate-informed detailed engineering designs, E&S assessments, procurement support, and construction supervision for Sub-component 1.1 and 1.2 activities will be financed under this sub-component. For Category 3 sluices, a detailed assessment of alternatives and additional climatological/hydrological/hydraulic analysis will be conducted to define the functional requirements and design approaches for climate adaptation.

Component 2: Improving flood management and drainage operations (~US$ 2.5 million)

9. This component will finance non-structural measures to strengthen the capacity of the MoA to manage and efficiently operate the drainage system, and thus reduce flood risk and support climate adaptation. This includes providing support for: (i) developing and upgrading the NDIA's asset management system and protocols/procedures, and the associated training; (ii) developing, updating, and harmonizing technical standards and guidelines for flood risk management in new urban developments; and (iii) guidelines, protocols, and training to build NDIA's and relevant agencies' personnel capacity to operate and maintain the drainage system.

Component 3: Project management (~US$ 2.5 million)

10. This component will finance specialist consulting services, goods, and equipment for the Project Implementation Unit (PIU) to effectively manage key functions, including planning, coordination, financial management (FM), procurement, and E&S throughout the implementation period. Specifically, this component will enable the PIU to provide technical and operational support for: (i) project management and coordination, including financial management and disbursement, procurement, contract administration, E&S risk and impact management, grievance redress mechanisms, training, and monitoring, reporting and evaluation; (ii) carrying out citizen engagement and social awareness activities; and (iii) incremental project operating costs.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Area OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

The Environmental and Social Risk Classification of the Project is Moderate. The activities of the Project are expected to contribute to positive environmental and social outcomes by financing structural and nonstructural measures to improve the resilience against flooding and enhance climate adaptation in urban, semi-urban, and rural areas in Guyana, enhance resilience against flooding, and improve local drainage and irrigation. The Project's Environmental risk rating is Moderate. The key environmental risks are risks to air, water, soil, and noise pollution; if not properly done, increased local-level water logging; generation and disposal of waste; and during construction stage risks such as occupational health and safety (OHS). These risks are likely to be temporary, predictable, reversible, located away from environmentally or socially sensitive areas, and can be managed through routine measures and known technologies. The Project's social risk rating is Moderate. Social risks are related to safety and health at work; low-moderate risk of labor influx; possible disruptions when works are ongoing that could affect community safety (increased traffic, noise, etc.); weak capacity of contractors to manage environmental and social risks and impacts, and low SEASH risks and impacts. At this stage, there are no identified risks of exclusion of vulnerable groups from the benefits of the Project. To avoid, minimize or mitigate the identified E&S risks and impacts; the project will develop mitigation measures Prior to appraisal, the Recipient will have prepared, consulted, and disclosed: (i) a draft Stakeholder Engagement Plan (SEP) with its Grievance Mechanism (GM); ((ii) draft terms of reference (ToRs) for the E&S assessments/ESMPs for Component 1 activities; and (iii) a draft Environmental and Social Commitment Plan (ESCP). The ESCP will be finalized during negotiations. The outcome of the E&S assessments will be considered in the design and implementation of project activities, and no activities will commence before the appropriate assessments and mitigation measures are in place. Also, consultations will be carried throughout the life of the Project with vulnerable groups - women, local communities, persons with disabilities, at-risk youth, groups vulnerable to disasters due to their geographical location, etc., to ensure that their concerns are taken into account into the design phase and construction of the work. The ESRC will be reviewed regularly during preparation and implementation to reflect the project's risk level.

E. Implementation

Institutional and Implementation Arrangements

The Ministry of Agriculture will be the Implementing Agency (IA) for the project, with overall responsibility for reporting on fiduciary matters and project progress to the Office of the President, Ministry of Finance, the GRIF Secretariat, and the World Bank. The MoA (particularly its Agriculture Sector Development Unit, ASDU, which implements major donor-financed capital projects) has been satisfactorily applying the World Bank’s Procurement Regulations for IPF Borrowers dated July 1, 2016 (revised in November 2017, July 2018, and November 2020). The MoA will carry out: (i) monitoring, coordination, and supervision of project activities; and (ii) fiduciary, procurement, E&S, and administrative aspects of the project. The NDIA will provide technical oversight of the activities and will take over O&M of the drainage infrastructure. In cases where the works will affect or require upgrading of sea defenses that are integral to the drainage infrastructure, the Ministry of Public Works, the Maritime Administration Department (MARAD), or other relevant agencies will provide

technical oversight, including construction design approval. The MoA (through ASDU) is the IA of the ongoing Guyana Flood Risk Management Project (P147250), has performed satisfactorily in carrying out similar activities, and has been consistently compliant with all E&S, FM, procurement, and project management requirements.

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APPROVAL

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